



# The Journal

OF THE

# American Medical Association

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EDITED FOR THE ASSOCIATION UNDER THE DIRECTION OF THE BOARD OF TRUSTEES BY

MORRIS FISHBEIN, M.D

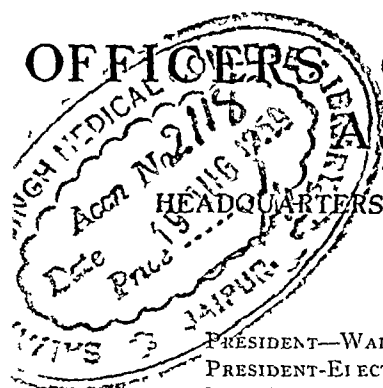
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- Acta Chirurgica Scandinavica Stockholm  
Acta Medica Scandinavica Stockholm  
Acta Obstetrica et Gynecologica Scandinavica Helsingfors  
Actas Dermo-Sifillograficas Madrid  
American Heart Journal St Louis  
American Journal of Anatomy Philadelphia  
American Journal of Cancer New York  
American Journal of Clinical Pathology Baltimore  
American Journal of Digestive Diseases and Nutrition Chicago  
\*American Journal of Diseases of Children A M A Chicago  
American Journal of Hygiene Baltimore  
American Journal of the Medical Sciences Philadelphia  
American Journal of Obstetrics and Gynecology St Louis  
American Journal of Ophthalmology St Louis  
American Journal of Orthopsychiatry Menasha Wis  
American Journal of Pathology Boston  
American Journal of Physiology Baltimore  
American Journal of Psychiatry New York  
American Journal of Public Health New York  
American Journal of Roentgenol & Rad Therapy Springfield Ill  
American Journal of Surgery New York  
American Journal of Syphilis and Neurology St Louis  
American Journal of Tropical Medicine Baltimore  
American Review of Tuberculosis New York  
Anatomical Record Philadelphia  
Annales de Dermatologie et de Syphiligraphie Paris  
Annales de Medicine Paris  
Annals of Internal Medicine Lancaster Pa  
Annals of Medical History New York  
Annals of Otolaryngology and Laryngology St Louis  
Annals of Lilliet Thomson Research Laboratory London  
Annals of Surgery Philadelphia  
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Archiv für Gynäkologie Berlin  
Archiv für Kinderheilkunde Stuttgart  
Archiv für Klinische Chirurgie Berlin  
Archiv für Verdauungs-Krankheiten Berlin  
\*Archives of Dermatology and Syphilology A M A Chicago  
Archives of Disease in Childhood London  
\*Archives of Internal Medicine A M A Chicago  
Archives des Maladies de l'Appareil Digestif Paris  
Archives des Maladies du Cœur Paris  
Archives de Medicine des Enfants Paris  
Archives Medico-Chirurgicales de l'Appareil Respiratoire Paris  
\*Archives of Neurology and Psychiatry A M A Chicago  
\*Archives of Ophthalmology A M A Chicago  
\*Archives of Otolaryngology A M A Chicago  
\*Archives of Pathology A M A Chicago  
Archives of Physical Therapy & Ray Radium Chicago  
\*Archives of Surgery A M A Chicago  
Archivio Italiano di Chirurgia Bologna  
Archivos de Cardiología y Hematología Madrid  
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Archivos de Neurobiología Madrid  
Beiträge zur Klinik der Tuberkulose Berlin  
Beiträge zur Klinischen Chirurgie Berlin  
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Bristol Medical-Chirurgical Journal  
British Journal of Anaesthesia Manchester  
British Journal of Children's Diseases London  
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British Journal of Urology London  
British Medical Journal London  
Bruxelles Medical Brussels  
Bulletin of the Johns Hopkins Hospital Baltimore  
California and Western Medicine San Francisco  
Canadian Medical Association Journal Montreal  
Canadian Public Health Journal Toronto  
Chinese Medical Journal Peking  
Chirurg Berlin  
Chirurgia degli Organi di Movimento Bologna  
Clinica Chirurgica Milan  
Clinica Medica Italiana Milan  
Clinical Journal London  
Colorado Medicine Denver  
Delaware State Medical Journal Wilmington  
Dermatologische Zeitschrift Berlin  
Dermosiflografo Turin  
Deutsche medizinische Wochenschrift Leipzig  
Deutsche Zeitschrift für Chirurgie Berlin  
Deutsche Zeitschrift für Verschiedenheilkunde Berlin  
Deutscher Archiv für Klinische Medizin Berlin  
East African Medical Journal Nairobi  
Edinburgh Medical Journal  
Endocrinology Los Angeles  
Finska Läkaresällskapet Handlingar Helsingfors  
Frankfurter Zeitschrift für Pathologie Munich  
Giornale di Clinica Medica Parma  
Glasgow Medical Journal  
Guy's Hospital Reports London  
Gynecologie et Obstétrique Paris  
Hospitalsidende Copenhagen  
Hygiea Stockholm  
Illinois Medical Journal Chicago  
Indian Journal of Medical Research Calcutta  
Indian Medical Gazette Calcutta  
International Journal of Psycho Analysis London  
Irish Journal of Medical Science Dublin  
Jahrbuch für Kinderheilkunde Berlin  
Japanese Journal of Experimental Medicine Tokyo  
Japanese Journal of Gastroenterology Kyoto  
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Journal of Bacteriology Baltimore  
Journal of Biological Chemistry Baltimore  
Journal of Bone and Joint Surgery Boston  
Journal de Chirurgie Paris  
Journal of Clinical Investigation New York  
Journal of Comparative Neurology Philadelphia  
Journal of Experimental Medicine New York  
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Journal of General Physiology New York  
Journal of Hygiene London  
Journal of Immunology Baltimore  
Journal of the Indiana State Medical Association Indianapolis  
Journal of Industrial Hygiene Baltimore  
Journal of Infectious Diseases Chicago  
Journal of Iowa State Medical Society Des Moines  
Journal of Kansas Medical Society Topeka  
Journal of Laboratory and Clinical Medicine St Louis  
Journal of Laryngology and Otolaryngology London  
Journal of Medical Association of Georgia Atlanta  
Journal of Medical Society of New Jersey Trenton  
Journal of Mental Science London  
Journal of Michigan State Medical Society Grand Rapids  
Journal of Missouri State Medical Association St Louis  
Journal of Nervous and Mental Disease New York  
Journal of Neurology and Psychopathology London  
Journal of Nutrition Philadelphia  
Journal of Obstetrics and Gynecology of British Empire Manchester  
Journal of Oklahoma State Medical Association McAlester  
Journal of Oriental Medicine South Manchuria  
Journal of Pathology and Bacteriology Edinburgh  
Journal of Pediatrics St Louis  
Journal of Pharmacology and Experimental Therapeutics Baltimore  
Journal of the Philippine Islands Medical Association Manila  
Journal of Physiology London  
Journal of South Carolina Medical Association Greenville  
Journal of State Medicine London  
Journal of Tennessee State Medical Association Nashville  
Journal of Thoracic Surgery St Louis  
Journal of Tropical Medicine and Hygiene London  
Journal of Urology Baltimore  
Kentucky Medical Journal Bowling Green  
Klinicheskaya Meditsina Moscow  
Klinische Wochenschrift Berlin

\* Cannot be lent

Lancet London	Quarterly Journal of Medicine Oxford
Laryngoscope St Louis	Radiology Syracuse N Y
Lisbon Médica	Review of Gastroenterology New York
Lyons Chirurgical	Revista Médica del Rosario Rosario de Santa Fe
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Maine Medical Journal Portland	Revue Française de Pédiatrie Paris
Medical Annals of District of Columbia Washington	Rhode Island Medical Journal Providence
Medical Bulletin of the Veterans Administration Washington D C	Riforma Medica Naples
Medical Journal of Australia Sydney	Rivista di Malariaologia Rome
Medical Press and Circular London	Schweizerische medizinische Wochenschrift Basel
Medicina Ibera Madrid	Science New York
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Monatsschrift für Geburtshilfe und Gynäkologie Berlin	Sovetskaya Psikhonevrologia Kharlov
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New England Journal of Medicine Boston	Texas State Journal of Medicine Fort Worth
New Orleans Medical and Surgical Journal	Tubercle London
New York State Journal of Medicine New York	Ugeskrift for Læger Copenhagen
Norsk Magasin for Lægevidenskaben Oslo	United States Naval Medical Bulletin Washington D C
Northwest Medicine Seattle	Virginia Medical Monthly Richmond
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Presse Médicale Paris	Zeitschrift für Hygiene und Infektionskrankheiten Berlin
Progrès Médical Paris	Zeitschrift für Kinderheilkunde Berlin
Progresos de la clinica Madrid	Zeitschrift für Klinische Medizin Berlin
Psychiatric Quarterly Albany N Y	Zeitschrift für Tuberkulose Leipzig
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Public Health Reports Washington D C	Zentralblatt für Chirurgie Leipzig
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# SUBJECT INDEX

This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation, "E," Editorial, "C," Correspondence, "ME," Medical Economics, "ab," abstract, the star (\*) indicates an original article in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." State board examinations are entered under the general heading State Board Reports, and not under the names of the individual states. Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

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Am—American  
A—Association  
Coll—College  
Conf—Conference  
Cong—Congress  
Conv—Convention  
Dist—District  
Hosp—Hospital  
Internat—  
International  
M—Medical  
Med—Medicine  
Nat—National  
Phar—Pharmaceutical  
Phys—Physicians  
Rev—Revision  
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## THE RÔLE OF THE GASTRO-INTESTINAL TRACT IN CONDITIONING DEFICIENCY DISEASE

THE SIGNIFICANCE OF DIGESTION AND ABSORPTION  
IN PERNICIOUS ANEMIA, PELLAGRA AND  
"ALCOHOLIC" AND OTHER  
FORMS OF POLY-  
NEURITIS

MAURICE B. STRAUSS, M.D.  
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Fifty-four years ago, Fenwick<sup>1</sup> wrote "The volume of the blood depends on the quantity of nutriment dissolved and absorbed by the digestive tract." Today one may expand his almost forgotten statement and say that the state of the blood and the integrity of the tissues of the body depend on the quantity and quality of nutriment dissolved and absorbed by the digestive tract. It is only within the past two decades that the qualitative as well as the quantitative aspects of nutrition have become generally known. Certainly it is only within the past few years that the importance of the role of the digestive tract has become apparent.

At the end of the nineteenth century the brilliant bacteriologic researches of Pasteur, Koch and those that followed them so overshadowed other developments in medicine that physicians became imbued with the thesis that only positive agents—the bacterium, the parasite, the toxin—could cause disease. In 1897, although Eijkman<sup>2</sup> clearly established the fact that a lack, a minus sign, a deficiency was responsible for beriberi, he was unwilling to accept such a heretical doctrine and suggested instead that foods such as polished rice, being overrich in starch produced a substance in the intestine which was poisonous to nerve cells and for which the outer layers of rice acted as an antidote. Each of the conditions considered in this paper has been thought in the past to be due to the action of similarly hypothetic toxins.

Eijkman, Hopkins, Mendel, McCollum and the host of others who have contributed to the modern knowledge of nutrition did so by means of studies on animals in which dietary deficiency disease was produced by the elimination of specific substances from the diet. A new concept, reviewed in this paper, is that deficiency disease in man may and frequently does develop because of some disturbance of the gastro-intestinal

tract in spite of an apparently adequate diet. Although Fenwick first suggested this possibility a half century ago, and numerous confirmatory observations have been recorded, the more immediate development of this concept is due to the fundamental work of Castle.<sup>3</sup>

In 1928, Castle demonstrated clearly for the first time that an asymptomatic abnormality of gastric secretion might condition a state of dietary deficiency irrespective of the adequacy of the diet. Since then, knowledge of the relationship of disorders of the gastro-intestinal tract to various dietary deficiency diseases has advanced rapidly. Pernicious anemia, pellagra, "alcoholic" and pregnancy polyneuritis, idiopathic hypochromic anemia, and the "toxemias" associated with intestinal obstruction and vomiting in pregnancy, among other conditions, may be due in many instances wholly or in part to deficiencies resulting from disturbances of the gastro-intestinal tract.

### PERNICIOUS ANEMIA

It has been known for many years that classic Addisonian pernicious anemia occurs in association with gastric anacidity. However, it remained for Castle's simple but ingenious observations to prove the etiologic role of a gastric defect.<sup>3</sup> He administered beefsteak daily to patients with pernicious anemia. No improvement occurred either clinically or in the state of the blood. Subsequently, beefsteak was eaten by a normal individual, recovered from his stomach after an hour, and administered to the same pernicious anemia patients with prompt improvement in the clinical aspect and the blood. This indicated that some process occurred in the normal human stomach which did not take place in the stomach in pernicious anemia.

It was next found that the reaction which occurred in the normal stomach could be produced equally well in vitro or in the stomach of the patient.<sup>4</sup> Beefsteak incubated with normal human gastric juice and then administered by tube or eaten by the patient and followed shortly by the administration of normal gastric juice was equally effective. However, gastric juice administered alone or twelve hours after the ingestion of beefsteak produced no response.<sup>4</sup> These observations indicated that gastric juice and beefsteak separately were inert and that there was a need for contact between them for this reaction.

Further experiments<sup>5</sup> showed that gastric juice freed from hydrochloric acid, pepsin and rennin

<sup>3</sup> Castle W B and Locke E A. Observations on the Etiologic Relationship of Achylia Gastrica to Pernicious Anemia. *J Clin Invest* 6: 2 (Aug) 1928.

<sup>4</sup> Castle W B and Townsend W C. Observations on the Etiologic Relationship of Achylia Gastrica to Pernicious Anemia. II. The Effect of the Administration to Patients with Pernicious Anemia of Beef Muscle After Incubation with Normal Human Gastric Juice. *Am J M Sc* 178: 764 (Dec) 1929.

<sup>5</sup> Castle W B, Townsend W C and Heath C W. Observations on the Etiologic Relationship of Achylia Gastrica to Pernicious Anemia. III. The Nature of the Reaction Between Normal Human Gastric Juice and Beef Muscle Leading to Clinical Improvement and Increased Blood Formation Similar to the Effect of Liver Feeding. *Am J M Sc* 180: 305 (Sept) 1930.

Read in part before the Section on Gastro-Enterology and Proctology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 15, 1933, and before the American Gastro-Enterological Association at Atlantic City, April 30, 1934.

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital and the Departments of Medicine and Tropical Medicine, Harvard Medical School.

<sup>1</sup> Fenwick Samuel. On Atrophy of the Stomach and on the Nervous Affections of the Digestive Organs. London: J & A Churchill, 1880.

<sup>2</sup> Eijkman Christiaan. Eine Beriberi-ähnliche Krankheit der Hühner. *Virchows Arch f path Anat* 148: 523, 1897.



remained equally effective in producing a satisfactory hematologic response in pernicious anemia after incubation with beefsteak. In addition, gastric juice obtained from a number of patients with achylia gastrica, who did not have pernicious anemia, was shown to react like normal gastric juice.<sup>6</sup> On the other hand, an artificial gastric juice prepared by the mixture of hydrochloric acid, pepsin and rennin and, in two instances, gastric juice containing normal amounts of acid and ferments recovered from two patients with atypical pernicious anemia were incapable of producing the reaction. It was shown that neither saliva nor pure duodenal secretion contains the "intrinsic factor" present in normal human gastric juice.

These observations indicated that pernicious anemia was a hitherto undescribed type of deficiency disease, one in which the deficiency was caused not by a defective diet but usually by the absence from the gastric juice of a specific heat-labile factor, that is not hydrochloric acid, pepsin, rennin or lipase.

Experiments carried out during the last few years<sup>7</sup> have shown that the "extrinsic factor" present in beefsteak is also present in the washed and precipitated proteins of beefsteak, in eggs, in autolyzed yeast, in wheat germ, in rice polishings, in an alcoholic extract of autolyzed yeast, and in hydrolyzed extracts of liver and that it is not destroyed by autoclaving at 120 C for five hours, a temperature which destroys vitamin B<sub>1</sub>. The substance is not associated with fats and carbohydrates and is not found in the two fairly complete proteins, casein and gluten, or in purified nucleoprotein and nucleic acid. In general, the distribution of the "extrinsic factor" that is capable of reacting with gastric juice to produce improvement of the blood in pernicious anemia closely approximates the distribution of vitamin B<sub>2</sub> (G), the antipellagra vitamin. However, there is considerable evidence at hand that these two substances, although associated, are not identical.<sup>8</sup>

If these observations are correct, an anemia identical with addisonian pernicious anemia and which corresponds to the classic type of deficiency disease should be produced by the deficiency of the dietary factor.<sup>9</sup> Indeed, the macrocytic anemia of the tropics described by Wills in India<sup>9</sup> is such a disease, and certain cases of pernicious anemia of pregnancy<sup>10</sup> and of sprue<sup>11</sup> fall into this class.

Furthermore, in consideration of Fenwick's apothem, other cases of anemia identical with addisonian pernicious anemia should be found in the presence of an adequate diet and a normal gastric secretion, because of inadequate absorption from the intestinal tract. The

first recorded case<sup>12</sup> of apparent pernicious anemia secondary to an intestinal disturbance occurred in a boy, aged 16 years, admitted to the service of Dr. Thomas Addison at Guy's Hospital in 1856. The colon at autopsy showed ulcerative and cicatricial lesions. Recently, Keefer and his associates<sup>13</sup> have shown that a blood picture similar to pernicious anemia may develop in association with the prolonged diarrhea of chronic bacillary dysentery. Vaughan and Hunter<sup>14</sup> have shown that the same blood picture may occur in connection with the malabsorption of celiac disease (idiopathic steatorrhea). No doubt this factor also operates in certain cases of sprue.

Furthermore, a number of cases identical with pernicious anemia have been reported in individuals suffering from various organic abnormalities of the intestinal tract, such as multiple intestinal anastomoses and partial intestinal stenosis. Faber<sup>15</sup> in 1895 made the first report of such a case. The autopsy disclosed two fibrous strictures of the small intestine. The strictures were probably secondary to a healed tuberculous process.

Meulengracht<sup>16</sup> reviewed the literature on this subject to 1929 and added cases of his own to make a total of twenty-two, eighteen due to strictures of the small intestine, three to strictures of the colon and one to stricture of the cecum. Seyderhelm and his associates<sup>17</sup> in a report on "pernicious anemia" in dogs, produced experimentally by operative stricture of the small intestine, mention a patient with pernicious anemia secondary to such a stricture who recovered when the intestinal abnormality was surgically eradicated. Little, Zerfas and Trusler<sup>18</sup> recently described a case of pernicious anemia of similar causation, in which, however, the anemia was not relieved when the bowel was restored to its normal state, but continued to require liver therapy. Schlesinger<sup>19</sup> found the intrinsic factor described by Castle in the stomach of a patient with pernicious anemia secondary to intestinal stenosis, so that in this instance there is clear evidence in favor of faulty absorption.

The youngest patient with pernicious anemia that we have seen in our clinic was a boy, aged 8 years, in whom, as a result of two operations for intestinal obstruction following appendectomy, short circuits developed between various loops of the small intestine. Another of our patients was a man whose diet for years has been adequate and whose gastric juice contained the intrinsic factor, but because there are multiple intestinal anastomoses, he presumably cannot absorb the necessary material for blood formation. At least four of the patients with pernicious anemia secondary to intestinal lesions have been relieved of their anemia without operative intervention since the introduction of liver therapy.

6 Castle W B, Heath C W and Strauss M B. Observations on the Etiologic Relationship of Achylia Gastrica to Pernicious Anemia. IV. A Biologic Assay of the Gastric Secretion of Patients with Pernicious Anemia Having Free Hydrochloric Acid and That of Patients Without Anemia or With Hypochromic Anemia Having No Free Hydrochloric Acid and of the Role of Intestinal Impermeability to Hematopoietic Substances in Pernicious Anemia. *Am J M Sc* 182: 741 (Dec.) 1931.

7 Strauss M B and Castle W B. The Nature of the Extrinsic Factor of the Deficiency State in Pernicious Anemia and in Related Macrocytic Anemias. Activation of Yeast Derivatives with Normal Human Gastric Juice. *New England J Med* 207: 55 (July 14) 1932. *Lancet* 2: 111 (July 16) 1932.

8 Wills L. The Nature of the Haemopoietic Factor in Marmite. *Lancet* 1: 1283 (June 17) 1933. Wills L and Naish A. A Case of Pernicious Anaemia Treated with Vitamin B from Egg White. *ibid* 1: 1286 (June 17) 1933.

9 Wills L. Treatment of Pernicious Anaemia of Pregnancy and Tropical Anaemia with Special Reference to Yeast Extract as a Curative Agent. *Brit M J* 1: 1059 (June 20) 1931.

10 Strauss M B and Castle W B. Studies of Anemia in Pregnancy. III. The Etiologic Relationship of Gastric Secretory Defects and Dietary Deficiency to the Hypochromic and Macrocytic (Pernicious) Anemias of Pregnancy and the Treatment of These Conditions. *Am J M Sc* 185: 539 (April) 1933.

11 Castle W B and Rhoads C P. Observations on the Etiology and Treatment of Sprue in Puerto Rico. *Tr A Am Physicians* 47: 245 1932.

12 White W H. On the Pathology and Prognosis of Pernicious Anemia. *Guy's Hosp Rep* 42: 149 1890.

13 Keefer C S, Yang C S and Huang K K. Anemia Associated with Chronic Dysentery. Clinical Considerations with Special Reference to the Cause and Treatment. *Arch Int Med* 47: 436 (March) 1931.

14 Vaughan J M and Hunter Donald. The Treatment by Marmite of Megalocytic Hyperchromic Anaemia. *Lancet* 1: 829 (April 16) 1932.

15 Faber K. Pernicious Anaemia som Følge af Tarmlidelse. *Hospital stud* 4: 601 1895.

16 Meulengracht E. Pernicious Anemia in Intestinal Stricture. *Acta med Scandinav* 72: 231 1929.

17 Seyderhelm R, Lehmann W and Wichels P. Intestinale pernicious Anämie beim Hund durch experimentelle Dunndarmstricturen. *Krankheitsforschung* 4: 263 (May) 1927.

18 Little W D, Zerfas L G and Trusler H M. Chronic Obstruction of the Small Bowel. The Result of Two Entero-Enterostomies and Apparently the Cause of Pernicious Anemia. *J A M A* 93: 1290 (Oct 26) 1929.

19 Schlesinger A. Nachweis des Antipernicious Prinzips im Magen saft einer Patientin mit perniziösen anämischen Blutbild bei Dunndarmstenose. *Klin Wchnschr* 12: 298 (Feb 25) 1933.

It thus appears that pernicious anemia may result from any one of three mechanisms or from any combination of them (1) the lack of a digestive juice in the stomach, (2) the absence of a substance associated with vitamin B (G) from the diet or (3) the failure of absorption from the intestinal tract of the product of interaction of the stomach and dietary factors

## PELLAGRA

Pellagra as commonly seen in the endemic form, is probably due essentially to the lack of vitamin B (G) in the diet. In the North however, with rare exceptions, pellagra is seen in individuals who have organic lesions or abnormalities of the gastro-intestinal tract or who are habitual alcoholic addicts. Spies and DeWolf<sup>20</sup> have shown that 'alcoholic' pellagra is identical with the endemic pellagra of the South. The effects of overindulgence in alcohol on the gastro-intestinal tract are so well known that they need not be discussed here. It is possible therefore that alcoholic pellagra may result from the combination of these gastro-intestinal disturbances, particularly the anorexia, vomiting and diarrhea, and the moderately faulty diet of many alcoholic subjects. Zimmerman, Cohen and Gildea<sup>21</sup> suggest that disturbances of digestion or disordered absorption may exist in these individuals so that vitamin B<sub>2</sub> will be wholly ineffective when administered by mouth but effective by parenteral injection. This, however, is as yet unproved.

Fifteen cases of pellagra secondary to cancer of the stomach, usually with an associated pyloric obstruction, have been reported by seven different authors,<sup>22</sup> and three cases secondary to pyloric obstruction from peptic ulcer have also been noted.<sup>23</sup> Cancer of the terminal ileum has been followed by pellagra in three instances.<sup>24</sup> Rectal stricture has been associated with the subsequent development of pellagra sixteen times.<sup>25</sup> Among miscellaneous diseases of the gastro-intestinal tract which have resulted in pellagra may be mentioned ulcerative colitis, five times,<sup>26</sup> gastro-enterostomy, five times,<sup>27</sup> jejunostomy, twice,<sup>28</sup> gastric syphilis, twice,<sup>29</sup> and esophageal stricture,<sup>22c</sup> duodenal feeding,<sup>30</sup> jejunal stenosis,<sup>22d</sup> ileac stenosis,<sup>22d</sup> dilatation of the colon<sup>30</sup> cloaca,<sup>22d</sup> amebic dysentery,<sup>22d</sup> and rectovaginal fis-

tula,<sup>22d</sup> once each. In addition, Boggs and Padget<sup>22f</sup> have noted four cases of pellagra secondary to diarrhea associated with rectal disease and four cases secondary to cancer of the gastro-intestinal tract (location not specified).

In this clinic pellagra has been observed secondary to ulcerative colitis, mucous colitis, carcinoma of the stomach, duodenal ulcer, diaphragmatic hernia, and stenosis of the small intestine. In most of these cases the gastro-intestinal lesion has prevented the patient from partaking of an adequate diet. However, in at least ten instances the diet was entirely adequate for the prevention of pellagra in an individual with a normal gastro-intestinal tract. A case mentioned by Boggs and Padget<sup>22f</sup> is of particular interest because the patient, who had a cancer of the stomach, was on a liver diet for the prevention of anemia, yet pellagra developed. The fact that pellagra is usually seen in the North in association with chronic alcoholism or gastro-intestinal lesions suggests that the gastro-intestinal tract plays an important role in conditioning this deficiency disease.

## MULTIPLE NEURITIS (BERIBERI)

Peripheral polyneuritis is endemic in the Orient and Labrador, where it is not an uncommon disease. In these regions the etiologic factor appears to be chiefly a faulty intake of vitamin B<sub>1</sub>. As is the case with pellagra, polyneuritis is rarely seen in the northern portion of the United States except when it is conditioned by gastro-intestinal factors. The most common of these factors is chronic alcoholism. Since John Coakley Lettsom<sup>31</sup> in 1787 first described 'alcoholic' polyneuritis, a direct neurotoxic effect of alcohol has been considered to be the causative agent. Six years ago, however, Shattuck<sup>32</sup> suggested the possibility that a deficiency was the cause of this disease. Subsequently Minot, Cobb and I<sup>33</sup> investigated the gastro-intestinal function and dietary histories of fifty-seven patients with alcoholic polyneuritis. We found that over 80 per cent of our patients had gastric anacidity or hypacidity and that 95 per cent had partaken of grossly inadequate diets. Nausea, anorexia and vomiting were common complaints and led to further dietary deficiency. Recently, in order to rule out still further any possible direct neurotoxic effect of alcohol, six patients with alcoholic neuritis have been given between a pint and a quart of whiskey daily, or the approximate amount they had taken daily for a long time before the observations were made. Relief of the neuritis under this regimen has occurred during the oral and hypodermic administration of large quantities of vitamin B.

The 'toxic' polyneuritis of pregnancy has been considered the result of a direct poisoning from a neurotoxin elaborated by the fetus or placenta. A recent report<sup>34</sup> gives a mortality rate of 76 per cent in this disease. Last year McDonald and I<sup>35</sup> pointed out the clinical and pathologic identity of this condition and beriberi and recorded the successful treatment of three cases of polyneuritis of pregnancy by the administration of adequate amounts of vitamin B. The disease occurs only after 'pernicious vomiting' of pregnancy.

31 Lettsom J C. Some Remarks on the Effects of Lignum Quassiae. *Amarac Mem M Soc London* 1: 128 1779 1787.

32 Shattuck G C. Relation of Beriberi to Polyneuritis from Other Causes. *Am J Trop Med* 8: 539 (Nov) 1928.

33 Minot G R, Strauss M B and Cobb Stanley. Alcoholic Polyneuritis. Dietary Deficiency as a Factor in Its Production, New England J Med 208: 1244 1249 (June 15) 1933.

34 Platt E D and Mergert W F. Gestational Polyneuritis. *J A M A* 101: 2020 (Dec 23) 1933.

35 Strauss M B and McDonald W J. Polyneuritis of Pregnancy. A Dietary Deficiency Disorder. *J A M A* 100: 1320 (April 29) 1933.

20 Spies T D and DeWolf H F. Observations on the Etiological Relationship of Severe Alcoholism to Pellagra. *Am J M Sc* 186: 521 (Oct) 1933.

21 Zimmerman H M, Cohen L H and Gildea, E F. Pellagra in Association with Chronic Alcoholism. *Arch Neurol & Psychiat* 31: 290 (Feb) 1934.

22 (a) Rolph F W. Cancer of the Stomach and Pellagra in the Same Patient. *Canad M A J* 6: 323 (April) 1916. (b) Bryan R C. Cancer of the Stomach with Associated Pellagra. *Virginia M Monthly* 46: 107 (Aug) 1919. (c) Bender W L. Pellagra Secondary to Lesions of the Stomach Interfering with Nutrition. *J A M A* 84: 1250 (April 25) 1925. (d) Turner R H. Pellagra Associated with Organic Disease of the Gastro-Intestinal Tract. *Am J Trop Med* 9: 129 (March) 1929. (e) Eusterman G B and O'Leary P A. Pellagra Secondary to Benign and Carcinomatous Lesions and Dysfunction of the Gastro-Intestinal Tract. Report of Thirteen Cases. *Arch Int Med* 47: 633 (April) 1931. (f) Boggs T R and Padget P. Pellagra. *Bull Johns Hopkins Hosp* 50: 21 (Jan) 1932. (g) Crutchfield E D. Pellagra. *Arch Dermat & Syph* 17: 650 (May) 1928.

23 Eusterman and O'Leary<sup>22e</sup>. Meyer A. Sporadische Pellagra in Mitteleuropa. *Klin Wchnschr* 11: 451 (March 12) 1932.

24 Nuzum F R. Pellagra Associated with Annular Carcinoma of the Terminal Portion of the Ileum. *J A M A* 55: 1861 (Dec 12) 1925.

25 Cabot R C. A Case with Anasarca Cyanosis Symmetrical Dermatitis Diarrhea Mass in the Abdomen and Psychosis. *Boston M & S J* 197: 1319 (Jan 12) 1928.

26 Turner<sup>22a</sup>. Joyce T M and Seabrook D B. Stricture of the Rectum as an Indirect Cause of Pellagra. *Northwest Med* 24: 284 (June) 1925.

27 Turner<sup>22a</sup>. Eusterman and O'Leary<sup>22e</sup>. Barnes J M. Typical Pellagra Syndrome Developing in a Patient with Chronic Ulcerative Colitis While Under Hospital Treatment. *Ann Clin Med* 4: 552 (Jan) 1926.

28 Govaerts P. Pellagre consecutive a des troubles digestifs. *Bull Acad roy de med de Belgique* 12: 672 1932.

29 Eusterman and O'Leary<sup>22e</sup>. Morawitz P and Mancke, R. Sekundäre Pellagra. *Arch f Verdauungskr* 55: 3 (Jan) 1934.

30 Bender<sup>22c</sup>. Eusterman and O'Leary<sup>22e</sup>.

31 Thaysen T E H. Secondary Pellagra. *Acta med Scandinav* 78: 513 1932.

It is thus apparent that the failure of the gastro-intestinal tract to retain food can cause this deficiency disease.

The French literature contains reports by four different authors of six cases of polyneuritis associated with pyloric stenosis secondary to peptic ulcer.<sup>36</sup> In all these cases there had been incessant vomiting caused by the obstruction, so that they were analogous to cases of polyneuritis in pregnancy following vomiting. Two of the patients were relieved by gastro-enterostomy. At the present time a discussion of the theory that a neurotoxic substance was formed in the retained contents of the dilated stomach is hardly necessary.

Five cases of beriberi secondary to celiac disease have been reported by Haas,<sup>37</sup> Keefer and Yang,<sup>38</sup> noted two cases resulting from chronic bacillary dysentery, and Eusterman and O'Leary,<sup>22c</sup> and Jones and Jones.<sup>39</sup> have observed it in ulcerative colitis. Kohn,<sup>40</sup> and Viets and Allen<sup>41</sup> report polyneuritis secondary to gastro-enterostomy, and Urmey and his associates<sup>42</sup> have reported a case in a patient with an entero-enterostomy which short-circuited all but 24 inches (61 cm.) of small bowel. A case of polyneuritis secondary to a stricture of the sigmoid is also on record.<sup>43</sup> McVicar<sup>44</sup> observed two cases of polyneuritis in patients with jaundice. Study of the case histories reveals the fact that one patient lost more than 200 pounds (90.7 Kg.), and the second patient had excessive vomiting and diarrhea. Three cases of polyneuritis occurring in patients with persistent vomiting following operations on the biliary tract are recorded.<sup>45</sup> In the last five years at the Boston City Hospital, beriberi has been observed secondary to duodenal ulcer three times and once each secondary to gastric carcinoma, gastric polyps, and the Plummer-Vinson syndrome.

It thus appears that gastro-intestinal disturbances practically always condition the development of beriberi in those regions where it is not endemic.

#### OTHER CONDITIONS

Thus far the role of the gastro-intestinal tract in conditioning deficiencies of various parts of the vitamin B complex have been considered. Although scurvy and rickets, even in the temperate zone, are usually due to a direct dietary lack, certain cases of the former have been observed in adults suffering from peptic ulcer, and osteomalacia and tetany have been reported secondary to the disturbed intestinal absorp-

tion accompanying celiac disease<sup>46</sup> and sprue.<sup>47</sup> The more severe grades of iron deficiency manifested in hypochromic anemia are so commonly associated with faulty gastric secretion that the name "achlorhydric anemia" has been proposed. Both intestinal obstruction and the "pernicious" vomiting of pregnancy are associated with a "toxic" state considered in the past to be due to the absorption of a toxin formed in the obstructed intestine or by the production of conception. Within the past decade it has been demonstrated that the toxic symptoms following obstruction of the bowel are due to a loss of water and electrolytes from vomiting. If these materials are introduced into the bowel below the obstruction or administered parenterally, toxic symptoms do not appear. Recently the clinical, chemical and pathologic picture of pernicious vomiting in pregnancy has been reproduced experimentally in animals made to vomit by the administration of apomorphine.<sup>48</sup> The results of these experiments suggest that the toxic symptoms are due solely to the loss of water and electrolytes and hence are a manifestation of a deficiency rather than of a toxemia.

#### SUMMARY

Dietary deficiency diseases, particularly pernicious anemia and related macrocytic anemias, idiopathic hypochromic anemia, pellagra and "alcoholic," pregnancy and other forms of polyneuritis, among other conditions, in the temperate zone, are more frequently caused by conditioning gastro-intestinal disturbances than by inadequate diets.

### EVALUATION OF THE CAPILLARY RESISTANCE TEST IN THE DIAGNOSIS OF SUBCLINICAL SCURVY

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In the field of nutrition there have been evolved methods for the determination of deficiencies of the various vitamins in the diet. These methods, now definitely established, apply to both manifest and latent avitaminosis. The search is still continuing for finer methods which will detect the earliest manifestations—even before clinical signs become evident. In this connection there have recently appeared a number of papers concerning the antiscorbutic vitamin C.

Hess<sup>1</sup> in 1914 demonstrated, by means of the blood pressure tourniquet, the increased fragility of the blood capillaries in manifest scurvy as evidenced by the development of petechial spots along the forearm. He found that the test was positive in the majority of cases of this disease, indicating a weakness of the capillary vessel walls due to a failure on the part of the endothelial cells to form cement substance. In 1928 Ohnell,<sup>2</sup> too, established the value of the capillary resistance test in detecting cases of latent scurvy in a group of twenty-two cases in which vitamin C was entirely lacking or

36 (a) Duverney. *Neurites peripheriques toxiques liees a de la retention gastrique*. Lyon med. **109** 53 (July 14) 1907. (b) Courmes and Conos. *Polyneurite dans l'ulcere gastrique*. L'Encephale **7** 423 (Nov. 10) 1909. (c) Klippel M. and Weil M. P. *Les complications nerveuses de l'ulcere de l'estomac (polyneuritides et pseudo tabes polyneuritique)*. Presse med. **753** (Sept. 23) 1911. (d) Liberti E. *Stenose ulcereuse du pylore accompagnee de pseudotabes poly neuritique chez un syphilitique ancien*. Arch. d. mal. de l'app. digestif **20** 493 (April) 1930.

37 Haas S. V. *Beriberi in Late Infancy. The Result of Celiac Disease*. Arch. Pediat. **46** 467 (Aug.) 1929.

38 Keefer C. S. and Yang C. S. *The Treatment of Secondary Anemia*. Arch. Int. Med. **48** 537 (Oct.) 1931.

39 Jones C. M. *Peripheral Complications of Ulcerative Colitis*. M. Clin. North America **16** 919 (Jan.) 1933.

40 Kohn S. *Mitteilungen über einige seltene Krankheiten fälle aus der privaten Praxis*. Prager med. Wchnschr. **35** 584 1910.

41 Viets, H. R. and Allen A. W. Quoted by Urmey Ragle Allen and Jones.<sup>42</sup>

42 Urmey T. V. Ragle B. H. Allen A. W. and Jones C. M. *Beriberi Secondary to Short Circuited Small Intestine*. New England J. Med. **210** 251 (Feb. 1) 1934.

43 Poljakoff W. and Choroschko W. *Polyneuritis und Bacterium coli*. Deutsche med. Wchnschr. **33** 1452 (Sept. 5) 1907.

44 McVicar C. S. *Jaundice Associated with Peripheral Neuritis*. M. Clin. North America **11** 1415 (May) 1928.

45 Cornils E. *Zentralbl. f. innere Med.* **45** 1065 (Dec. 20) 1924. abstr. J. A. M. A. **84** 479 (Feb. 7) 1925. Christopher F. Paskind H. A., and Snorf L. D. *Multiple Neuritis Following Biliary Tract Operations*. Am. J. Surg. **22** 280 (Nov.) 1933.

46 Bennett I. Hunter Donald and Vaughan J. M. *Idiopathic Steatorrhoea (Gee's Disease). A Nutritional Disturbance Associated with Tetany Osteomalacia and Anaemia*. Quart. J. Med. **1** 603 (Oct.) 1932.

47 Baumgartner E. A. and Jewett C. H. *Tropical Sprue. Experience with Thirty Six Cases*. Arch. Int. Med. **46** 597 (Oct.) 1930.

48 Strauss M. B. to be published. From the Home for Hebrew Infants.

1 Hess A. F. *Infantile Scurvy. The Blood, the Blood Vessels and the Diet*. Am. J. Dis. Child. **8** 386 (Dec.) 1914.

2 Ohnell H. *Experiences of Endemic Manifest and Latent Scurvy in Sweden with Special Reference to New Methods of Diagnosing Latent Scurvy*. Acta med. scandinav. **68** 176 1928.

was taken in very small quantities. In 1931 Gothlin,<sup>3</sup> with the aid of this test, inquired into the possibility of revealing much milder deficiencies in vitamin C, namely, "such as lie between the smallest discernible deviation from a normal vitamin C level and the highest deviation possible without giving rise to actual symptoms of the disease." The latter class together with the latent and manifest scurvy form a complex which might be termed vitamin C undernourishment.

The technique of Gothlin's method<sup>4</sup> essentially consists in the application of the cuff of a blood pressure apparatus to the arm for a period of fifteen minutes at a pressure of 50 mm of mercury and later of 35 mm of mercury. The number of petechiae appearing at the bend of the elbow (in a marked area of 60 mm) is counted. From this test he concludes that (for healthy members of the Nordic race), if a pressure of 50 mm of mercury for fifteen minutes does not produce more than four petechiae, the vitamin C standard is normal. If 50 mm of mercury produces more than eight petechiae or if 35 mm of mercury produces more than one petechia he deduces that the subject is not receiving a sufficiency of vitamin C.

Gothlin's experience with this test is a considerable one. In the spring of 1930 he found 18 per cent of a group of fifty healthy school children in the northern part of Sweden exhibiting a subnormal strength of the capillaries. Six of these children then had added to their diet one or two large oranges daily. Tests made a few weeks later showed "the capillaries to have attained normal or almost normal strength." On a closer analysis of these six cases, however, it is seen that at the end of the period when orange juice was given three of the cases showed negative capillary resistance tests, the fourth was on the borderline of normality (seven petechiae), the fifth showed an improvement but was still positive at the end of five weeks, and the sixth case became definitely worse.

Gothlin has ascertained the minimum antiscorbutic protective dose to be from 0.7 cc to 1 cc of orange juice per kilogram of body weight. The children that he studied had received from 60 to 120 cc of orange juice daily, an amount that is considered adequate protection against scurvy, and yet only 50 per cent of his cases showed by the capillary resistance test that they had responded to the treatment given.

In a later<sup>5</sup> and more extensive survey made in April 1931, of school children (in districts north of the arctic circle), it was found that the number showing positive capillary resistance tests varied in different localities from 5.9 to 21.5 per cent. It was ascertained that the children were receiving a diet poor in vitamin C.

Because of my interest in this subject I carried out at the Home for Hebrew Infants in February 1933 a study of a group of twenty-three healthy young children, ranging in age from 19 to 40 months. The children at this institution live under ideal hygienic conditions and their diet is carefully planned and supervised, due attention being given to adequate supple-

ments of antirachitic and antiscorbutic substances. Only such children were selected who at the time of examination and for a period of two months preceding this examination were free from any acute illness that might have influenced the strength of the capillaries. In making the capillary resistance test a pressure of 50 mm of mercury was used.

Of the entire group that were considered to have received adequate antiscorbutic protection, there were five who showed positive tests (21.7 per cent). In three of the positive cases an additional amount (60 cc) of orange juice was then given each day for a period of three weeks. At the end of this time two of the cases were still positive and one became negative. Only one observation was made before the administration of orange juice. A single observation is insufficient, as will be seen later from the variable results obtained when the same child is tested at different times.

However, in order to make this study more nearly comparable to that of Gothlin's group, I investigated a group of sixty-five older school children, ranging in age from 9 to 14 years, and about equally divided as to sex. These tests were begun in February 1933 and

Summary of Cases Showing Positive Capillary Resistance Test\*

Case	1		2		3		4		5		6		7		8	
	C S		M L		M L		A M		N G		L S		M C		V D	
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
February	10															
March		4		2				8		8		18				
April	26	3	5	4	24	10				6		3				0
April	30	4	2	2						3	6	22	2			
May	8	18			11	9	6	2				5	13			
June	5	13	10	1	5	7	12	0				0	0			
October	9	4	11	14	11	1	8	1	4	1						
October	0	0	0	1	9	7	10	3	14	12						
November	0	14	2	0	2	0	0	0	6	1				8	1	
December	2	4			8	3										9
January	3	1	3	2	4	1	5	0						3	1	2
April																6

\* Figures indicate number of petechiae on L = left arm R = right arm

continued at intervals of not less than fourteen days up to the end of the school year in June and then started again in October and terminated in April 1934. These children were mostly of Jewish extraction and exceedingly well nourished. Their diets included adequate amounts of fresh fruits, vegetables and milk. Without exception they stated that orange juice was part of the daily diet. In fact in the neighborhoods in which these children live a variety of fresh fruits and vegetables are to be had at all times of the year at the stores. There is no doubt, then, that these children were receiving a sufficient amount of the antiscorbutic vitamin in their dietary.

Of the sixty-five children studied it was found that six, or 9.2 per cent, showed a positive reaction to the capillary resistance test. The summary of these data in the positive cases is shown in the accompanying table (cases 1 to 6). The results show re-examinations in some of the cases at ten different times, whereas Gothlin retested his cases once and in two instances twice. The point that I wish to make is that the variation is so great from time to time that it is only by repeated testing that such differences can be demonstrated. These variations made it impossible for me to conduct the therapeutic test with orange juice which I had planned, because a period during which a positive reaction to the test was constant did not present itself.

<sup>3</sup> Gothlin G F. A Method of Establishing the Vitamin C Standard and Requirements of Physically Healthy Individuals by Testing the Strength of Their Cutaneous Capillaries. *Scandinavian Arch f Physiol* 61: 225 (May) 1931.

<sup>4</sup> Gothlin G F. Outline of a Method for the Determination of the Strength of the Skin Capillaries and the Indirect Estimation of the Individual Vitamin C Standard. *J Lab & Clin Med* 18: 484 (Feb) 1933. Stocking R E. Application of the Capillary Resistance Test as a Measure of Vitamin C Nutrition. *Arch Pediat* 50: 823 (Dec) 1933.

<sup>5</sup> Falk G, Gedda K O and Gothlin G F. An Investigation of the Skin Capillaries and Indirectly into the Vitamin C Standard of School Children in the District of Norrbotten North of the Arctic Circle. *Uppsala Lakaref forh* 35: 1 1932.

At first I tested the capillary strength of one arm at each examination. In subsequent tests I observed the capillary strength of both arms each time. It is in this latter procedure that my technic differs from that of Gothlin, for he studied one arm each time. That this difference in procedure is justified may be seen from the table, which shows that more positive cases were obtained when both arms were tested than when one was tested alone. If the results obtained in case 3 are inspected it will be found that on eight occasions in which both arms were tested the result on the right side was positive only twice whereas it was positive five times on the left. Case 1 shows four positive tests on the left and three positive tests on the right. Case 4 never showed a positive test on the right side. Consequently I feel that had I not made tests on both arms some positive observations might have been missed.

If the number of petechiae observed in the eight positive cases are totaled, it is to be noted that there were almost twice as many on the left side as on the right. I cannot explain this difference satisfactorily.

I next studied a smaller group of sixteen malnourished school children (of about the same ages as in the first group) in one of the poorer sections of the city. The nationalities represented were Italian, Polish, Swedish and Jewish. The families were all getting home relief from the city. The physical condition of these children was far inferior to the other group. Their dietary was not generous and contained only a small supply of fresh fruits and vegetables at irregular intervals. In this group I found during December and January two positive cases (cases 7 and 8, 12.5 per cent), an incidence approximating the group of well nourished children.

#### COMMENT AND CONCLUSIONS

The integrity of the capillary vessel wall is affected by chemical and physical as well as nervous influences. Gedda's<sup>6</sup> investigation also shows a seasonal influence, for he found that the number of petechiae in May was almost double the number in September in healthy subjects. As pointed out by Dalldorf,<sup>7</sup> a consistent feature of the measurements of capillary resistance is the occurrence of differences between persons, and this constitutes a serious limitation to the use of the test. Hess, in his extensive experience with scurvy, found that there were decided individual variations in regard to the reaction to the test, so that "although it is true that petechial spots are far more numerous in individuals suffering from latent or active scurvy, the reaction cannot be used as evidence of a deficiency in vitamin C intake." My observations indicate a considerable variability in results when the same children were tested at different times.

From these studies which show a positive capillary fragility test in 21.7 per cent of a group of well nourished children of preschool age, and in 9.2 per cent of well nourished school children receiving abundant vitamin C supplements to their diet, and in 12.5 per cent of malnourished school children with a small supply of vitamin C, it may be concluded that a positive reaction to the capillary resistance test does not necessarily denote an insufficient vitamin C intake.

2021 Grand Concourse

6. Gedda K. O. Indirect Determination of the Vitamin C Standard of Upsala Students in Autumn and Spring by the Establishment of the Strength of Their Cutaneous Capillaries. *Skandinav. Arch. f. Physiol.* 63: 306, 1932.

7. Dalldorf Gilbert. A Sensitive Test for Subclinical Scurvy in Man. *Am. J. Dis. Child.* 46: 794 (Oct.) 1933.

## A CRITICAL SURVEY OF THE RETINAL LESIONS IN CHRONIC GLOMERULAR NEPHRITIS

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The large number of patients visiting the renal clinic of the Peter Bent Brigham Hospital during the past seventeen years has afforded an unusual opportunity for the observation of the progressive changes in the ocular fundi in cases of Bright's disease and for their correlation with clinical and laboratory observations. The majority of reports in the literature on the retinal manifestations of chronic glomerular nephritis have consisted of cases in which single or relatively few ophthalmoscopic observations had been made. The patients comprising this series have had frequent examinations over an average period of nearly four years.

It was our original purpose in this investigation to determine the prognostic significance of the severe retinal lesions of chronic glomerular nephritis. We soon found that our group of cases revealed information of even greater significance, several of the features differing from those previously reported by others. These concerned the incidence of the advanced retinopathies in chronic glomerular nephritis, the types of retinal manifestations accompanying this disease, and the pathogenesis of the various lesions.

We have selected from the many cases in the clinic thirty-two instances of chronic glomerular nephritis which presented no retinal lesions or only the minimal signs of retinal arteriolar sclerosis at the time of the initial examination. Patients showing evidence of advanced retinopathy when first examined, those not continuously observed until their death, and those dying from other causes than uremia are not included in this series. We believed that only this type of case would reveal accurate information concerning the development and course of the retinopathies accompanying a primary glomerular nephritis. Although the number of cases is relatively small, we consider the observations significant and the study somewhat unusual. Observations on each patient were made at frequent intervals over a period varying from six months to fourteen years. With few exceptions the examinations were made by one observer (O'H). Furthermore, the clinical diagnosis of chronic glomerular nephritis was confirmed by autopsy in twenty-one cases, while in the remainder of the cases the essential features and course of the disease left no doubt as to the accuracy of the diagnosis.

#### METHOD OF INVESTIGATION

Twenty-one of the thirty-two cases of chronic glomerular nephritis which were selected for study were without retinal lesions of any sort when first examined. The essential features of this group of twenty-one are included in table 1. The remaining eleven cases of the series (table 2) were observed to present the minimal signs of retinal arteriolar sclerosis at the time of the initial visit to the clinic.

The average interval between visits of these patients to the renal clinic was three months. A few were seen

From the Medical Clinic of the Peter Bent Brigham Hospital.  
Aided by the Fund for Research in Renal and Vascular Diseases.

at less frequent intervals. The clinic visit included an ophthalmoscopic examination through dilated pupils, in addition to the usual physical examination, urinalysis, and study of renal function. The same procedure of examination was carried out on these patients during periods of hospitalization.

We found that certain ophthalmoscopic pictures could be differentiated according to a few changes appearing in the papilla and retina, although the demarcation was not always clear in every case. An attempt was made to classify every retinal picture

of the larger arteries. Obviously not all these changes were found in every eye.

The group known as arteriosclerotic retinopathy, a term suggested by Fishberg,<sup>2</sup> includes those retinal lesions characterized by little or no involvement of the papilla, hemorrhages of various sizes and shapes, small "hard-white" spots in the retina, and the vascular changes of a marked arteriolar sclerosis. Arteriosclerotic retinitis,<sup>3</sup> choriorretinal arteriosclerosis,<sup>4</sup> and angiosclerotic retinitis<sup>5</sup> are the terms others have applied to this group of lesions.

TABLE 1—Patients Having No Retinal Lesions on Initial Examination

Case	Age	Initial Examination					Initial Appearance of Retinal Arteriolar Sclerosis					Initial Appearance of Terminal Retinal Lesion					Maximum Diastolic Blood Pressure	
		Months Before Death	Blood Pressure	BUN	PSP	RBC	Months Before Death	Blood Pressure	BUN	PSP	RBC	Type	Months Before Death	Blood Pressure	BUN	PSP		RBC
1	42	36	170/56	12	0	4.2	21	160/100	72	2	4.6	ASR	13	184/123	48	15	3.8	140
2	23	58	130/70	20	0	4.2	27	144/122	2	2		HNR	23	176/116	4	15		123
3	40	7	164/90	42								ASR	4	20/110	34	20		120
4	12	17	107/68	55	10	3.3	8	135/88	72	0	2.0	ASR	4	185/98	100	0	2.1	105
5	35	30	140/80	11			13	180/90	48		5.7	HNR	7	102/100	76	0	3.6	118
6	19	7	148/66	5	60	4.5	72	144/90	8	60		HNR	1	220/160	2	20	4.3	180
7	28	30	135/66	11	70	4.8	7	150/120				HNR	3	160/118	47			140
8	9	95	188/109			4.7	60	195/98	2	30	2.6	ASR	5	174/102	26	20		114
9	13	3	120/60	22	40	4.4	7	120/90	24	4	4.5	HNR	1	150/110	80	0	2.7	110
10	19	163	170/60	3	2	3.1	101	114/31	31	40		ASR	1	189/112	160	0		112
11	32	44	20/110	20	1		14	240/140	70	20	5	ASR	1	270/140	76	0	3.0	140
12	26	6	175/138	50	0	2.8	1	164/130	77	0		ASR	1	180/110	80	0	2.5	140
13	28	3	100/60	13	60	4.2	86	114/74	6	60		HNR	5	210/124	35	35		140
14	2	26	132/84	56	15	5.6						None						84
15	16	8	150/90	13	50	3.7						HNR	4	102/128	27	0	3.2	142
16	19	18	160/90	12	45	4.7	8	16/100	41	15		HNR	4	205/150	94	10	3.7	150
17	19	18	160/90	12	45	4.7	19	190/120	11	0		HNR	17	175/120	32	0		120
18	14	57	135/50	11	30	5.5	24	138/100	20	40	6	HNR	3	192/140	60	10	3.1	160
19	10	14	163/90	31	30	5.5						None						160
20	15	27	142/92	12	4	4.0	0	210/125	56	0	2.2	HNR	4	170/120	94	0	2.0	125
21	13	70	155/60	19	40	3.1	52	138/92	10	4		RAS						165
Average	24	46	89	23	36	4.2	33	105	36	26	3.4		6	121*	64	9	3.1	

\* Diastolic blood pressure  
† Terminal rise only  
BUN indicates blood urea nitrogen (mg per 100 cc) PSP phenolsulphonphthalein excretion (per cent in 2 hours) RBC red blood cells (millions per cu mm) RAS retinal arteriolar sclerosis ASR arteriosclerotic retinopathy HNR hypertensive neuroretinopathy maximum diastolic blood pressure was while under observation

TABLE 2—Patients Having Retinal Arteriolar Sclerosis on Initial Examination

Case	Age	Initial Examination					Initial Appearance of Terminal Retinal Lesion					Maximum Diastolic Blood Pressure While Under Observation	
		Months Before Death	Blood Pressure	BUN	PSP	RBC	Type	Months Before Death	Blood Pressure	BUN	PSP		RBC
22	28	30	166/105	31	25	4.0	HNR	11	220/118	32	15		150
23	35	11	176/100	50	0	2.6	RAS						130
24	19	15	165/115	17	35	2.6	HNR	3	190/130	38	0	1.9	148
25	32	66	198/110	12	30	4.1	ASR	4	225/130	65		3.4	130
26	37	23	180/105	23	60	3.6	ASR	21	182/104	10	50	3.6	124
27	35	62	140/90	12	60		RAS						126
28	14	17	148/110	28	20	5.0	HNR	12	182/148	28	10	2.7	170
29	29	21	128/80	18	45	4.0	ASR	4	190/110	52	5	3.9	125
30	31	95	150/90	8	30	4.0	RAS						100
31	46	63	130/80	18	45	4.6	RAS						100
32	23	18	154/98	11	45	4.6	ASR	2	165/110	43	0	3.9	130
Average	30	47	99*	21	36	3.9		8	122*	38	13	3.2	

\* Diastolic blood pressure  
BUN indicates blood urea nitrogen (mg per 100 cc) PSP phenolsulphonphthalein excretion (per cent in 2 hours) RBC red blood cells (millions per cu mm) RAS, retinal arteriolar sclerosis ASR arteriosclerotic retinopathy HNR hypertensive neuroretinopathy

observed, the cases being divided into the following four groups: (1) no lesion at all, (2) retinal arteriolar sclerosis, (3) arteriosclerotic retinopathy, and (4) hypertensive neuroretinopathy.

The type of lesion which we call retinal arteriolar sclerosis is similar in appearance to that described by Friedenwald.<sup>1</sup> It is characterized by irregular tortuosity of the small macular arterioles and those in the periphery of the fundus, caliber variations, fullness and tortuosity of the larger vessels and arteriovenous compression, and in the later stages sclerotic changes

The fourth group, called hypertensive neuroretinopathy by Fishberg,<sup>2</sup> comprises those lesions of the ocular fundi consisting of hyperemia, indistinct margins, occasional edema of the disk, arteriolar changes, retinal hemorrhages and retinal "white spots." Both the large "cotton-wool" spots and the small "hard-white" spots appeared in this group, although the

1 Friedenwald Harry Pathological Changes in the Retinal Blood Vessels in Arteriosclerosis and Hypertension Tr Ophth Soc U King dom 50 452 1930

2 Fishberg A M Hypertension and Nephritis Philadelphia, Lea & Febiger 1934  
3 Moore R F The Retinitis of Arteriosclerosis and Its Relation to Renal Retinitis and to Cerebral Vascular Disease Quart. J Med 10 30 (Oct) 1916  
4 Cohen Martin Significance of Pathologic Changes in the Fundus in General Arterial and Kidney Diseases J A M A 78 1694 (June 3) 1922  
5 de Schweinitz G E Diseases of the Eye Philadelphia W B Saunders Company 1924



"cotton-wool" type predominated. This group of lesions has been termed renal retinitis,<sup>3</sup> albuminuric neuroretinitis<sup>6</sup> and the retinitis of nephritis.<sup>7</sup>

Arteriosclerotic retinopathy and hypertensive neuroretinopathy were formerly grouped together under the term "albuminuric retinitis," but since the early observation of Gunn<sup>8</sup> that albuminuria did not always accompany this form of retinitis, other names have been suggested and attempts made to divide the group into various subdivisions. The chief criteria we used in differentiating arteriosclerotic retinopathy and hypertensive neuroretinopathy were the appearance of the papilla and the types of white spots. In several cases it was difficult to decide on the proper classification, as characteristics of both types of lesions were present. This difficulty has led several observers to believe that no attempt should be made to separate the advanced retinopathies but that they should be considered as one group. We attempted to separate them, hoping to obtain from the retinal lesions alone a practical method for differentiating between the primary vascular and the glomerular changes in the kidney.

#### RESULTS AND COMMENT

Several pertinent facts can be gleaned from the tables. The average age of these patients at the time of the initial examination was 26 years, the youngest being 10 and the oldest 59.

In the entire group of thirty-two patients, only two failed to show fundus changes on repeated examinations. Five did not progress beyond the stage of arteriolar sclerosis. Eleven cases were classified later as arteriosclerotic retinopathy and fourteen as hypertensive neuroretinopathy.

The high incidence of retinal lesions in this series (thirty out of thirty-two) is at variance with the opinion of many others who hold that retinitis is not common in chronic glomerular nephritis. The series of 102 cases reported by Moore<sup>9</sup> included only twenty-four with definite retinitis. However, in a group of twenty uremic patients he failed to find evidence of a retinal lesion in only one. Moore notes that Miley found only fifty-two cases of retinitis among 166 cases of all types of nephritis and Elschnig forty-three among 199 patients. In fifty-five patients with chronic glomerular nephritis, Fishberg and Oppenheimer<sup>10</sup> found twenty-four with normal fundi.

We believe that the discrepancy between these reports and ours is due to the fact that few of these authors had the opportunity to observe their cases throughout the entire course of the disease. Our experience indicates that retinitis is extremely common in advanced chronic glomerular nephritis, and we believe that frequent observations during the entire course of the disease will reveal definite evidence of retinal involvement in almost every case.

#### TYPES OF RETINAL LESIONS

Twenty-eight of our cases were observed at a time when only the early signs of arteriolar sclerosis were present. Five did not show any extension of the lesions beyond these changes in the blood vessels.

There was, as one would expect, progressive increase in the degree of sclerosis involving these small vessels.

In twenty-five of the group of thirty-two cases advanced lesions of the fundus developed. The appearance of arteriosclerotic retinopathy in eleven of twenty-five patients who died in uremia has convinced us that this retinal picture is not confined to primary vascular hypertension. Furthermore, our figures demonstrate that the patients who had this particular lesion were no more or no less toxic at the time of development of the lesion than were the patients who showed hypertensive neuroretinopathy. This opinion is based on a comparison of the degree of nitrogen retention and anemia in each group. The results make us doubt the wisdom of attempting to divide the various lesions of the fundi into those of "renal" and those of "nonrenal" origin, as has been done by Moore,<sup>9</sup> Davies,<sup>11</sup> Cohen,<sup>12</sup> Benedict,<sup>13</sup> and others. We agree with Shaw, Clarke and Pitt,<sup>14</sup> the Friedenwalds<sup>15</sup> and Bulson<sup>16</sup> that there is no distinctive type of retinal lesion accompanying chronic glomerular nephritis.

Furthermore, our observations lend little support to the statement of Wagener,<sup>17</sup> Keith<sup>18</sup> and others that the fundi in "malignant" hypertension can be differentiated from those in glomerular nephritis. Neither the presence nor the absence of edema or anemia of the disk can be used to differentiate primary glomerular nephritis from secondary chronic vascular nephritis with or without the so-called malignant hypertension. Keith stated that the arteriolar lesions are unusual in the fundi of chronic glomerular nephritis, but thirty of our thirty-two patients showed definite evidence of these changes. The early arteriolar involvement was detected before the appearance of the other forms of retinopathy in all but two cases.

Another striking feature of this study was the progression in five patients of the retinal lesions from hypertensive neuroretinopathy into a late stage of arteriosclerotic retinopathy. These observations make us agree with Shaw,<sup>14</sup> the Friedenwalds<sup>15</sup> and Duke Elder<sup>17</sup> that the retinopathies under consideration are essentially only variations or stages of the same pathologic process. We are convinced that the attempt to make an ophthalmoscopic differentiation between the retinopathies due primarily to glomerular nephritis and those resulting from vascular hypertension is not only unwise but impossible in most cases.

#### PATHOGENESIS

The scope of this paper does not permit a detailed discussion of the pathogenesis of the advanced retinopathies, nor is such a discussion necessary, since this subject has been admirably covered by the recent reviews of Friedenwald,<sup>1</sup> Fishberg<sup>10</sup> and Volhard.<sup>15</sup> We will only attempt to indicate the correlation of our observations with those of others.

6 Parsons J H Diseases of the Eye New York Macmillan Company 1927

7 Wagener H P Retinitis and Renal Function in Cardiovascular Renal Disease Am J Ophth 7 272 (April) 1924

8 Gunn Marcus On Ophthalmoscopic Evidence of General Arterial Disease Tr Ophth Soc U Kingdom 18 356 1898

9 Moore R F Medical Ophthalmology Philadelphia P Blakiston's Son & Co 1925

10 Fishberg A M and Oppenheimer B S The Differentiation and Significance of Certain Ophthalmoscopic Pictures in Hypertensive Diseases Arch Int Med 46 901 (Dec) 1930

11 Davies D L Shaw H B Clarke Ernest and Pitt G N Discussion on the Significance of the Vascular and Other Changes in the Retina in Arteriosclerosis and Renal Disease Proc Roy Soc Med 16 85 1922

12 Benedict W L Retinitis of Cardiovascular and of Renal Disease Am J Ophth 4 495 (July) 1921

13 Friedenwald Harry and Friedenwald J S The Retinal Blood Vessels in Hypertension and Arteriosclerosis Bull Johns Hopkins Hosp 45 232 (Oct) 1929

14 Bulson A E The Eye Fundus Lesions of Nephritis Texas State J Med 28 403 (Oct) 1932

15 Wagener H P Retinitis of Malignant Hypertension Tr Am Ophth Soc 25 349 1927

16 Keith N M Wagener H P and Kernohan J W The Syndrome of Malignant Hypertension Arch Int Med 41 141 (Feb) 1928

17 Duke Elder W S Recent Advances in Ophthalmology Philadelphia P Blakiston's Son & Co 1929

18 Volhard F Die Pathogenese der Retinitis Albuminurica Zentralbl f d ges Ophth 21 129 (March 5) 1929

In our series the two patients who showed no retinal lesions on repeated examinations were essentially non-hypertensive throughout their entire course although one had a slight elevation of blood pressure during the last few days of life. Five patients never progressed beyond the stage of retinal arteriolar sclerosis, although there was some progression of the strictly vascular lesion. All but two of the twenty-five that eventually appeared with an advanced retinopathy were known to have previously passed through the stage of uncomplicated retinal arteriolar sclerosis. In these two cases the arteriolar changes and the other features of the advanced retinal lesion were noted simultaneously. The course of these two cases was very rapid and it is probable that more frequent observations would have revealed the changes in the retinal vessels before they were noted in the retina itself.

As indicated previously the picture of hypertensive neuroretinopathy changed to one of arteriosclerotic retinopathy in five patients. Such observations as those previously mentioned strongly suggest the primary nature of the vascular process, the development of the advanced retinal lesions being secondary to the primary vascular disease. According to this conception the two types of retinopathy are variants or different stages of one fundamental vascular process. This we believe to be the opinion of Friedenwald<sup>19</sup> and others.

Hypertension was the most common factor preceding or accompanying retinal changes in these patients. The blood pressure remained relatively low in the two patients who died without retinal lesions. We found that the diastolic pressure was of greater significance and that it was less variable than the systolic pressure. For these reasons the latter has been omitted from our discussion. In the twenty-one cases that showed no retinal lesions on initial examination, the initial diastolic pressure averaged 89 mm and sixteen presented an initial diastolic pressure below 91 mm. An average diastolic pressure for the series of thirty-two cases, when the uncomplicated lesions of retinal arteriolar sclerosis were first detected, was 102 mm. The hypertension preceded the appearance of the arteriolar changes in thirteen of the seventeen who were observed before these early changes were seen. A marked elevation in diastolic pressure was present in every case showing either of the two advanced retinopathies, the diastolic pressure in this group averaging 122 mm. The patients with hypertensive neuroretinopathy had a higher maximum diastolic blood pressure than those with arteriosclerotic retinopathy. The diastolic pressure in seven of the former exceeded 140 mm, while it did not rise above this level in any of the latter.

The information gained from this investigation agrees with the observations of many who believe that the advanced retinopathies seldom occur in the absence of hypertension and that the elevated tension precedes the appearance of the retinal lesions. Many observers contend that the factor producing the hypertension is the one which is responsible for the arteriolar changes appearing in the fundus. The absence of hypertension in the two patients in whom retinal lesions failed to develop and yet who died in uremia is very significant and indicates that the hypertension is of prime importance in the development of the retinopathies of glomerular nephritis.

There are some writers who remain unconvinced of the vascular nature of these lesions and who continue

to seek a toxin that may produce direct injury to the retinal nerve cells. They have attempted to correlate the retinal manifestations with evidence of nitrogen retention. The cases in our group who have shown nitrogen retention, low phenolsulphonphthalein excretion and secondary anemia accompanying the various ophthalmoscopic pictures give little comfort to the proponents of the theory of direct toxic action on the retina itself.

The frequent occurrence of retinal lesions in vascular hypertension and the appearance of the retinopathies in several of our patients before the blood urea nitrogen was greatly elevated lend additional support to the theory that hypertension and not retention of toxins is of prime importance in the development of retinal arteriolar sclerosis and the later manifestations of the advanced retinopathies.

We consider that the most convincing evidence of the hypertensive and vascular nature of the retinopathies is the fact that in every one of our cases of marked hypertension retinopathy developed. The only two patients who failed to show any changes in the fundi were those without a greatly elevated diastolic pressure. However, both of these patients had a high blood urea nitrogen many weeks before death.

#### PROGNOSTIC SIGNIFICANCE

The prognostic significance of the appearance of the advanced retinopathies in our series of glomerular nephritis does not differ from that reported by others. The maximum duration of life after the advanced lesions (arteriosclerotic retinopathy and hypertensive neuroretinopathy) appeared was twenty-three months, the average duration of life of the entire group was 6.3 months. Moore<sup>9</sup> stated that few live as long as two years and cited the figures of Miley, who found the average duration of life after the discovery of the retinitis to be but four months.

Since von Michel<sup>20</sup> stated in 1884 that the majority of patients with "granular kidney" complicated with retinitis die after a course of one and one-half years, the serious prognostic significance of these lesions has been recognized. The occasional reports of patients living beyond this period, however, indicate that in even so serious a condition the prognosis is not certain. Moore<sup>9</sup> reported that one patient lived seven years after the appearance of "renal" retinitis. Fishberg<sup>2</sup> called attention to the fact that of his patients one lived eight years and one of Leber's patients survived seventeen years after "albuminuric" retinitis had been discovered. We saw one patient with chronic glomerular nephritis who remained in fair condition for fourteen years after the detection of changes characteristic of a marked hypertensive neuroretinopathy.

#### SUMMARY

Thirty-two cases of chronic glomerular nephritis have been followed over a period varying from six months to almost fourteen years. In thirty of the cases, retinal changes developed before death. Twenty-five showed the picture of an advanced state of arteriosclerotic retinopathy or hypertensive neuroretinopathy.

An elevation in blood pressure preceded the appearance of retinal arteriolar sclerosis in thirteen of seventeen cases. Hypertension was present in every patient who had an advanced retinopathy. The blood pressure was low in the only two cases without vascular or other retinal changes.

<sup>19</sup> Friedenwald J S. The Pathogenesis of Albuminuric Retinitis. Libman Ann. Vols 2 453 1932

<sup>20</sup> von Michel. Lehrbuch der Augenheilkunde. Weisbaden J F Bergmann 1884

The early signs of retinal arteriolar sclerosis preceded the advanced lesions in all but two cases. In these two cases the arteriolar changes and the other features of the advanced retinopathy were noted simultaneously. The picture of hypertensive neuroretinopathy changed to one of arteriosclerotic retinopathy in five cases.

Every patient in the group including even those with no retinal changes, developed marked nitrogen retention and died in uremia.

The average duration of life in our series after the appearance of either arteriosclerotic retinopathy or hypertensive neuroretinopathy was less than seven months, the maximum was twenty-three months.

#### CONCLUSIONS

1 In almost every case of chronic glomerular nephritis, retinal changes develop before death.

2 An ophthalmoscopic differentiation between the lesions of chronic glomerular nephritis and primary vascular hypertension is impossible in most cases. In chronic glomerular nephritis, both arteriosclerotic retinopathy and hypertensive neuroretinopathy may occur.

3 The occurrence of the two types of advanced retinopathy in the same patient at different times suggests that they are merely variants or different stages of the same pathologic process.

4 Hypertension is the most common etiologic factor in the production of the retinal arteriolar lesions. The arteriolar changes precede the development of the advanced retinopathies.

5 An advanced retinopathy in chronic glomerular nephritis usually indicates death within seven months.

721 Huntington Avenue

## A DERMATITIS DUE TO ANILINE DYE IN A FOOD PRODUCT

### REPORT OF A CASE

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The recognition of the existence of allergy in patients stimulates those interested in the causation of the condition to delve into the minutest details to obtain significant leads. Hunches and suspicions should be disproved before they are discarded. The method of approach and interrogation should be systematic. The following case is a striking example of the manner in which the coloring matter of a food product in common use can ultimately act as a sensitizing agent and produce toxic manifestations.

### REPORT OF CASE

Mrs. H. J., aged 44, in November 1933, presented an erythematous, maculopapular eruption confined to the neck, shoulders, arms and forearms on both the covered and uncovered areas. The eruption simulated erythema multiforme in certain areas, while in the areas where scratching had occurred it resembled subacute eczema with scaling. Some areas presented an evanescent, urticarial type of lesion. The eruption had been present at various intervals for the past six months.

Nausea and abdominal cramps were noted anywhere from two to three hours after meals and at times there was diarrhea. The past history, physical examination and laboratory tests presented nothing of significance. There was no history of allergy, nor was there any history of the ingestion of drugs.

From the Pittsburgh Skin and Cancer Foundation

Mild protective lotions had relieved the condition. An attempt to eliminate either an external or an internal factor as the etiologic agent was of no avail. A careful scrutiny of her diet did not reveal any suspicious food. It was assumed after several weeks of study that cleaning fluid was the factor for she stated that the onset of the condition dated to several days after she had worn garments that had been cleaned. A patch test of the cleaning fluid, applied to the forearm produced an erythema that persisted for forty-eight hours. The tests were negative on two individuals who served as controls.

The patient returned in March 1934 with a recurrence of the condition distributed as it had been the previous November. It had been present for two weeks. No new or cleaned garments had been worn. During the interim between the first and second visits to the office, the eruption had been present but it was not sufficiently annoying to cause her to seek advice. At this time an acute and subacute dermatitis of a nondescript character was present. Nausea and abdominal distress, with diarrhea about three hours after meals, were noted.

She was carefully questioned in an effort to obtain a clue to the possible exogenous or endogenous cause of the condition. Nothing of importance was learned until the patient volunteered the fact that she had confined her diet to vegetables and especially to salads of vegetables and fruits in gelatin, colored with a green solution. She ate the salads at least once or twice a day. The vegetables themselves or the insecticides sprayed on them during their growth were ruled out as the cause by elimination of the vegetables from the diet. Skin tests (intracutaneous) were entirely negative for food stuffs. Finally, the green coloring matter was placed under suspicion. This dye was prepared by Joseph Burnett Company, Boston, Mass., and the attached descriptive brochure stated that it contained 26 per cent certifiable aniline color. The green coloring matter was eliminated from the diet and within three weeks the condition had cleared up. The gelatin with the green coloring matter was returned to the diet and the dermatitis recurred in eight days, together with abdominal cramps soon after eating. The dermatitis was permitted to clear and a salad made with gelatin without the coloring matter has been used ever since without a recurrence. Patch and passive transfer tests were negative. The period of observation for the patch tests was six weeks, as Sulzberger<sup>1</sup> and Ingram<sup>2</sup> have stressed the fact that patch tests may not be positive for from several days to six weeks or longer.

### COMMENT

Many synthetic dyes have been placed under suspicion as irritants to the skin. However, the majority of the pure synthetic dyes in themselves are innocuous to the skin. In the process of dye making, strong acids and alkalis (particularly lime) are used to convert the benzene, toluene, naphthalene, benzidine and similar substances into the finished dyes. The injuries listed are produced in handling or dealing with the various stages of the "crudes," "intermediates" and "color making" (manipulation of the intermediates). Various observers have reported conflicting data regarding the number of individuals who have been affected in the various stages of dye making. Bachfield<sup>3</sup> generalizes the position by stating that the farther the process advances from the crude state the less the toxicity.

The types of dermatoses listed as produced by the various stages in dye making are quite varied. There is a marked difference in the resisting power of the individual skin. The texture of the skin is an important determining factor in the susceptibility, but the activity of the agent is of prime importance.

The necessary amount of the dye and the length of time it has to be used before it will show toxic effects

<sup>1</sup> Sulzberger, M. B. and Wise, Fred. Drug Eruptions (Dermatitis Eczematosa Due to Drugs). Arch. Dermat. & Syph. 28: 461 (Oct.) 1933.

<sup>2</sup> Ingram, J. T. Dye Dermatitis in Relation to Idiosyncrasy. Brit. J. Dermat. 44: 422-426 (Aug. Sept.) 1932.

<sup>3</sup> Bachfield, quoted by White, p. 382.

are not known. It is generally supposed that the constant use of any antigenic substance (sensitizing agent) over a definite period of time will sooner or later affect the individual.

Prosser White<sup>4</sup> states that ingestion of the aniline dyes will at times produce gastric symptoms. He lists the various dermatoses that develop in the process of the dye industry, and they are mostly produced by contact.

Ingram<sup>2</sup> states that 4 per cent of normal individuals show a natural idiosyncrasy toward the phenylenediamines.

The synthetic organic dyes derived from aniline have been in use since 1883. McCafferty states that from 1 to 2 per cent of individuals are susceptible to the toxic effect of aniline. It is toxic for animals and will kill in small doses. In human beings it has produced gastric symptoms, anemia, loss of weight and temporary loss of vision.

Weyl<sup>6</sup> states that the aniline and azo dyes are neither toxic nor irritant in themselves but they may inaugurate irritation. Certain of them rubbed into the skin or injected into the subepithelial tissues can produce a proliferation of the epithelial structures in various degrees and may even cause a verrucous overgrowth. This fact has been known in the use of scarlet red, amido-azotoluene-betanaphthol and brilliant red, for promoting epithelization.

Sachs<sup>7</sup> states that the majority of these drugs can be administered orally without toxic effects.

The culinary art has employed the enhancement of the appearance and color of foods to increase the gustatorial effect. The vegetable dyes have been used for this purpose but recently on account of the fastness of the color, aniline dye has been substituted. Only a small percentage of the dye is used, but nevertheless the fact must be recognized that sensitivity or toxicity may be caused. The reported case is illustrative of the production of sensitivity and toxic gastro-intestinal effects by the coal tar derivative.

The question is raised as to whether the reaction produced by the aniline dye in this patient is truly toxic or whether it is allergic. If the patient is reacting abnormally to small doses of a common allergen, then the manifestation is allergic. But the possibility that the gastro-intestinal symptoms are truly toxic cannot be definitely excluded. A truly toxic reaction as produced by such substances as mercuric chloride and mustard would cause an immediate gastro-intestinal upset with vomiting, but these irritants are more concentrated than the one in the case under discussion. The response of the patient to the aniline dye was a general one, not based on an idiosyncrasy, hence it was a toxic rather than an allergic reaction. The procedures that are used to demonstrate allergy (passive transfer, scratch, patch, and intradermal tests) were entirely uncorroborative.

The toxic effects of the aniline derivative cannot be entirely dismissed. The fact that the oral administration of the aniline dyes will produce a varying amount of toxic symptoms is generally admitted in the literature. The individual will respond with symptoms, based on his tolerance and not dependent on previous sensitization with small tolerating doses. This reaction

may be regarded as similar to the gradual development of a sensitivity to drugs such as arsphenamines, amiodopyrine and quinine. I believe that over a protracted period this patient has become sensitized to the aniline dye in a manner similar to the development of idiosyncrasy after exposure to the hair and fur dyes in cases reported by Ingram.<sup>2</sup>

#### SUMMARY

In a case of sensitivity to a green coloring matter (an aniline derivative), speculation arises as to whether it presents a true allergic reaction or a true toxic manifestation of the drug. The point to be carried is that the aniline derivatives used as dyes in food-stuffs can produce both a dermatitis and gastro-intestinal symptoms. Interest is aroused not only by the natural sensitivity of a patient to such a dye but by the ease with which the sensitivity can be acquired.

5050 Jenkins Arcade

## MESENTERIC VASCULAR OCCLUSION WITH RECOVERY

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The high mortality rate encountered in cases of occlusion of a large branch of the superior mesenteric vessels whether by embolism or thrombosis has made surgical treatment appear futile. Bassler<sup>1</sup> quotes Cabot as saying, "Surgery has little or no business here." Thrombosis treated surgically, is believed to be more fatal than embolism because of its progressive nature tending to involve the entire superior mesenteric artery or veins and produce certain death. Most of the cases that have ended in recovery have been cases in which operation has been done early, but under the most favorable conditions a mortality rate approximating 90 per cent is the best that has been reported.

The patient here described was operated on four days after the onset of symptoms. A late diagnosis in an abdominal disaster is never a source of pride. A large number of cases of mesenteric vascular occlusion will be diagnosed late, so long as a decent conservatism is maintained, which keeps the surgeon from opening the abdomen in cases of early pneumonia, coronary arterial disease, tabetic crisis and endocrine and allergic disorders.

Trotter<sup>2</sup> analyzed 360 cases of mesenteric vascular occlusion reported in the literature to 1913, and in only thirteen instances was a preoperative diagnosis made. Larson,<sup>3</sup> in 1931, published an important contribution, based on a review of thirty-six cases in which necropsy was performed. He quotes Kussmaul and Gerhardt<sup>4</sup> concerning the conditions that should be present to justify a diagnosis of this disease and notes that the criteria of these authors agree closely with phenomena observed in his series: (1) a source of an embolism, (2) melena, not to be accounted for by a primary intestinal lesion, (3) rapid and excessive fall of temperature, (4) severe colicky abdominal pain, (5) later,

<sup>4</sup> White, R. P. *The Dermatogoses or Occupational Affections of the Skin*. New York: Paul B. Hoeber Inc. 1929, p. 383.

<sup>5</sup> McCafferty, L. K. *Hair Dyes and Their Toxic Effects*. Arch. Dermat. & Syph. 14, 2 (Aug.) 1926.

<sup>6</sup> Weyl quoted by White<sup>4</sup>, p. 382.

<sup>7</sup> Sachs, O. quoted by White<sup>4</sup>.

<sup>1</sup> Bassler, Anthony. *Intestines and Lower Alimentary Tract*. Philadelphia: F. A. Davis Company, 1922, vol. 2, chap. 12.

<sup>2</sup> Trotter, L. B. C. quoted by Larson<sup>3</sup>.

<sup>3</sup> Larson, L. M. *Mesenteric Vascular Occlusion*. Surg. Gynec. & Obst. 53, 54 (July) 1931.

<sup>4</sup> Kussmaul and Gerhardt quoted by Larson<sup>3</sup>.

distention of the abdomen with tympanites and shifting dullness, and (6) embolic phenomena elsewhere in the body

Loop<sup>5</sup> describes the following group of symptoms as a characteristic syndrome of mesenteric vascular occlusion. He says "Sudden violent abdominal pain, not markedly localized, persistent vomiting usually diminishing after the first few hours, slight or moderate fulness of the abdomen without muscle spasm and a dull percussion note. The phlegmatic cases are much less clear in their evolution. There is vague abdominal unrest with occasional vomiting, unrelieved by fairly satisfactory bowel movements and without localized tenderness."

These authors, I believe have drawn a clear picture of this baffling disease, but many patients are certain to be operated on late.

#### REPORT OF CASE

A woman aged 24, a graduate nurse, had been married for one year. There was no history of pregnancy or pelvic inflammatory disease. An appendectomy was done in July 1933, and an uneventful recovery followed. A mild cystitis was present for about one month after the operation. A period of excellent health, during which time the patient served as a private duty nurse and did her housework was terminated by the sudden onset of the present illness, March 15, 1934. She had eaten her evening meal with her usual good appetite. While washing dishes, she was suddenly seized with a violent epigastric pain. She took three glasses of soda water and began vomiting. She took an enema with the same results. The bowels had moved twice that day. The pain gradually spread over the entire abdomen. One of us (C H A) was called at midnight and gave her one-fourth grain (0.064 Gm) of morphine. She rested fairly well during the night but the pain recurred in the morning and was continuous, accompanied by nausea and vomiting. We saw her together about 2 p m, March 16. She looked quite ill. The temperature was 99.4 F. The pulse rate was 90 with a good quality. Physical examination of the lungs was negative. The cardiologist, Dr. Thomas Twyman reported that the heart was normal. The abdomen was flat, rigid and tender in the lower portion, the entire upper part of the abdomen showed almost normal relaxation. The rectal examination was negative. The vaginal examination showed normal pelvic organs, except for the fact that the region about the left vaginal vault was somewhat tender, and an indefinite boggy mass was palpated high on the left side. The patient was sent to the hospital. The laboratory report showed 4,220,000 red blood cells and 13,000 leukocytes which rose to 25,000 in a few hours. a trace of albumin and a large amount of pus were present in the urine. Supportive treatment was instituted with only small quantities of water by mouth. She improved for twenty-four hours. During the third night after the onset of the trouble she grew worse. The pulse rate rose to 150, becoming weak and thready. This we interpreted as indicating an internal hemorrhage probably a ruptured abdominal pregnancy. Donors were obtained for a blood transfusion and the operation was done as soon as possible. Bloody foul-smelling fluid was found in the abdomen and a straightened black segment of bowel was found lying in a vertical position slightly to the left of the spinal column. This corresponds to descriptions by Mall and Piersol<sup>6</sup> of the upper part of the lower two fifths of the jejuno-ileum. The pelvis was explored only for a probable extra-uterine pregnancy. The organs appeared normal except for blood and fibrin which were not associated with a tubal pregnancy. The decomposed mass about the black mesentery made it impossible to determine whether an abdominal pregnancy had been responsible for the interruption of the circulation in the mesenteric vessels.

The bloody purulent material was cleared away and the gangrenous bowel and mesentery were isolated with gauze packs. A fair margin of living bowel was clamped by a Payr clamp on both the proximal and the distal part, and cut with a cautery. The stumps of the mesenteric vessels were ligated, the dead tissue was trimmed away and the V-shaped gap was closed. The Payr clamps were carefully placed on the abdomen as in the Rankin<sup>7</sup> obstructive resection method in operations upon the colon. Special care was taken to observe that the distal and proximal ends of the bowel were in a favorable position, for protection of the bowel segments, and to make certain that the open bowel ends did not lie over mesenteric blood vessels or large abdominal blood vessels. The pathologist reported that there was a resected piece of small intestine 40 cm long. The entire wall was dark bluish red and necrotic.

The wound was left wide open. The intestine was held back with the fingers and gauze packs of ordinary operating sponge folded to a width of 2 inches were placed 1 cm under the parietal peritoneum all around the wound. The center was filled snugly but not tight enough to injure the two pieces of bowel or to cause pain. The gauze packing was washed out with 1 per cent chlorazene solution for three days. Then it was gently removed under nitrous oxide anesthesia and replaced with fresh gauze. The Payr clamp was removed from the proximal bowel end after thirty-six hours. The distal clamp was left on indefinitely. The bowel tended to move downward, the proximal end becoming slightly longer and the distal end retracting. After the ends of the bowel were opened rubber tubes were placed in the upper and lower openings for the purpose of transferring the bowel contents from the upper to the lower division and giving nourishment and water into the lower part of the bowel. Some of this was collected, filtered and placed in the distal segment of the bowel.

The wound was treated in this manner for five weeks. It presented a uniformly granulating surface. The general condition became good and a lateral anastomosis was done at the end of the fifth week. The peritoneal cavity was closed, also as much of the granulating abdominal wall was closed as possible. A blood transfusion was done after the primary and secondary operations. Few adhesions or little peritoneal damage was encountered aside from the damage to the exposed ends of bowel by feces and antiseptics. Moderately severe diarrhea followed for about ten days, then the bowel action became normal and general improvement was rapid.

#### COMMENT

No one surgeon encounters a large series of cases of mesenteric vascular obstruction. Such cases always occur suddenly and unexpectedly. This single case illustrates as well as a long series an application of the principles of modern surgery in treatment of the condition, and furnishes a method for lowering the mortality rate. Essential principles in the treatment of mesenteric vascular occlusion are as follows:

1. Action should be prompt, but not hasty beyond the point of understanding. The cases in which operation is done early have an almost prohibitive death rate. Charles H. Mayo<sup>8</sup> recently noted Ochsner's advice that with a moribund patient the operation for acute appendicitis should be delayed for from one to three days, "until the condition becomes subacute. When the thin streptococcal peritoneal fluid had had two days' time to fill with billions of leukocytes which destroyed their quota of bacteria and remained as pus cells, and immunity had been established with the walling off of the abscess, operation could be more safely performed." This advice is good in regard to almost any intra-abdominal lesion in which there is no continuous internal hemorrhage, perforation or torsion of the bowel.

5 Loop, R. G. Mesenteric Vascular Occlusion with Report of Nine Cases in Which Operation was Performed. J. A. M. A. 77: 369 (July 30) 1921. Proc. Inter State Post-Grad. M. Assemb. North America May 1929.

6 Piersol, G. A. Human Anatomy. Philadelphia J. B. Lippincott Company, 1907.

7 Rankin, F. W. Resection and Obstruction of the Colon (Obstructive Resection). Surg. Gynec. & Obst. 50: 594-598 (March) 1930.

8 Mayo, C. H. The Influence of Pain and Mortality in Modern Medical Practice. Collected Papers of the Mayo Clinic 23: 1025 1931.

2 The multiple stage operation should be the rule in all late cases of mesenteric vascular occlusion as it is in many other critical abdominal conditions such as in cancer of the colon and in operations on the prostate gland. This type of operation gives the body time to gain a metabolic balance which may be an important factor in combating the disease, especially the thrombotic type of disease.

3 Peritoneal drainage must be adequate, if drainage is used at all. Horsley<sup>9</sup> has pointed out the need for reversal of the lymph current which protects the lymph and blood streams from overwhelming doses of foreign toxic substances. Many a case of sepsis is lost owing to lymphangitis caused by attempts to suture a wound in which drainage is necessary.

4 The obstructive resection method of Rankin has a stabilizing effect on the circulation of blood and lymph in the wall of the bowel and helps to control peristalsis. It avoids the disappointing effect of immediate enterostomy in acute peritonitis.

5 Blood transfusions, the maintaining of as good nutritional conditions as possible, the establishing of normal levels of chlorides and dextrose and the securing of an adequate water balance will help to make late cases of mesenteric vascular occlusion less formidable.

403 First National Bank Building

## INVOLUTIONAL MELANCHOLIA

### PROBABLE ETIOLOGY AND TREATMENT

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Great diversity of opinion exists in the minds of most neuropsychiatrists as to the status that should be accorded involutional melancholia as a clinical entity. As with most types of psychoses, no one has yet demonstrated a single direct or specific cause for this mental illness.

Strecker and Ebaugh<sup>1</sup> say

Involutional melancholia is probably a subdivision of manic-depressive but by virtue of its distinctive symptomatology its lengthy course and its association with a definite physiological life epoch (climacteric) it merits separate description. The present state of our knowledge only permits the statement that the climacteric and the widespread changes induced are in some sense causal factors but as to the exact mechanism there is very little definite information.

Henderson and Gillespie<sup>2</sup> in their textbook attempt to define the condition by giving a description of the signs and symptoms as found in this mental disease, without offering any specific etiologic factor as causative.

Noyes<sup>3</sup> in his latest book says

The question as to whether a distinct place in any classification of mental diseases should be accorded to involutional

melancholia has been the occasion of much discussion. Many psychiatrists have considered that the symptom complex known by others as involutional melancholia should be looked upon as a modified manic depressive psychosis occurring at a particular physiological epoch. In addition, however, to its effective characteristics there are special physiological factors of such dynamic importance and so peculiar to that period of the individual's life during which the mental disturbance occurs that separate consideration is justified.

Others associate the condition with presenile and arteriosclerotic change.

### ETIOLOGY

That this type of mental aberration occurs in both sexes is recognized by all neuropsychiatrists, the proportion given being approximately 3/2. The age incidence is earlier in women than in men, occurring between 40 and 50 years in the former, and usually after 50 years in the latter. The consensus is that involutional melancholia constitutes between 3 and 4 per cent of all mental disease. Most writers agree that no acceptable organic pathologic changes of the central nervous system have been demonstrated.

There seems to be a failure of these patients to adjust themselves to the stresses and strains incident to this period of life, when the endocrine glands, especially the reproductive glands, decline in function with consequent changes in the chemical, metabolic and vegetative activities of the body.

Noyes<sup>3</sup> says

In a significant number of cases of involutional melancholia we find a certain general type of personality make-up and of habits of life. A review of the patient's previous personality and temperament often shows that he has been an inhibited type of individual with a tendency to be serious, rigid, lacking in humor and overconscientious. Often his routine of life has been narrow, somewhat stereotyped, and devoid of diversions. Frequently he has been a loyal subordinate meticulous as to detail, rather than an aggressive confident leader. Adjustments to new situations and circumstances are no longer easily made. Perhaps life has not brought either the success or satisfaction that hope has cherished. Regrets and a sense of failure contribute to the prevailing mood.

While the foregoing opinion is no doubt true and applies to many of these individuals, a more fundamental causative factor probably exists which unbalances these patients and allows this mental disorientation to manifest itself.

We believe that we have secured sufficient evidence by controlled clinical research to justify our belief that involutional melancholia yields to endocrine treatment, thereby giving presumptive evidence for accepting an endocrine basis for this condition.

### BASIC THEORY FOR RESEARCH

Zondek and Aschheim,<sup>4</sup> and Smith<sup>5</sup> proved the presence of a gonad-stimulating hormone of the anterior hypophysis by the production of graafian follicle development, sexual maturity and the formation of corpora lutea in immature white rats and mice within from three to five days by the subcutaneous introduction of anterior hypophyseal tissue.

Meyer, Leonard, Hisaw and Martin<sup>6</sup> demonstrated the inhibitory influence of theelin and amniotin on the

<sup>9</sup> Horsley J. S. Operative Surgery. St. Louis: C. V. Mosby Company, 1924.

From the Department of Medicine, St. Louis University School of Medicine.

<sup>1</sup> Strecker E. A. and Ebaugh F. G. Clinical Psychiatry. Philadelphia: P. Blakiston's Son & Co., 1928.

<sup>2</sup> Henderson D. K. and Gillespie R. D. A Textbook of Psychiatry for Students and Practitioners, ed. 3. New York: Oxford University Press, 1932.

<sup>3</sup> Noyes A. P. Modern Clinical Psychiatry. Philadelphia: W. B. Saunders Company, 1934.

<sup>4</sup> Zondek Bernhard and Aschheim Selmar. Ueber die Funktion des Ovariums. Deutsche med. Wochenschr. 52: 343 (Feb. 19) 1926.

<sup>5</sup> Smith P. E. Hastening Development of Female Genital System by Daily Homoplastic Pituitary Transplants. Proc. Soc. Exper. Biol. & Med. 24: 131 (Nov.) 1926.

<sup>6</sup> Meyer R. K., Leonard S. L., Hisaw F. L. and Martin S. J. The Influence of Oestrin on Gonad Stimulating Complex of the Anterior Pituitary of Castrated Male and Female Rats. Endocrinology 16: 6 (Nov. and Dec.) 1932.



gonad-stimulating complex of the anterior pituitary of castrated male and female rats

The anterior pituitary has three important types of cells namely, chromophobe, eosinophil and basophil. Difference of opinion exists as to the importance of the chromophobe cells. Biedl believes that they are the precursors of the eosinophil and basophil cells. Others are of the opinion that only the basophil cells are derived from this source. It is known that following castration, hypertrophy of the anterior hypophysis occurs. Castration causes the appearance of two histologic changes in the anterior pituitary, namely (1) cells of castration which are two or three times the size of the normal cells found in this gland and (2) a relative increase in the size and number of the eosinophils. Following castration, no more follicular hormone is produced, thereby removing the inhibitory effect of this substance on the anterior pituitary, probably allowing it to overact.

Fluhman<sup>7</sup> has devised a modification of the Aschheim-Zondek test by the use of the patient's blood serum to determine the quantitative amount of anterior lobe gonadotropic hormone present in women having various types of menstrual abnormality or absence. He has found an increased amount of gonadotropic hormone in the blood serum of most of the castrates and women in the menopause whom he examined. The presence of an increased amount of gonadotropic hormone in these cases would seem to indicate that the menopause is due not to absence of gonadotropic hormone of the anterior pituitary but to failure of the ovaries to respond to further stimulation at this period of life. This failure of ovarian response at the climacteric precludes the further elaboration of the ovarian follicular hormone. With the absence of the ovarian

patients. A study was made of the symptoms as complained of by forty castrates and ninety six women in the menopause.<sup>8</sup> The object of this study was to correlate the symptoms of the two types of patients and to determine their degree of regularity of occurrence with the possibility of attributing these symptoms pri-

TABLE 3—Frequency of General Symptoms and Signs

	40 Castrates	96 Menopau <sup>a</sup>
Inactivity, fatigability	75.0%	68.1%
Constipation	72.5%	62.5%
Vague pains	Not recorded	
Obesity (32 cases)*	37.5% (86 cases)	40.8%
Menstrual disorder	100.0%	94.7%
Basal metabolism (6 cases)	+6.4% (1 case)	+8.9% (3) -1%

\* Obese before the menopause 18 after the menopause %

TABLE 4—Hypo-Ovarian Syndrome in 136 Cases (Forty Castrates Ninety-Six in the Menopause)

Order of Frequency of Symptoms	Per Cent
1 Menstrual disturbances	96.9
2 Nervousness subjective	96.3
3 Hot flushes	91.1
4 Irritability	86.0
5 Fatigability Inactivity	85.0
6 Constipation	81.7
7 Vertigo	80.9
8 Irritability	64.4
9 Depression crying	61.8
10 Sleep disturbed	61.9
11 Tachycardia palpitation dyspnea	60.9
12 Decreased memory concentration	53.3
13 Scotomas	45.0
14 Oculoprocervical pain	43.8
15 Headache	31.2
16 Cold hands and feet	30.7
17 Numbness tingling	21.1
18 Psychoses	16.7
19 Formication	23.9
20 Vague pains	Not recorded

marily to the absence of the ovarian follicular hormone. Werner and Collier<sup>9</sup> have shown in two experiments in which thirteen castrate women were treated, that theelin is completely effective in relieving the symptoms that result from castration, again indicating that the absence of the ovarian follicular hormone primarily initiates this train of symptoms. Secondary to the absent or decreased follicular hormone there is disturbance of function of the "master" gland, the anterior pituitary, the thyroid, the suprarenals and the like, with a consequent imbalance of the delicate equilibrium normally existing between the two divisions of the autonomic nervous system. These symptoms have been classified by Werner<sup>8</sup> as nervous, circulatory and general. Tables 1, 2 and 3 will show the remarkable parallelism of their occurrence. Table 4 gives the order of frequency of these symptoms in the combined 136 cases.

While these symptoms have been considered and discussed individually in the original article, space will not permit such an analysis here. Table 4 will show that 96.3 per cent of the 136 patients studied complained of intense subjective nervousness, 76.5 per cent were excitable and 64.4 per cent showed marked irritability. Along with these nervous symptoms 26.7 per cent of the patients had a definite mild psychosis, characterized by mental depression, loss of interest in the ordinary activities coincident with their past life, decreased memory and ability for mental concentration, and frequent intervals of crying for no good reason.

8 Werner A A. Symptoms Accompanying Ovarian Hypofunction. J Missouri M A 28: 363 (Aug) 1931.  
9 Werner and Collier. The Effect of Theelin Injections on the Castrated Woman. J A M A 100: 633 (March 4) 1933. Production of Endometrial Growth in Castrated Women. J A M A 101: 1466 (Nov 4) 1933.

TABLE 1—Frequency of Nervous Symptoms

	40 Castrates per Cent	96 Menopause per Cent
Nervousness subjective	100.0	92.7
Excitability	80.0	72.9
Irritability	67.5	61.4
Headache	25.0	50.0
Oculoprocervical pain	50.0	37.5
Decreased memory and concentration	52.5	54.1
Depression crying	62.5	60.4
Psychosis	17.5	35.4
Formication	22.5	23.9
Sleep disturbed	62.5	59.3

TABLE 2—Frequency of Circulatory Symptoms

	40 Castrates	96 Menopause
Hot flushes	92.5%	91.6%
Tachycardia palpitation and dyspnea	47.5%	72.0%
Vertigo	70.0%	71.8%
Scotomas	40.0%	50.0%
Cold hands and feet	37.5%	23.9%
Numbness tingling	25.0%	29.1%
Pulse average per minute	76.0	78.3
Blood pressure average	133/79	138/88.6
Pulse pressure average	54	50

follicular hormone there is amenorrhea, regression of the secondary sexual characteristics, characterized by loss of genital hair and atrophy of the external genitalia, the vagina and the uterus, with decreased mucous secretion and atrophy of the breasts.

Along with these objective signs there occurs a train of subjective symptoms that is distressing to many

7 Fluhman C F. The Significance of Anterior Pituitary Hormone in the Blood of Gynecologic Patients. Am J Obst & Gynec 20: 1 (July) 1930.

at all. This condition if untreated or unimproved, may progress to anxiety psychosis in which the patients feel ill at ease. They have a fear of impending danger which they cannot explain. They worry unnecessarily and feel that something dreadful will happen to themselves, their loved ones or others. At times they imagine that some one is watching them or that they hear strange noises. I have had patients in the menopause develop persecutory delusions and some whose past life had been rather Bohemian develop in extreme religious outlook. Many times they have stated that if some relief were not given them they would lose their minds and have threatened self destruction.

Many physicians who have taken care of women at the climacteric have had this experience with their patients. This state of condition is not uncommon and might be called preinvolutional psychosis and it is only one more step beyond this line to true involutional melancholia.

From an experience of having treated great numbers of these women over a period of twelve years, with marked relief from their distressing symptoms, a conviction was engendered that the more unfortunate institutionalized patients should derive marked benefit from administration of the more potent hormone, theelin.

#### METHOD OF PROCEDURE

This experiment is being conducted at the St. Louis City Sanitarium and at Missouri State Hospital No. 4, Farmington, Mo., where a combined series of forty-one patients with involutional melancholia are under treatment and observation.

To obviate the objection of some physicians who state that involutional melancholia is a psychosis and that these women would recover if physiologic solution of sodium chloride had been injected, so long as the patients thought that something was being done,

TABLE 5—Results of Technic in Therapy and Control Cases

Therapy Cases (Theelin 1 cc Intramuscularly Daily)		
Name	Date	Results May 9 1934
1 L K	Dec 21 1933	Marked improvement
3 A S	Dec 21 1933	Marked improvement
5 F J	Dec 21 1933	Moderate improvement
7 A M	Dec 21 1933	Moderate improvement (paroled 4/29/34)
9 D B	Dec 21 1933	Slight improvement
11 A S	Dec 21 1933	Marked improvement
13 M D	Jan 5 1934	Marked improvement
15 S E	Feb 21 1934	Slight improvement (treated 10 weeks)
17 R T	Feb 2 1934	Marked improvement (treated 13 weeks)
Control Cases (Physiologic Solution of Sodium Chloride, 1 cc Intramuscularly Daily)		
2 A R	Dec 21 1933	No improvement
4 L U	Dec 21 1933	No improvement
6 M K	Dec 21 1933	No improvement
8 C S	Dec 21 1933	No improvement
10 H F	Dec 21 1933	Moderate improvement
12 M M	Dec 21 1933	No improvement
14 L H	Jan 5 1934	No improvement
16 E S	Feb 21 1934	No improvement

they were paired, and one half of the number were given 1 cc of theelin<sup>10</sup> intramuscularly daily, and the controls were injected with 1 cc of physiologic solution of sodium chloride daily. So that an honest and fair comparison of the results of treatment could be had, the patients were paired as nearly as possible according to the severity of their mental condition. In other words, they were classified and paired as having excellent, good, fair or poor chances for recovery.

Treatment was begun at Missouri State Hospital No. 4, Dec 21, 1933, on twelve patients. One half of these patients were given theelin and the other half were given physiologic solution of sodium chloride. A little later, as table 5 will show, five more patients were added to the list. May 9, 1934, the original

TABLE 6—Involutional Melancholia Experiment with Theelin at Missouri State Hospital No. 4 Farmington, Mo.\*

	Theelin 9 Women			Physiologic Solution of Sodium Chloride 6 Women		
	Symptoms Present Before	Relieved	Not Relieved	Present Before	Relieved	Not Relieved
Present average age	46 years			40 years		
Age at onset of symptoms	45 years			47 years		
Duration of symptoms before treatment	92 months			225 months		
Nervous Symptoms						
Nervousness subjective	9	6	3	8	0	8
Irritability	9	7	2	8	0	8
Irritability	9	7	2	8	0	8
Headache	8	7	1	8	0	8
Occliptocervical aching	9	9	0	6	0	6
Decreased memory and concentration	9	6	3	8	0	8
Depression	9	4	5	8	0	8
Crying	9	9	0	8	0	8
Psychosis	9	6	3	8	0	8
Formication	3	3	0	2	0	2
Sleep disturbed	9	9	0	6	1	5
Circulatory Symptoms						
Hot flashes	8	8	0	6	1	5
Tachycardia palpitation dyspnea	8	6	0	7	1	6
Vertigo	1	1	0	7	0	7
Scotomas and tinnitus	1	1	0	1	0	1
Cold hand and feet	8	8	0	6	1	5
Numbness and tingling	7	7	0	5	1	4
Pulse	92	81		81		
Blood pressure	122/82	126/79		132/81		
Pulse pressure	40	47		43		
General Signs and Symptoms						
Lassitude and fatigability	9	7	2	7	1	6
Vague pains	7	6	1	3	0	3
Constipation	9	9	0	6	1	5
Obesity	1	0	1			
B. M. R. (-11 to +18%)	+17%			A <sub>v</sub> +16%		
Menstrual Record						
Amenorrhea	5			5		
Last menstruation	A <sub>v</sub> 10 mo			A <sub>v</sub> 57.6 mo		
Menstruation before treatment	4			3		
Menstruating on treatment	2					

\* The figures indicate the number of women who complained of each individual symptom and who were or were not relieved of that symptom.

twelve patients had received injections daily for a period of 140 days, or twenty weeks. The last five patients on the list were treated for a shorter length of time.

Table 5 shows the results obtained with theelin and the failure to obtain results by the use of physiologic solution of sodium chloride. Table 6 lists the symptoms and some of the signs complained of and found during the original diagnostic survey of these patients. It will be seen that these symptoms are the same as those complained of by castrates, by women having ovarian hypofunction and by women during the menopause. The figures indicate the number of women who complained of each individual symptom and the number of women who were or were not relieved of each symptom during treatment.

A similar experiment is being carried out on twenty-two women having involutional melancholia at the St. Louis City Sanitarium, with one half of the number being used as controls. Since they have been treated for only approximately three months, insufficient time has elapsed to include them in this report. However we might state that their records show that of the theelin-treated women, one shows marked

10 We are indebted to Parke Davis & Co for donating a generous supply of theelin to carry on this work.

improvement, four show moderate improvement, four show slight improvement and two show no improvement as yet. Of the controls, three show slight improvement and eight show no improvement.

The diagnosis of involutional melancholia in these patients and the opinion as to improvement or failure of improvement was made by the hospital staffs.

#### COMMENT

As regards prognosis Noyes<sup>1</sup> is of the opinion that about 40 per cent of patients with involutional melancholia recover. Convalescence, however, is slow and those who recover are frequently ill for two or three years. Strecker and Ebaugh<sup>1</sup> state that authorities differ somewhat as to prognosis. The recovery rate is placed at from 23 to 40 per cent.

The treatment recommended by leading writers is of a negative nature, such as guarding the patient against self destruction, rest and quiet, sufficient sleep, maintenance of strength by nourishing food, and sedatives for nervousness and agitated states.

The treatment as outlined is necessary but does not strike at any specific cause of the condition. The use of theelin in involutional melancholia, we believe, is a rational procedure, as the results seem to indicate. The dosage of 1 cc of theelin daily was decided on arbitrarily. We feel that larger dosages would produce more rapidly beneficial effects. Werner and Collier<sup>9</sup> have shown that the clinical results obtained by theelin administration are dependent on the size of dosage and the duration of administration. The time element is an important factor in recovery. While apparently remarkable response is had within the short time of one or two months in an occasional case, this is not the rule. When a favorable response is manifested the improvement is gradual and continuous, in contrast to the apparent slow improvement and regressions of patients previously treated palliatively and expectantly. Cases showing marked improvement are kept in institutions with difficulty, for the patients wish to return home when they feel more normal and the relatives are anxious to have them at home for obvious reasons. When these patients become more rational, it is the consensus that most of them will do better under normal routine home life. However, their supervision and treatment with theelin should be continued at home under the care of the family physician for a period of one or two months after being symptom free to assist stabilization. If, after the patient has been off treatment, the condition should give evidence of recurrence, treatment should be reinstituted to prevent a relapse to the previous degree of mental incapacity. It might be well to give theelin to women who manifest severe menopausal symptoms and not wait for the more serious mental illness to overtake them.

#### CONCLUSIONS

Forty-one patients with involutional melancholia are being treated from an endocrinologic point of view. Twenty-one of these women are being given 1 cc of theelin intramuscularly daily. The others are being used as controls but will be given theelin later.

The improvement in the theelin-treated patients has been greatly accelerated by the use of this hormone.

The more rapidly beneficial results obtained in the theelin-treated patients seems to indicate that the administration of this hormone is rational and strikes at the fundamentally causative factor.

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## HERNIA INTO THE UMBILICAL CORD, CONTAINING THE ENTIRE LIVER AND GALLBLADDER

SUCCESSFULLY TREATED SURGICALLY

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Hernia into the umbilical cord is relatively uncommon. When it does occur, the contents are as a rule loops of intestine. Finding the liver and gallbladder, however, as congenital umbilical hernia contents, seems to be exceedingly rare. Such a case came under our observation, and a successful operation was done twenty-one hours after birth. The extreme rarity of such malformations and the fact that surgical care was successful, warrant this report.

These cases are considered to be due to faulty embryologic development. A brief reference to the subject of embryonic maldevelopments will be pertinent. Bardeen says<sup>1</sup>

In studying the variations of structure found in any part of the body it is of importance to distinguish the less variable from the more variable features. As a rule, the less variable features are associated with fundamental processes occurring early in ontogenetic development, the more variable features with processes of growth and differentiation occurring later in ontogenetic development. Thus while it is comparatively rare to have variations in the number of digits, finger prints are specific for each individual.

In the development of the human intestines three fundamental loops are formed. First the enterocolic which extends forward into the umbilical cord and is supplied by the superior mesenteric artery. Second, the gastroduodenal, which projects to the right at the base of the enterocolic loop and is supplied chiefly by a branch of the celiac artery. Third, the left colic, which projects to the left at the base of the enterocolic loop and is supplied by the inferior mesenteric artery.

The enterocolic loop undergoes normally an elaborate development and gives rise to the distal part of the duodenum, the jejunum, ileum, cecum, ascending colon and the right half of the transverse colon. The center of the base of the mesentery of this loop becomes fixed at an early period and seldom varies in position. The loop itself shows frequent variations in development, some of a fundamental character, others slight.

The gastroduodenal loop is simple and seldom shows fundamental variations, although individual differences in form in the adult are frequent and well marked. Primarily it is of a simple U form. Such variations as are found in the adult seem to be due in the main to variations in the development of the enterocolic loop.

The left colic loop, although it begins its development considerably later than the other two primitive loops, appears to be nearly as constant in formation. From it develop the left half of the transverse colon, the splenic flexure, the descending colon and the sigmoid colon.

From this it is apparent that the enterocolic loop may show frequent variations, fundamental or slight. The other two loops (gastroduodenal and left colic), however, seldom produce variations. Those of the gastroduodenal consist primarily of variations in the position of the stomach, and it is this loop with which we are here concerned, since the liver anlage grows out from it.

<sup>1</sup> Bardeen, C. R. Critical Period in the Development of the Intestines. *Am J Anat* 16: 427 (Sept.) 1914.

Bardeen<sup>2</sup> of the University of Wisconsin says further

During the third month of intra-uterine development there is normally a hernia of the intestines into the umbilical cord giving rise to the "umbilical loop," the loop supplied by the superior mesenteric artery. The loop then returns, apparently somewhat suddenly, to the abdominal cavity and undergoes the well known twist of the large about the small intestine. The subdiaphragmatic part of the alimentary canal above the umbilical loop constitutes the gastroduodenal loop. From it the liver and pancreas grow out. This portion of the gut has two mesenteries, a vertical and a dorsal, the liver growing into the former, the pancreas into the latter. Normally during embryonic development this portion of the gut and attached glands are so well fixed in place by these mesenteries that no umbilical hernia takes place. If the diaphragm fails to develop there may be a diaphragmatic hernia on one side or the other. An umbilical hernia of the gastroduodenal loop must be very rare.



Fig 1—Appearance at the age of 3 months. The ventral hernia with the scars of both incisions is clearly visible. The child is dehydrated, owing to a gastro intestinal illness from which it completely recovered.

#### REPORT OF CASE

The mother was delivered after a moderately long labor, of a son, her second child. The first child was 15 months old and was well. The mother, aged 19, and the father, 22, had always had good health. There was no history of congenital malformations in either branch of the family.

Aside from its evident deformity, the infant seemed normal at birth. Bowel movements were normal and there were no untoward symptoms until about 1 p. m. of the first day, when intermittent vomiting of moderate amounts of greenish fluid began. After consultation it was decided to send the infant to the hospital for possible surgical intervention.

Examination eighteen hours after birth revealed that the infant was well developed, weighing 6½ pounds (2,950 Gm.), and was normal except for the umbilical cord stump which was approximately 13 cm in length, containing an ovoid mass, about the size of a small and somewhat flattened orange, in the base of the cord. About 5 cm distal to the mass the cord had been ligated and was cut 2 cm beyond the ligation. The diameter of the cord proximal to the ligation was 4 cm. The

cord itself was a whitish gray and the surface was dull. Palpation revealed a relatively firm, immovable, smooth mass, without indentations such as one might expect to find where loops of intestine are concerned. Percussion elicited no apparent tenderness. The infant was slightly restless, with a rectal temperature of 97.8 F, pulse 130, respiration 40. There was no abdominal distention, but there was rather frequent vomit-

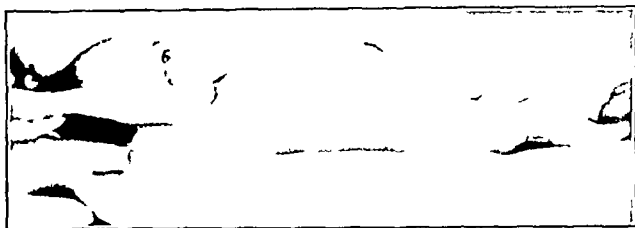


Fig 2—Appearance at the age of 3 months. Lateral view of ventral hernia. The small puncture marks on the lateral surface of the right thigh are due to poorly given hypodermic injections of physiologic solution of sodium chloride during its present illness. The orange in the foreground was about the exact size of the liver at operation but appears larger because of distortion.

ing, and after several hours of observation, at 8:30 p. m., surgical intervention was decided on.

At 9 o'clock, twenty-one hours after birth, the infant was operated on under very light ether anesthesia. There was no preoperative medication. A longitudinal incision was made with the scalpel beginning about 3 cm from the base of the cord on the antero-inferior surface and extended up toward the ligation. An attempt was made to free the cord, but it was found to be firmly adherent with fibrous adhesions to the enclosed mass, and blunt dissection with gauze, scissors and scalpel handle was necessary. Soon after blunt dissection began, sufficient surface of the mass became visible and it was seen to be the liver. After some difficulty, during which the liver surface was very slightly injured with slight bleeding, the entire cord was freed and the mass proved to be the entire liver resting on its postero-inferior border with slight torsion counter-clockwise, with the antero-inferior border elevated about 3 cm above the outer abdominal surface.

The position of the liver was a balance between a pull of the prolonged imperfect ligament, extending from the dome and posterior surface of the liver to the diaphragm, and of a short powerful falciform ligament and round ligaments extending from their usual positions on the anterior and inferior surfaces of the liver to the sheath of the right rectus muscle. The liver was normal as to size, shape and color for a newborn infant. Its surfaces, except the inferior, were covered with dense fibrous adhesions not newly formed. The cord was cut circularly at its base, close to its origin, and removed. The elevation of the antero-inferior border of the liver then



Fig 3—Appearance at the age of 3 months. Crying causing protrusion of the ventral hernia. The orange is again out of focus but except for being a trifle large its general shape well represents the pre-operative hernial mass.

revealed the normal gallbladder in its usual position with its distal tip just extending to the umbilical opening, approximately 3.5 cm in diameter, in the abdominal wall. The cystic, hepatic and common ducts were in their normal positions and relations, with, however, the tension of the common duct pulling the structures of the anterior border of the foramen of Winslow up toward the inferior surface of the liver, to such an extent that they were at the level of the umbilical opening.

<sup>2</sup> Bardeen C R. Personal communication to W A Niebuhr.

As already indicated, the liver rested on its postero-inferior border on the outer surface of the abdomen its dome pointing out perpendicularly from the outer abdominal surface. Instead of its long axis being parallel with the transverse axis of the abdomen, the ligamental torsion caused it to rest at about a 30 degree counter-clockwise angle from that parallel, and also slightly tilted toward the patient's right shoulder, so that its antero-inferior border was elevated about 3 cm from the outer anterior abdominal surface. The liver itself, of course was larger than the umbilical opening, so that incisions were necessary to replace it in the abdominal cavity.

It was evident that during development the abdominal wall had closed relatively early behind the liver and the pull of the ligaments mentioned was modified by the relative narrowness of the umbilical opening through which they were transmitted. Consequently an attempt was made to prolong a first incision extending from the umbilical opening upward toward the sternum, which was done, but it at once became apparent that the diaphragm would soon be entered, so that a long midline incision was made extending from the umbilical opening down toward the pubic region. In so doing, some damage was necessarily done to the falciform ligament, which was only slightly weakened thereby. The latter incision enabled the liver to be placed in the abdominal cavity with considerable

length. It normally returns to the abdominal cavity in a fetus of 40 mm length. If an umbilical hernia were merely the persistence of a normal embryonic or fetal condition the contents would consist of the elements entering into the umbilical loop. Apparently, however, this loop may return to the abdominal cavity, the opening from the abdominal cavity into the umbilical sac may fail to close, and there may be a secondary hernia into the umbilical sac consisting not only of parts of the original umbilical loop but of other structures. In your case the secondary hernia consisted of the liver. The figure enclosed shows how the liver lies relative to the opening into the umbilical sac preceding the return of the umbilical loop into the abdominal cavity. After the return of this loop the liver might be thought of as well situated to slip into the umbilical sac to replace the intestinal loop. The liver is, however, well held in place by ligaments developed from the ventral mesentery of the gastroduodenal loop and by the umbilical vein. It is, therefore, not common for it to enter the umbilical sac. In your case it did so. The time must have been between the latter part of the third month of development and birth. The adhesion between the liver and the walls of the umbilical sac indicates that the hernia took place some time before birth, just how long is open to question. Since the liver appeared to fit fairly well into the abdominal cavity on its return at operation, one might judge that the hernia did not take place until the latter part of fetal life. It is not unlikely that the hernia was a gradual affair and involved a slow stretching of the ligaments of the liver.

We are indebted to Drs. A. H. Parmelee, T. A. Olney and C. R. Bardeen for their valuable suggestions and information.

### THERAPEUTIC VALUE AND EFFECTS OF AMNIOTIN IN GONORRHEAL VAGINITIS IN CHILDREN

JOHN HUBERMAN, MD

NEWARK, N. J.

AND

HOWARD H. ISRAELOFF, MD

IRVINGTON, N. J.

The serious problem of gonorrheal vaginitis in children has been brought nearer to solution by the ingenious application of a safe and efficient method of treatment demonstrated by Robert M. Lewis. We are of the opinion that this new radical treatment may convert what was formerly a serious social and economic problem into a mild and controlled medical syndrome.

Edgar Allen in 1928 clearly demonstrated that after the injection of 1,005 rat units of ovarian hormone into immature female monkeys, over a period of twenty-one days, there was a definite increase in the number of epithelial layers of the vagina to thirty, as compared to from four to eight layers in the control animal. Associated with these changes, the vaginal smears showed an increased number of partly or completely cornified epithelial cells. Allen further showed that involution of the vaginal structures occurred several weeks subsequent to the cessation of the treatment.

The following facts should be borne in mind. In the adult, the thick cornified epithelium of the vagina is resistant to the gonococci and, therefore, gonorrheal vaginitis, per se, is uncommon. In children, however, the gonococci flourish on the thin delicate mucous membrane and eventually penetrate into the subepithelial spaces. In this manner the disease becomes resistant to local treatment.

Read before the Academy of Medicine of Northern New Jersey  
March 1, 1934

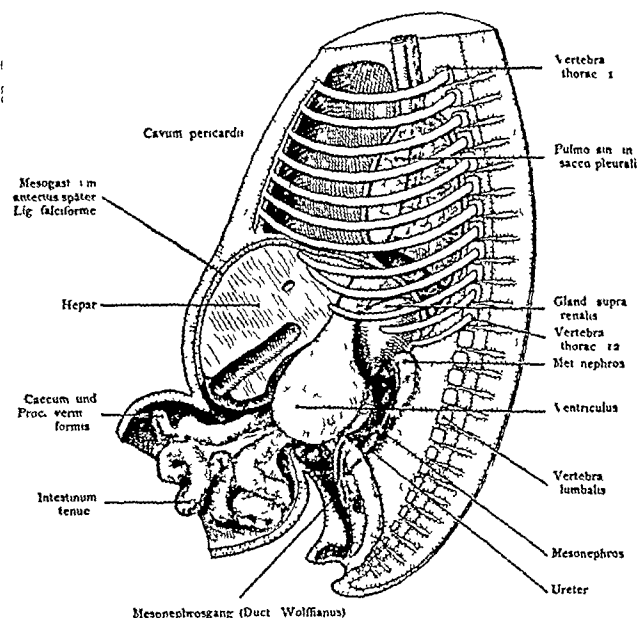


Fig. 4—Median section of a 24 mm embryo from a drawing taken from Kollmann.<sup>3</sup>

difficulty, as that cavity was not accustomed to the increased contents. No attempt was made to anchor the liver in any way. The incision was closed with through-and-through silk-worm tension sutures only, and a cigaret drain was inserted. After closure there was great pressure against the incision from within, due to the increased contents. The infant was returned to its ward at 9:45.

Careful postoperative care, including the frequent and regular administration of 5 per cent dextrose in physiologic solution of sodium chloride hypodermically in the outer surface of both thighs, kept the infant in good condition. There was some vomiting of bile-stained fluid in the first twenty-four hours, but the convalescence was otherwise uneventful.

An examination at the age of 3 months indicated that the liver was apparently in its normal position, except that it seemed to have rotated posteriorly, the liver dulness beginning 5 cm. to the right of the midsternal line.

Bardeen<sup>2</sup> says

#### COMMENT

In the drawing reproduced from Kollmann<sup>3</sup> the umbilical loop may be seen in the umbilical cord in a fetus of 25 mm.

<sup>3</sup> Kollmann, J. C. E. Handatlas der Entwicklungsgeschichte des Menschen. 2. Auflage 387 after figure 45 of Mall, F. P. Development of the Human Coelom. J. Morphol. 12: 446, 1897.

Lewis reasoned that if he could by means of the estrogenic preparation theelin change the vaginal epithelium in the immature human to that of the adult type, the gonococcal infection would be eliminated. He carried out this form of treatment on eight children who were selected as showing typical cases of gonorrheal vaginitis. The patients received daily hypodermic injections of 50 rat units of theelin. The total

this form of treatment on ambulatory patients. Six children were selected at random, each one showing a vaginal infection, accompanied by purulent discharge, burning and itching. Vaginal smears and cultures were taken in each case. We were able to demonstrate gram-negative intracellular diplococci, morphologically resembling gonococci, in every smear, and a positive vaginal culture was obtained in one case. Three children of this series gave a history of recent infection, and in three it was of long standing. Two of these children had received local treatment for several months with no results, while four presented untreated infections.

In this investigation, no other form of treatment was employed while amniotin was being given. One hundred rat units of hypodermic amniotin was administered three times a week on five patients of the series, while one child, aged 3½ years, received daily from 120 to 200 rat units of oral amniotin. At no time were there any local or constitutional reactions manifested as a result of the treatment.

It was noted that in the three chronic cases the vaginal discharge disappeared after four weeks of treatment. The children of this group were clinically cured after receiving a total average of twenty-one injections or 2,100 rat units of amniotin. Vaginal smears taken weekly showed a progressive diminution in the number of intracellular diplococci and the appearance of an increasing number of cornified epithelium cells. The vaginal smears were negative for gonococci at the end of four weeks.

The second group, consisting of the three acute cases, required longer and more intensive treatment. The vaginal discharge disappeared after eight weeks of treatment. The children of this group received a total average of twenty-seven injections equivalent to 2,700 rat units. At the end of this period, vaginal smears were negative for gonococci. The child in this group who received oral amniotin required larger daily doses. However, the clinical results were similar to

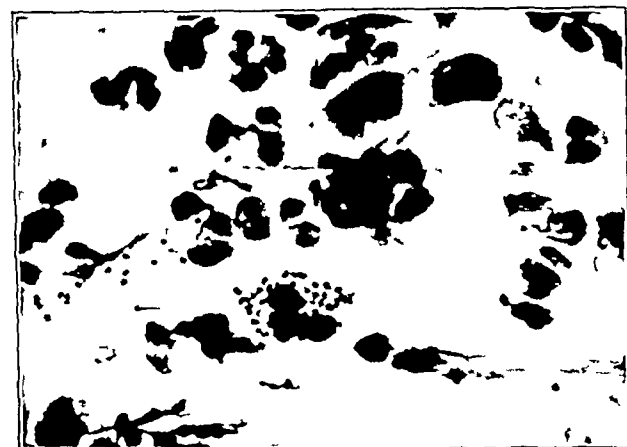


Fig 1—Vaginal smear before treatment with amniotin showing presence of gonococci and leukocytic elements

amount of estrogenic preparation administered in each case varied. The average total quantity administered was 2,100 rat units. The average duration of the treatment was twenty-one days. The longest course of treatment continued for ninety-eight days. He demon-

#### Treatment in Six Cases

Case	Duration of Infection Before Treatment	Medication	Total		Results
			Weeks Treated	Total Rat Units	
1	1 year	Hypodermic amniotin	7	2,100	Clinically cured followed for 2 months with no recurrence
2	3 mos	Hypodermic amniotin	8	2,400	Clinically cured followed for 2 months with no recurrence
3	3 mos	Hypodermic amniotin	6	1,800	Clinically cured followed for 6 weeks with no recurrence
4	1 week	Hypodermic amniotin	9	2,700	No discharge clinically cured followed for 5 weeks with no recurrence
5	2 wks	Hypodermic amniotin	9	2,700	All symptoms gone negative for gonococci followed for 5 weeks with no recurrence
6	3 wks	Oral amniotin	8	6,000	Clinically cured followed for 3 weeks with no recurrence

strated by means of biopsy the remarkable changes that were effected by the estrogenic preparation. The results were exactly similar to those which Allen had obtained in the immature monkey. In his opinion theelin, by inducing a proliferation of the vaginal epithelium, rapidly clears up the discharge and appears to eradicate the gonococci.

Realizing the importance of this work, we decided to investigate further this plan of treatment in juvenile gonorrheal vaginitis, using another estrogenic preparation, amniotin<sup>1</sup>. Appreciating the difficulty of isolating and hospitalizing every case of vaginitis, we applied



Fig 2—Vaginal smear seven weeks after treatment with amniotin was begun showing complete absence of gonococci and leukocytes and the presence of cornified epithelial cells

those of the other cases. Regardless of the amount of amniotin administered, we did not observe any hypertrophy of breasts or labia, or any uterine bleeding.

Throughout this study, biopsies from the lateral wall of the vagina were made in each case before and after amniotin injections. The microscopic examination of the sections removed before treatment showed the thin delicate epithelial layers of the child's vagina, with

<sup>1</sup> The amniotin used in this study was supplied by E. R. Squibb & Sons.



marked round cell infiltration, significant of inflammatory changes. There was an absence of a definite cornified layer of epithelial cells.

The examination of the biopsy sections after treatment revealed striking changes in each case. There was a definite increase in the number of epithelial layers, and the inflammatory changes were no longer present. The most significant change, however, was the presence of a definite layer of cornified epithelial cells.

We observed a direct relationship between the clinical results and the histologic picture. In those cases in which the discharge persisted there was an absence of a layer of cornified epithelial cells, whereas in the cases considered clinically cured the layer of cornified cells was present.

As a result of these observations we are of the opinion that the success of this mode of treatment depends mainly on the development of a layer of cornified epithelial cells. This layer of cells is analogous to the desquamating type of cells found in the normal adult vagina. The acquired layer of cornified epithelial cells acts as a protective barrier against the rapidly multiplying gonococci and thus prevents reinfections. On the other hand, the gonococci that have previously



Fig. 3—Vaginal epithelium (biopsy) before the administration of amniotin, showing thin epithelial layer and inflammatory changes.

penetrated into the subepithelial spaces are destroyed by the normal phagocytic action of the leukocytic elements.

A question may arise at this time regarding the safety of this mode of treatment when administered to a child.

Hartman, as a result of his experiments on animals, is of the opinion that the dosage of estrogenic preparation required to produce the vaginal reaction is far less than that which would lead to injurious changes or uterine bleeding. He considers, furthermore, that estrogenic substance is so readily excreted by the kidneys that no deleterious effect can result from cumulative action. Lewis further showed that in his series of eight children treated with an estrogenic preparation there was an absence of any deleterious effects and that involution of the vaginal structures occurred after cessation of treatment. In our series we also noted definite involuntary changes occurring five weeks after cessation of treatment.

In order to investigate further the effects of amniotin on the anterior pituitary gland and ovaries, we attempted to determine the amount of estrogenic substance and anterior pituitary-like principle excreted in

a twenty-four hour urine specimen during and after treatment. The results obtained thus far lead us to make the following preliminary conclusions:

1 Amniotin has no cumulative action, as is evidenced by a constant presence of this product in the urine of the children receiving treatment.

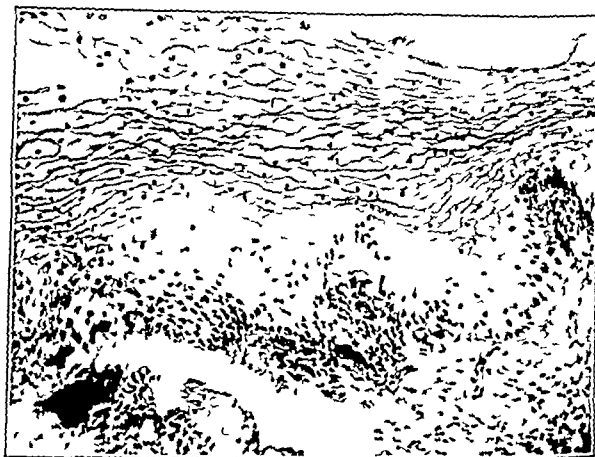


Fig. 4—Vaginal epithelium seven weeks after treatment with amniotin showing increased number of epithelial layers and presence of a layer of cornified epithelial cells?

2 The renal threshold of amniotin varies in different individuals.

3 The amount of estrogenic substance in the urine as determined by the Kurzrok method is directly proportional to the intensity of the treatment.

Additional data at present as to the effect of administration of an estrogenic preparation on the anterior pituitary gland is not possible, owing to the fact that our experimental studies have not been completed.

#### SUMMARY

The following facts should be emphasized:

1 Although there is produced an increase in the number of epithelial layers of the vaginal mucous membrane after treatment by the estrogenic prepara-

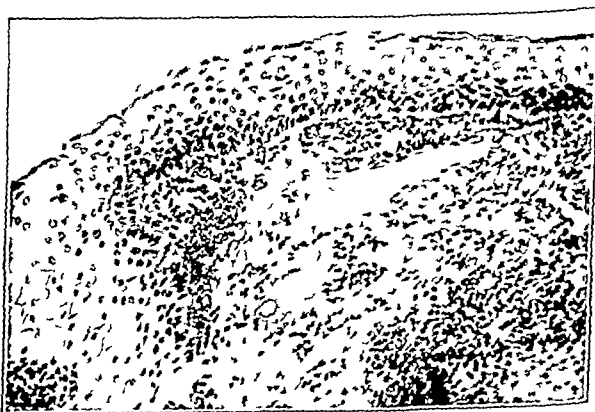


Fig. 5—Vaginal epithelium four weeks after termination of amniotin administration showing partial involutionary changes and a definite layer of cornified epithelial cells.

tion, this is not the sole factor responsible for the eradication of the disease.

2 The most important aid in combating gonorrheal vaginitis is the formation of the cornified layer of epithelial cells, which acts as a barrier against reinfection.

3 The method of treatment described is safe, as has been shown by the work of Hartman and Lewis, and by our own laboratory and clinical results

4 There is a definite involution of the vaginal structures after cessation of treatment

5 This mode of treatment does not necessitate the hospitalization of the patient

6 In view of our encouraging results with oral ammotin we believe that this preparation offers a simple method of treatment which may eradicate the disease

## Clinical Notes, Suggestions and New Instruments

### A SIMPLE SIGMOIDOSCOPIC ASPIRATOR

WILLIAM Z FRADKIN, M.D., BROOKLYN  
Assistant Surgeon, Jewish Hospital of Brooklyn

The recent outbreaks of amebiasis have made many physicians 'ameba conscious'. This added interest has afforded an opportunity to evaluate methods of collecting specimens from the diseased colon. It soon became apparent that a stool specimen sent to the laboratory is not the most desirable material for examination. It is rarely fresh. It is cold. The preparation of a suspension is not a pleasant task and often is very revolting to the technician or physician. Specimens obtained through the sigmoidoscope not only obviated these disadvantages but resulted in many more positive examinations. Paulson and Andrews<sup>1</sup> have had similar experiences



Above the parts of the sigmoidoscopic aspirator, below the instrument assembled and ready for passage through the sigmoidoscope

Recently I described a sigmoid aspirator<sup>2</sup> for procuring fresh sigmoidal contents. That instrument is particularly valuable in cases of diarrhea, in the preulcerative stages of colitis or in debilitated cases in which a sigmoidoscopic examination is objectionable. However, when ulcerations are seen through the sigmoidoscope, direct aspiration of the exudate from and about the ulcers is the procedure of choice. For this purpose a sigmoidoscopic aspirator<sup>3</sup> was devised. By means of this simple instrument, extremely gratifying results were obtained in rapidly detecting amebas lodged in the depths of ulcerations. The sigmoidoscopic aspirator consists of a long narrow tube 19 inches long and one-eighth inch in diameter, bent at an obtuse angle 4 inches from the proximal end. The distal end is bulbous and smooth while the proximal end fits the tip of a luer syringe. A spiral spring is mounted over the piston of a 2 cc syringe in order to facilitate aspiration with one hand while the other hand steadies the sigmoidoscope.

#### SUMMARY

The simple aspirator here described obtains exudate direct from ulcerative lesions in the sigmoid through the sigmoido-

From the Department of Pathology, Jewish Hospital of Brooklyn.  
<sup>1</sup> Paulson, Moses, and Andrews, J. M. The Detection and Incidence of Human Intestinal Protozoa by the Sigmoidoscope. J. A. M. A. 88: 1876-1879 (June 11), 1927.

<sup>2</sup> Fradkin, W. Z. A Sigmoid Aspirator. J. A. M. A. 102: 1-81 (April 28), 1934.

<sup>3</sup> Manufactured by Geo. Tiemann & Co., New York.

scope under sterile precautions. The exudate is ideal material for immediate microscopic examination or for the introduction into culture mediums for further protozoologic and bacteriologic studies.

955 Eastern Parkway

### TUMOR OF THE CAROTID BODY

A. CLIFFORD ABBOTT, M.D., C.M., F.R.C.S. (Ed.), AND  
EARL STEPHENSON, M.D., CH.M., WINNIPEG, MANITOBA

Tumors of the carotid body are so rare that few surgeons see more than one in a lifetime. In 1929, Bevan and McCarthy<sup>1</sup> collected and tabulated 134 reported cases. From their series it is strikingly apparent that operative removal of these

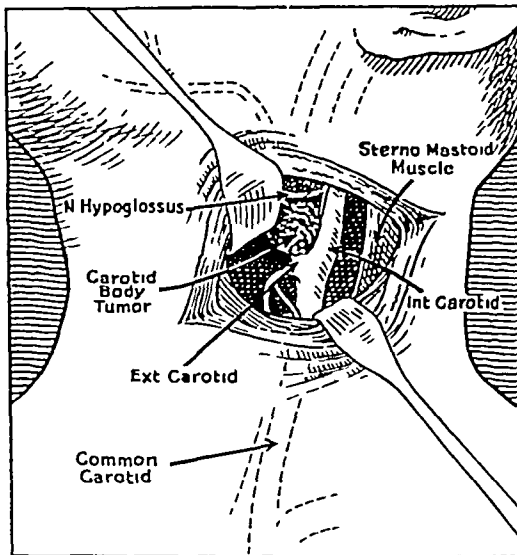


Fig. 1—Tumor of the carotid body surrounding the external carotid artery. The hypoglossal nerve is seen running across the outer surface of the tumor.



Fig. 2—Section of a tumor of the carotid body slightly reduced from a photomicrograph with a magnification of 150 diameters.

growths is associated with a very high mortality (33 per cent) and a long list of complications (30 per cent).

The following case was attended by one of us.

A woman, aged 53, sought medical advice in April, 1931, because of dyspnea, tachycardia, nervousness, irritability and

<sup>1</sup> Bevan, A. D. and McCarthy, E. R. Surg. Gynec. & Obst. 49: 764-779 (Dec.), 1929.

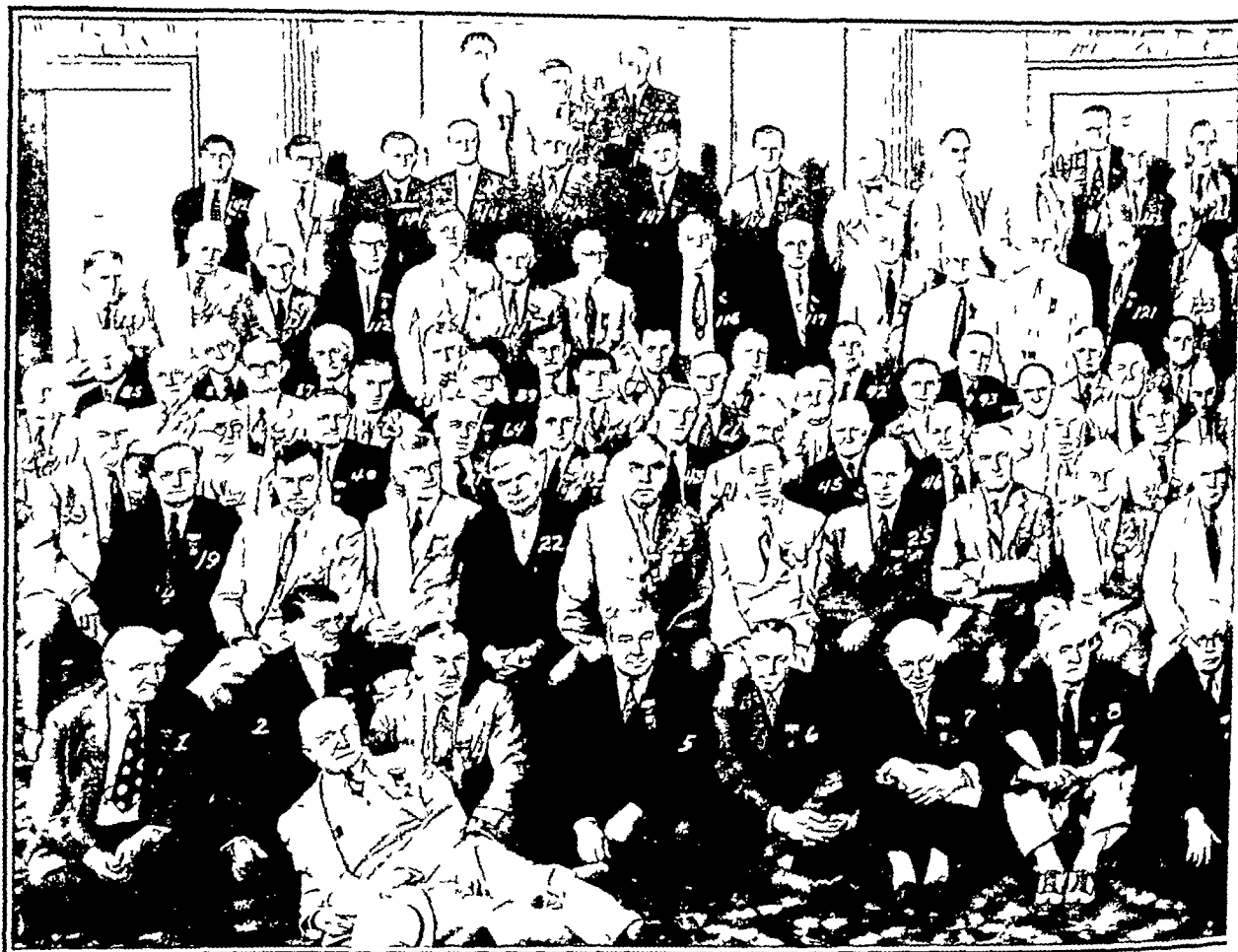
dizzy spells. There had also been some dysphagia. For nine years she had noticed a small nodule below the angle of the left mandible, and for the last five years the thyroid had been increasing in size. The small nodule at the angle of the mandible had enlarged gradually and at times become very painful. This pain radiated to the left postauricular region.

The patient had had no severe illnesses but had had frequent sore throats and an occasional rheumatic pain. She was the mother of eight children. The menopause began at 48 and was now completed.

angle of the left mandible there was a firm smooth swelling which the patient said increased in size during wet weather. This solitary nodule was quite discrete and tender to pressure, moved at right angles to the carotid sheath but not up and down, and did not pulsate. Our preoperative diagnosis in this case lay between an accessory thyroid or a tumor of the carotid body associated with an adenomatous goiter.

A bilateral resection of the thyroid was done, April 13. The large right lobe extended behind the trachea. It was deemed unwise to remove the nodule from below the mandible at this

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The patient was stout, weighing 181 pounds (82 Kg). The general physical examination was negative except for a blood pressure of 190 systolic and 110 diastolic, septic tonsils, and the two masses in her neck. There was an adenomatous enlargement of the right lobe of the thyroid extending from the ear to the thorax. The left lobe was smaller. Just below the

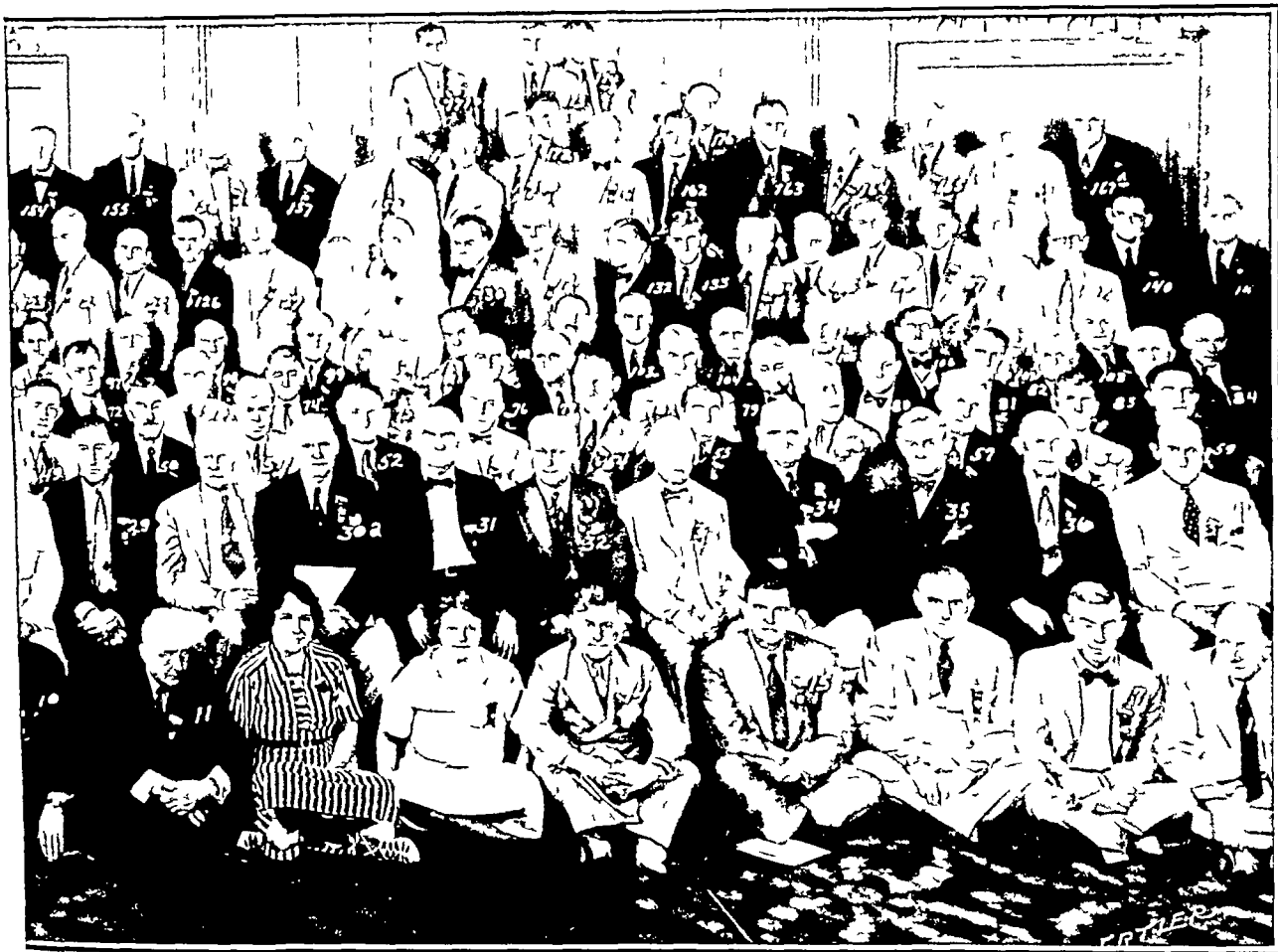
operation. The patient had a most uneventful convalescence. April 18 under ethylene and oxygen anesthesia the tumor was exposed by an oblique incision below the angle of the left mandible. There was considerable hemorrhage. The tumor, firm, the size of a walnut and densely adherent to the underlying structures, was loosened at its lower extremity (fig 1).

The external carotid artery, which was involved in the growth, was ligated under vision. The upper limit of the growth was defined and the mass removed with great difficulty and considerable hemorrhage. Some enlarged lymph glands in this region were removed. The wound was sutured with no drainage. The anesthetist noted that there was an unusual amount of respiratory embarrassment for some unknown reason.

The patient complained of severe pains seeming to start in the left side of the neck and radiating to the forehead on the same side. On the second day she complained of blindness

Dr William Boyd examined the tissue and reported that the tumor consisted of large cells with pale, rather clear, cytoplasm and round or oval nuclei of normal vesicular appearance. The cells showed a distinct alveolar grouping, the groups being separated by delicate strands of connective tissue. There were in addition occasional dense fibrous septums, which passed into the tumor from the capsule. Scattered through the section there were a few dense collections of cells with small dark hyperchromatic nuclei and very scanty cytoplasm. These resembled lymphocytes (fig 2).

### THE HOUSE OF DELEGATES AT THE CLEVELAND MEETING, JUNE 11-15, 1934



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| 105                               | 127 Bates W A Aberdeen S D      | 149 Beebe James Lewes Del         | 170 Cutter W D Chicago           |
| 106 Hunsberger J N Nor town Pa    | 128 Colt J D Sr Manhattan Kan   | 150 Simpson V E Louisville Ky     | 171 Moore J J Chicago            |
| 107 Whalen Charles J Chicago      | 129 Bloss J R Huntington W Va   | 151 Hibbett C W Louisville Ky     | 172 Brennan Thomas N Brooklyn    |
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|                                   |                                 |                                   | 176 Robey W H Boston             |

in the left eye and blurred vision in the right for about ten minutes. On the third day there was some swelling and tension in the wound. This aggravated the pain in her head. There was no infection. The sutures were removed the fifth day and she left the hospital the seventh day after operation. The swelling in the wound disappeared in about two weeks.

Sept 12 1931 the patient was much better. She had, however a definite speech impediment, which she described as a "lisp." Her tongue was smaller than normal, sore on the left side and deviated to the left when she protruded it. Occasionally this side of her tongue became swollen. There was a burning sensation below the left ear. Her general condition,

however, was much improved. Her blood pressure had remained about the same, 180 systolic and 110 diastolic.

April 17, 1932, the patient reported by letter that she still complained of a stiffness and at times a throbbing in the scar. Her speech was much improved but the impediment increased when she was tired. Her tongue still deviated to the left when protruded but was less "thick" than formerly.

June 19, 1933, the patient reported in response to a follow-up letter. She still had pruritus in her head, especially if she was startled. Speech was definitely improved.

#### COMMENT

In our opinion, most of the patient's head symptoms were due to high blood pressure. The defective speech was undoubtedly due to accidental section of the hypoglossal nerve.

409 Power Building

#### COLD ALLERGY

LEE W. PAUL, M.D., LOS ANGELES

A recent editorial in THE JOURNAL<sup>1</sup> presented recorded occurrences of cold allergy, discussed the symptoms and causes, and particularly emphasized the fact that such a reaction should be considered as a possible cause of death during bathing in a cold body of water. Just before the appearance of the editorial, a patient described to me a cutaneous reaction of this type.

#### REPORT OF CASE

D. W., a white man, aged 29, married, a grocery clerk, called my attention to a skin condition which he described as a "bumpy affair" that occurred when he immersed his hands or body in cold water even for only a short time. He stated that he had ceased ocean bathing and plunge swimming because the condition occurred on all exposed areas. Driving against cold rain or mist would also produce it on the exposed areas. Furthermore, swallowing ice water or eating frozen desserts would cause his "throat to close up." At the time of this

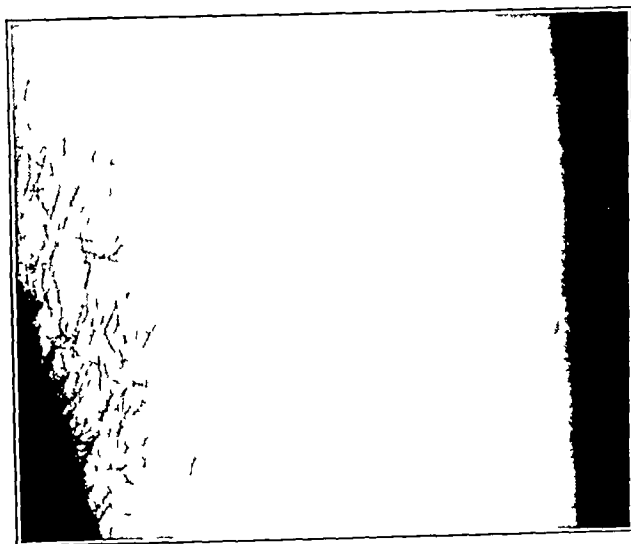


Fig. 1—Area of forearm just previous to experiment

conversation which took place in his store I told him that such reactions as his had been reported in medical literature.

In the course of a few days the editorial mentioned came to my notice. At my request the man came to my office and the editorial was read to him. He said, "that fits my case exactly, and I will demonstrate for you just what happens when ordinary cold tap water is allowed to run over my hand and forearm." He allowed tap water at a temperature of 64° F. to run over his hand and forearm for three or four minutes at the end of which time one or two wheals appeared. Within a minute or two there were several more, and at the end of ten

minutes there were so many that they coalesced and formed a semiedematous mass. The illustrations show the normal appearance before the experiment and the beginning of the reaction phase characterized by discrete wheals, before confluence took place.

The patient stated that the condition caused a little itching but mainly a sense of tenseness. Warmth hastened its disappearance but without the use of warmth the reaction lasted about thirty minutes. In this case there had never been a

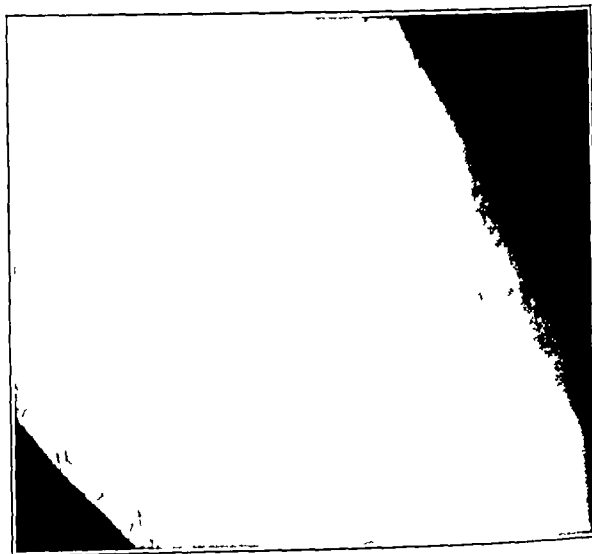


Fig. 2—Same area as in figure 1 showing wheals forming and coalescence farther down on the arm

general systemic reaction, as reported by Horton and Brown.<sup>2</sup> There was, however, evidence around the wrists of such a continuous outcrop of wheals that the itching had caused sufficient scratching of these areas to cause denuding of the tops of wheals.

#### COMMENT

An inquiry into the history shows that a condition of hyper sensitivity has existed for approximately four years. No opinion had been given him in his heretofore casual conversations with physicians. It is interesting to record that he was very sensitive about his condition, not wanting to let his friends know of it, when he came to see me he even told his employer that he was desirous of seeing me "because he was nervous."

I hope that the understanding he now has that the condition is not a "blood disease" will make him less sensitive regarding it. Treatment by daily immersion of the hands in colder and colder water, as was used in the reported cases of Horton and Brown, has been advised.

#### SUMMARY

A case of cold allergy in which some reactions were observed and other reactions were described by the patient further strengthens the theory that such reactions under circumstances of bathing in large bodies of cold water may be a cause of disagreeable or serious symptoms, or even death.

10576½ West Pico Boulevard

2 Horton B. J. and Brown G. E. Systemic Histamine Like Reactions in Allergy Due to Cold. A Report of Six Cases. *Am. J. M. Sc.* 178: 191-202 (Aug.) 1929.

**Cholesterol a Framework**—Cholesterol is present in every animal cell. Of its cell functions Starling said: "In view of the great stability of this substance when exposed to the ordinary mechanisms of chemical change in the body, it seems probable that the part played by cholesterol is that of a framework or skeleton in the interstices of which the more labile of the constituents of the protoplasm undergo the cycle of changes which make up the phenomena of life."—Leary. *Timothy. Experimental Atherosclerosis in the Rabbit Compared with Human (Coronary) Atherosclerosis, Arch. Path.* 17: 453 (April) 1934.

<sup>1</sup> Cold Allergy and Drowning editorial J. A. M. A. 101: 1644 (Nov. 18) 1933.

## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.  
CHICAGO

*NOTE*—In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by the various members are incorporated in the final draft prepared for publication. The series of articles will be continued from time to time in these columns.—ED

#### THERAPY OF CONJUNCTIVITIS

OUTLINE BY SANFORD R. GIFFORD, M.D.

Although bacterial invasion is the exciting cause of most of the conjunctival inflammations, particularly the more severe and the more acute forms, the application of antiseptic solutions or ointments to the tissue surfaces while not without value, is less effective than could be desired, at least so far as destruction of the organisms or inhibition of their growth is concerned. This is due to the well recognized fact that within a relatively short time, frequently before the patient is first seen the bacteria have invaded the tissues to a greater depth than that to which the antiseptics can penetrate. It is only at the moment of contamination while the micro-organisms are still on the surface that disinfection can actually be accomplished (see prophylaxis of gonorrheal conjunctivitis).

The fact also must be kept in mind that conjunctivitis may be caused by chemical irritation, such as exposure to irritant gases, face powders or eyelash dyes, and that in these the use of bactericides, all of which are irritant, would add insult to injury. For instance, a case of conjunctivitis may not yield to treatment until the patient has given up smoking and stays away from smoke-contaminated rooms for days or weeks.

The inflammatory process itself should be regarded as the most important factor to be dealt with, and all measures designed to limit its severity and extent and to hasten its resolution should be adopted, so far as practicable.

Compresses must not be used in any form of conjunctivitis—unless they are accompanied by frequent irrigations (see gonorrheal ophthalmia in the adult)—as they force the lids to close, thus converting the conjunctiva into a closed sac and impeding drainage.

Before the patient goes to sleep, petrolatum should be applied to the edge and lashes of the lower eyelid to keep the lids from becoming stuck together during the night, which also interferes with drainage.

#### CONJUNCTIVITIS DUE TO CHEMICALS

In burns from alkali, irrigation is advisable with much diluted acetic acid. Sodium bicarbonate solution (5 per cent) is best for acid burns.

#### ACUTE CATARRHAL CONJUNCTIVITIS (PINK EYE)

*Prophylaxis*—The period during which the disease is transmissible corresponds, for practical purposes, with that in which discharge is present, so that children may be allowed in school after this disappears. Treatment should, however, be continued for about another week or even longer, and precautions of special cleanliness should be observed for at least this length of time.

*Treatment*—As this disease is often self limited, running its course within six to eight days in mild cases, the object of treatment is simply to shorten this course, to relieve the patient's discomfort and to reduce the period of infectivity. Corneal complications probably develop only when some trauma to the cornea occurs.

*Cleansing*—Before a drug designed to kill bacteria or to inhibit their growth is used, any purulent or mucoid secretion should first be removed from the conjunctival sac by lavage with physiologic solution of sodium chloride, as precipitation of the drugs on contact with such secretion greatly reduces and may completely nullify their effect.

*Antiseptics*—A smear should be made when a case is first seen, and if the pneumococcus is present (the most common cause in North America) the use of a freshly prepared 1 per cent ethylhydrocupreine hydrochloride (optochin) solution twice a day may materially shorten the course of the disease. As instillations of this drug are painful in certain persons, a weak solution of a local anesthetic, 0.5 per cent butyn or 0.25 per cent panto-caine, may be prescribed for use before the ethylhydrocupreine. In cases not due to the pneumococcus other antiseptics, such as metaphen 1:2,500, mercuric oxy-cyanide 1:5,000 or acriflavine hydrochloride 1:1,500 are preferable, and these have proved clinically of almost equal value in pneumococcal conjunctivitis. They may be used four times a day, as they are not painful or irritating in these concentrations. Mild silver protein (argvrol) or neosilol which are often employed in 10 to 20 per cent solutions have little if any bactericidal effect but seem to produce symptomatic improvement. Prolonged use is prohibited by danger of local argyria.

In severe cases, indeed in any case, the duration of symptoms may be shortened by one or more direct applications of 2 per cent silver nitrate. These should be made by the physician and must be preceded by instillation of 2 per cent butyn or 0.5 per cent panto-caine. After about ten minutes the drug may be painlessly applied to the everted lids, left thirty seconds and washed off with physiologic solution of sodium chloride. A 2 per cent zinc chloride solution employed in the same way is also effective in certain cases. Applications of moist or dry heat after each instillation lessen the discomfort and probably aid in hastening recovery.

#### GNORRHEAL CONJUNCTIVITIS (OPHTHALMIA NEONATORUM)

*Prophylaxis*—State laws (Illinois, 1933) make compulsory the use of 1 per cent silver nitrate solution at birth or such other antiseptic agents as the board of health may recognize. It has not, however, recognized any other agents and the substitution of any other, especially of the mild silver proteins, for the 1 per cent silver nitrate is therefore illegal, besides being, as regards the latter drugs, perfectly useless for prophylaxis. The silver solution, to be effective, must be instilled immediately after birth and this duty should be performed by the obstetrician himself or by an experienced assistant under his direct supervision.

*Treatment*—When conjunctival discharge appears in an infant after birth, smears must be made at once and stained carefully by Gram's method. If no gonococci or other organisms are found in the secretion, a spread of the superficial epithelial cells obtained with a sharp spatula may reveal organisms before these are present.



in the secretion. If no organisms are found, conjunctival inflammation in the new-born should be treated with irrigations frequently enough to keep the sac free from secretion, and smears should be repeated if the symptoms persist more than one or two days, the duration of the occasional inflammation produced by silver nitrate.

Once the diagnosis of gonorrheal ophthalmia is made, the child must be isolated and given day and night nursing. In infants both eyes are usually involved, but in a few cases one is left intact, and such eyes should be protected with a Buller's shield or other water tight dressing (e. g., a cleansed noninflammable x-ray film applied by a frame of adhesive plaster), which is changed every day so that the eye may be examined for beginning inflammation.

**Cleansing.** In this condition one's best efforts must be directed to the prevention of corneal complications. Irrigations of the conjunctival sacs to keep the cornea free from contact with secretion are therefore the most important form of treatment. Physiologic solution of sodium chloride and 1:15,000 potassium permanganate are the best irrigating solutions and must be used frequently enough so that no secretion is allowed to collect in the sac. This may mean every half hour night and day for several days in severe cases. In others, every hour or every two hours is sufficient. The lids should be freely manipulated during irrigation so that any secretion clinging to the cornea or conjunctiva is dislodged, and enough fluid should be used to remove all such secretion from the sac. The lid borders should be kept anointed with petrolatum so that they may not stick together between irrigations. It is the physician's duty personally to instruct nurses in the technic of irrigation.

Antiseptics may also be of value, though the majority of cases will clear up on irrigations and proteotherapy alone. Acriflavine hydrochloride 1:1,500 or metaphen 1:2,500 instilled three times a day after irrigations may be useful. It is doubtful whether mild silver proteinate, so commonly applied, serves any purpose. Silver nitrate was formerly much employed but is not without danger to the cornea and is seldom necessary when irrigations are properly performed. In some cases, with discharge persisting after the swelling has subsided, a few careful applications of 2 per cent silver nitrate on the everted lids and retrotarsal folds, the cornea being carefully protected, will aid materially. It should be neutralized with physiologic solution of sodium chloride while the lids are held everted. Copper sulphate crystals may also be used in such cases and may even prove of more value than the silver nitrate.

**Proteotherapy.**—The use of foreign protein injections undoubtedly shortens the course and prevents corneal complications in many cases. Milk boiled for four minutes serves admirably for this purpose. The initial dose is 1 cc., and this is increased to 1.5 and 2 cc. on succeeding injections, which are best repeated every third day for from three to five doses. Diphtheria antiserum has also been found valuable for this purpose.

**Corneal Involvement.**—When the cornea is involved, irrigations are continued, the pupil is kept dilated with 0.5 per cent atropine sulphate solution, and more vigorous efforts are made to clear up the discharge with antiseptics and foreign protein injections. Silver nitrate is indicated here, provided there is no ulceration, and one takes care to protect the cornea against direct

action by the chemical. The application may be repeated daily or every two days. If a localized corneal ulcer is present, direct application of trichloroacetic acid possibly once every other day may be made. When, as usual, a large area of cornea is denuded, it is best to cover the whole cornea with a conjunctival flap. If possible, this should remain in place until the secretion has cleared up under the treatment described.

**Gonorrheal Ophthalmia in the Adult.**—The treatment in most details is as already described. On account of much greater danger of corneal complications, the most vigorous means are employed from the outset. Most important is protection of the other eye by Buller's shield or by a cone made of transparent noninflammable x-ray film. For proteotherapy in adults, intravenous injection of from 40 to 80 million organisms of a standard typhoid vaccine is the most dependable means of securing a good febrile reaction. This should be repeated every third day (i. e., at intervals of two fever-free days) and the dose increased according to the reaction. For such small doses the commercial vaccine must be diluted accurately with sterile physiologic solution of sodium chloride in a "tuberculin" syringe.

**Local Treatment.** Iced compresses used during the first two or three days are of value when much swelling of the lids is present. After this time heat from an infra-red lamp may be employed. The indications for silver nitrate are the same as in ophthalmia neonatorum, but many will prefer to use it from the beginning in any case presenting profuse secretion. A careful watch must be kept for early involvement of the other eye, the shield being changed daily or every two days for that purpose.

#### CHRONIC CATARRHAL CONJUNCTIVITIS

The commonest cause of chronic catarrhal conjunctivitis is the diplobacillus of Morax-Axenfeld. Since the treatment of such an infection with zinc is exceedingly satisfactory, it is of great value to make an exact diagnosis by examination of smears or scrapings from the inner or outer angle. A Gram stain will usually reveal numerous characteristic large gram-negative bacilli in pairs or chains of pairs.

**Antiseptic Treatment.**—The instillation by the patient of from 0.25 to 0.4 per cent zinc sulphate solution three or four times a day will cure many mild cases if continued for six or eight weeks. Many chronic cases, however, require applications by the physician of stronger zinc solutions twice a week, and cure in all is hastened by such applications. Previous instillations of 1 per cent butyn or 0.5 per cent pantocaine are necessary, after which 2 per cent zinc chloride is dropped freely on the everted lids, worked into the folds by manipulating the lids, and washed off after thirty seconds with 0.2 per cent zinc chloride. From three to four weeks of such applications are sufficient for most cases, the weaker zinc solution being used by the patient in the meantime, and for one month after all symptoms are relieved. When, as is often the case, the skin at the outer angle is cracked and excoriated, these areas should be covered with ointment of zinc oxide at night.

Chronic conjunctivitis may also be due to the pneumococcus, and this form often is exceedingly resistant to treatment. A 1 per cent solution of ethylhydrocupreine hydrochloride instilled three times a day is of definite value here, perhaps of more value than any

other drug. Acriflavine hydrochloride may be employed with good results in most cases if treatment is continued long enough. Applications of 2 per cent silver nitrate by the physician will hasten a cure in most cases. They should be preceded by a drop of local anesthetic and followed by irrigation with physiologic solution of sodium chloride.

**Medication of Lacrimal Sac.** Before the use of medication in acute or chronic conjunctivitis it is often advisable to shrink the membranes in the canaliculi leading to the lacrimal sac by the use of epinephrine solution 1:1,000. This results in the medication more readily finding its way from the conjunctival sac into the lacrimal sac, so that it acts to better advantage than if it must work its way through less patent openings because of swollen epithelium.

**Other Causal Treatment.**—In any case of chronic conjunctivitis, search for other factors, such as eye strain, blepharitis, inflammation of the meibomian glands and exposure to chemical agents or those likely to produce allergic reactions, must not be neglected, as they are a common cause of long standing conjunctival inflammation.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE H. A. CARTER, Secretary

### WHAT CAN THE GENERAL PRACTITIONER EXPECT FROM INFRA-RED THERAPY?

The generators of infra-red or thermal radiation usually consist of a concave reflector at the focus of which is the heating element. This element may be composed of an incandescent lamp or a heater consisting of a solid rod or a resistance wire embedded in or wound round an electrically nonconducting refractory material such as "steatite," lava or porcelain. The color of the surface, whether white or black, is unimportant.

The incandescent filament radiators that are enclosed in glass bulbs emit radiation of wavelengths 4,000 to 40,000 angstroms<sup>1</sup> with the maximum emission at from 11,000 to 20,000 angstroms, depending on the temperature of the filament. Only a small amount of radiation is emitted by the glass of the bulb.

The radiant heaters that are not enclosed in glass emit perceptible radiation of all wavelengths throughout the infra-red to 150,000 angstroms, beyond which point the intensity is very low. Carbon dioxide and water vapor, which are present in the air, selectively absorb certain wavelengths in the infra-red. With increase in temperature the maximum emission shifts toward the short wavelengths, so that for a surface temperature of from 300 to 400 C (from 570 to 750 F) the maximum emission is not well defined, extending from 40,000 to 50,000 angstroms, whereas at a low red heat (from 600 to 800 C) the maximum emission becomes more sharply defined and lies between 20,000 and 30,000 angstroms. Moreover, the infra-red radiation from the latter is far more intense (from eight to ten times greater) than that emitted by the heater at 300 C. The reflectors surrounding these heaters are quite nonselective and hence they

have no appreciable effect in modifying the spectral composition of the radiation emanating from the heater.

These generators are usually for local application of infra-red or thermal energy and when used in treatment may be held in the hand or mounted on stands directing the radiant energy toward the diseased part. Satisfactory apparatus may be procured from dealers at a nominal sum.

From the sources here considered (electric bulbs and resistance coils), the penetration of heat into the tissues is never great under therapeutic conditions. Sonne<sup>2</sup> noted that during the applications of incandescent radiation of maximum tolerance the surface temperature of the skin rose to 43.8 C (110.8 F), while the subdermal temperature at a depth of 0.5 cm was 47.7 C (117.8 F). On application of infra-red radiation he observed temperature differences of 45.5 C (113.9 F) on the skin surface and 41.7 C (107 F) at the depth of 0.5 cm.

Loewy and Dorno<sup>3</sup> reported skin surface temperatures of from 41 to 44 C (105.8 to 111.2 F) during irradiation with long infra-red rays, while the temperature at a depth of from 10 to 25 mm was about 38 C (100.4 F). They found that the short infra-red and visible rays of sunlight caused a temperature of 38 C (100.4 F) on the skin surface and 40 C (104 F) at a distance of 25 mm beneath the surface.

Studies of Bachem and Reed<sup>4</sup> show that a considerable percentage of the radiation in the visible and near infra-red regions of the spectrum penetrate through the skin and into the subcutaneous areas, while radiation of the far infra-red spectrum has practically no penetration. Most of the near infra-red radiation was absorbed in the upper layers of the skin, while most of the visible radiation was absorbed in the lower layers.

Following local exposure there is directed to the part increased circulation of blood, which tends to keep the temperature of the tissues constant. The blood itself is also warmed but the heat regulating mechanism of the body operates to maintain the blood nearly constant in health and it is therefore difficult or impossible to "heat up" deep lying structures by increasing the degree of heat or prolonging application. However, superficial structures, such as skin, tendons and fibrous tissue, are actually heated to a limited degree and may be injured by careless application.

#### THERAPEUTIC INDICATIONS

The therapeutic indications for the use of external heat can be grouped under the two general headings of general exposure and local exposure, according to whether a systemic or a local effect is desired. Systemic effects confine their application for the most part in medical as contrasted with surgical conditions and are valuable chiefly in the treatment of acute and chronic arthritis or rheumatoid conditions.

In this article, only the use of local radiant heat will be considered. The therapeutic indications for the use of heat locally are chiefly in the following fields: surgery, following fractures, dislocations, sprains, cicatrices after operating procedures, arthritis when a limited influence on the joints is desired, myositis, neuritis, and circulatory disturbances of the extremities.

<sup>2</sup> Sonne C. *Acta med Scandinav* 54: 336, 1921.

<sup>3</sup> Loewy A. and Dorno C. *Strahlentherapie* 20: 411, 1925.

<sup>4</sup> Bachem A. and Reed C. I. *Am J Physiol* 97: 86 (April) 1931. *Arch Phys Therapy* 12: 581 (Oct) 1931.

<sup>1</sup> An angstrom is one ten millionth millimeter or 1/10 000 000 mm.

*Local Application of Heat in Arthritis*—The application of heat locally to a joint or joints in arthritis is often of the highest therapeutic value. The principle holds, here as elsewhere, that reliance must not be placed on this measure alone. It must be considered in conjunction with other principles of treatment of the disease as a whole and of the joint in particular. The measure most often used in arthritis in conjunction with local external heat is massage and although often misused it constitutes an almost necessary adjunct to the use of heat alone, especially in the form of stroking massage.

Application of heat should not be carried to the point of irritation and should depend for its effect on repeated use, for example, once or twice a day over a period varying from ten minutes to half an hour. Local sweating generally occurs and the part should be kept warm after the treatment.

*Neuritis and Neuralgia*—Heat is of the greatest value in inflammations of the peripheral nerves and in vascular diseases in which the nervous system is implicated. In the various neuritides, such as intercostal neuralgia or inflammation of any of the nerves in the limbs, heat, and particularly radiant heat, allays the inflammation. In intercostal neuralgia, care must be taken to give a sufficient amount of treatment, for the penetration here must be deeper than in the limbs. Here heat is only one mode of treatment, as frequently a neuritic condition is part of arthritis.

*Circulatory Disturbances of the Extremities*—In certain vascular diseases of the limbs, such as erythromelalgia, Raynaud's disease, thrombo-angitis obliterans, thrombophlebitis and endarteritis obliterans, radiant heat applied to the diseased parts more or less constantly over a period of days may cause an alleviation of the symptoms. Starr reported that at temperatures under 30 C (86 F) the feet showed varying degrees of cyanosis and the patients complained of pain. Between 33 and 35 C (91.4 and 95 F), pain diminished or disappeared and the color of the feet most closely approached the normal. Above 35 C (95 F), cyanosis reappeared and pain returned.

A temperature of between 30 and 35 C (86 and 95 F) was employed in the treatment of these conditions, maintained round the feet day and night by means of a thermoregulated foot cradle. Under such conditions some patients preferred temperatures differing slightly from that which they chose in the acute experiment, so temperatures between 32 and 37.5 C (89.6 and 99 F) have been used for prolonged treatment.

*Chronic Diseases of the Nervous System*—In hemiplegia or lateral sclerosis, when the limbs are spastic, radiant heat will decrease the spasms and contractures, at least for a time, and will moderate other symptoms.

The application of radiant heat energy as a treatment of surgical conditions is valuable. Local application of heat produces relaxation of the tissues, particularly of the voluntary and involuntary muscle fiber. Spasm of the skeletal muscle is relieved. The walls of the smaller arteries relax and the vessels dilate. By reason of these conditions, a greater amount of arterial blood flows to the part, bringing oxygen and nutriment. Furthermore, the increased blood flow induced on the venous side carries away in a larger degree the products of normal or abnormal metabolism, so that they do not remain as local poisons or irritants but are excreted from the body through natural channels.

Immediately following an injury there is an inflammatory reaction with heightened local metabolism and elevation of temperature. This condition is treated by rest, elevation and application of cooling lotions, but the succeeding subacute and chronic stages of swelling, sluggishness, anemia and lowered metabolism are to be treated by local application of radiant heat, massage and passive and active exercise carried out in a manner to avoid repetition of traumatism of the structure already injured.

In the following conditions the application of radiant heat, accompanied later by massage, may be of value. It must be emphasized that the use of heat in surgical conditions is not to be considered alone but only in connection with general surgical principles and that its benefits are often obtainable only by the coincident use of massage for which it paves the way.

*Fractures*—A simple fracture of the shaft of a long bone not involving a joint or near a joint and not complicated by a marked or persistent swelling at the site of the fracture or of the extremity distal to the fracture may not require this form of treatment. But fractures into or about the joints, such as Colles' fracture or Pott's fracture, accompanied by swelling at the site of the fracture and particularly by swelling of the hand or foot, are best treated by radiant heat followed by massage. This treatment should be begun within a few days after reduction of the fracture.

*Sprains and Dislocations*—Treatment is similar to that of fractures near joints as just described. Splints or casts should be removed and replaced again after daily treatment by heat application and massage. On the whole, fixation of a removable plaster splint and daily radiant heat and massage treatments are to be preferred to strapping with adhesive plaster, which does not permit the use of physical therapy.

*Traumatic Synovitis and Tenosynovitis*—After the first stage of acute inflammation lasting from one day to possibly a week, the secondary stage of absorption of effusion and restoration of function of the joint begins. During this stage, radiant heat and massage are vitally important in aiding these processes.

*Contusions and Muscle Sprains*—Similar means of treatment are valuable also in these conditions to secure absorption of the products of hemorrhage, to eliminate swelling and pain, and to secure restoration of function. Collections of blood, if not absorbed, may form cysts or may be infected through the blood stream and become abscesses. The development of such abscesses after local injury is not uncommon. It is of importance to secure as early absorption of blood clots as possible. Treatment should be continued as long as tenderness in the injured part persists.

*Bursitis*—This condition, often seen about the elbow and shoulder joints, for example, and resulting from acute or chronic strain, is susceptible to improvement or cure by heat and massage.

*Stiff Joints*—Even in fairly severe cases of fibrous ankylosis, some benefit is to be obtained by using radiant heat followed by massage, stretching and exercise, while in the milder cases even complete restoration of function in the joint may be expected. Before performing any operation on or about such a joint the surgeon should employ heat application and massage persistently and faithfully for some weeks or months to secure as much improvement as possible.

In the condition of flatfoot due to traumatism or possibly to infection, semirigid and spastic feet can

frequently be made more flexible by these means of physical therapy in conjunction with the use of proper supports for the feet

Chronic backache can be profitably treated by radiant heat and massage, by proper means of support for the muscles and ligaments that are under strain, and by properly graded exercise to improve posture. Acute attacks of what may be called myositis or lumbago are also advantageously treated by means of radiant heat and massage by support or by complete rest in bed for the time being

## Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING AMENDED GENERAL DECISION

RAYMOND HERTWIG Secretary

### TOLERANCES FOR ARSENIC, COPPER AND LEAD IN FOODS

(THIS DECISION CONTEMPLATES ONLY ADDED POISONS OR POISONOUS CONTAMINATIONS)

Because of the recognized toxicity of certain metallic substances it is in the interest of public health to protect foods from contamination with such materials. Precautions should be taken in the manufacture, culture treatment preparation processing, packing or preservation of foods that they shall not be contaminated with arsenic copper or lead compounds or if such contaminations are unavoidable that they be reduced to amounts that are within the limits of safety. To this end equipment and materials used in the manufacture of prepared foods should be carefully guarded and controlled.

Foods to be eligible for acceptance shall not contain arsenic copper or lead by contamination in excess of the tolerances established by the United States Department of Agriculture

- (a) 106 parts of arsenic (as As) per million of food [14 parts of arsenic (as As<sub>2</sub>O<sub>3</sub>) per million of food]
- (b) 30 parts of copper (as Cu) per million of food
- (c) 2 parts of lead (as Pb) per million of food

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION



RAYMOND HERTWIG Secretary

### BEECH-NUT PRESSURE COOKED OATMEAL CERE-JEL

(SLIGHTLY SEASONED WITH SALT)

*Manufacturer*—Beech-Nut Packing Company Canajoharie, N. Y.

*Description*—Sieved cooked oatmeal, seasoned with salt

*Manufacture*—See Beech-Nut Pressure Cooked Farina Cere-Jel (THE JOURNAL, May 26 1934 p 1762) and Beech Nut Strained Carrots (THE JOURNAL, Nov 11 1933, p 1562)

<i>Analysis</i> (submitted by manufacturer) —		per cent
Moisture		88.2
Total solids		11.8
Ash		0.9
Sodium chloride		0.5
Fat (ether extract)		0.5
Protein (N X 6.25)		2.2
Crude fiber		0.2
Carbohydrates other than crude fiber (by difference)		8.2

*Calories*—0.4 per gram 11 per ounce

*Claims of Manufacturer*—Especially intended for infants children and convalescents and for special smooth diets. Only warming is required for serving

### DIAMOND CRYSTAL IODIZED SHAKER SALT

*Manufacturer*—Diamond Crystal Salt Co., Inc., St. Clair, Mich. Division of General Foods Corp., New York

*Description*—Table salt containing added calcium phosphate (0.8 per cent) for promoting its free-running properties, sodium bicarbonate (0.5 per cent) and potassium iodide (0.023 per cent)

*Manufacture*—Dissolved salt, hydraulically mined from underground deposits, is conveyed to brine clarification tanks, filtered and concentrated in 'vacuum' pans to throw out salt crystals, which are removed from the brine, washed with fresh brine to remove natural impurities, dried in rotary driers at 150 C., and mechanically screened. Salt of the desired granulation is mixed with the definite amounts of calcium phosphate to keep it free flowing, sodium bicarbonate and potassium iodide, and automatically packed. The sodium bicarbonate prevents loss of iodine during storage.

*Analysis* (submitted by manufacturer) —

	per cent
Moisture	less than 0.1
Calcium sulphate	0.22
Calcium chloride	0.04
Calcium phosphate	0.8
Magnesium chloride	0.04
Sodium bicarbonate	0.5
Sodium chloride (by difference)	98.3
Potassium iodide	0.023
pH	7.2

*Claims of Manufacturer*—For all table and cooking uses of salt. The added calcium phosphate tends to preserve its free running qualities. Used daily as the only salt on the table and in cooking, it richly supplements the iodine of diets deficient in that element and thus helps to protect against goiter caused by insufficient iodine in the diet.

### STOKELY'S FOR BABY SPECIALLY PREPARED STRAINED SPINACH

SEASONED WITH SALT

*Manufacturer*—Stokely Brothers & Company, Inc., Indianapolis

*Description*—Sieved spinach slightly seasoned with salt, largely retaining the natural minerals and vitamins

*Manufacture*—Freshly cut spinach is carefully inspected and trimmed and any defective leaves are eliminated, it is washed under high pressure water sprays, blanched in boiling water for a minimum time necessary for softening, withdrawn, dipped into cool water, drained, comminuted, canned and processed as described for Stokely's Strained Green Beans (THE JOURNAL, May 26, 1934, p 1762)

*Analysis* (submitted by manufacturer) —

	per cent
Moisture	92.7
Total solids	7.3
Ash	1.6
Sodium chloride	0.8
Fat (ether extract)	0.3
Protein (N X 6.25)	2.3
Reducing sugars as dextrose	0.4
Sucrose (copper reduction method)	0.0
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	2.2
Alkalinity of ash (cc normal acid per gram ash)	5.4
pH	6.5

*Calories*—0.2 per gram 6 per ounce

*Vitamins*—The natural vitamin content is retained in large measure in the manufacturing process by the use of equipment and procedure which exclude incorporation of air, the vegetable material is exposed to steam only.

*Claims of Manufacturer*—Supplementary to the infant milk diet, and valuable for children and adults on soft diets. Has smooth consistency and supplies desirable bulk without roughness. The straining renders the nutrient content readily available for digestion. Scientifically prepared to retain in high degree the natural flavor, mineral and vitamin values. Seasoned to bring out full flavor and packed in enamel lined cans. Requires only warming for serving.

### ANNA DALE BRAND EVAPORATED MILK

*Distributor*—Topeka Wholesale Grocery Co., Topeka, Kan.  
*Packer*—The Page Milk Company, Merrill Wis.

*Description*—Canned unsweetened sterilized evaporated milk the same as Page Brand Evaporated Milk (Sterilized, Unsweetened), THE JOURNAL May 30 1931 page 1872

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 7, 1934

## TYROSINURIA

Tyrosine is one of the long known amino acids derived from the breakdown of proteins. It is liberated in the digestive tract through the digestion of the albuminous foods and is readily conceivable as a product of the disintegration of protein in tissues whenever this occurs. Several amino acids may appear in the urine in any condition in which there is extensive tissue destruction. This explains the report of the occurrence of tyrosine in the urine as early as the middle of the last century by Frerichs and Stadel, <sup>1</sup> when they observed this amino acid in a case of acute yellow atrophy of the liver. The appearance of tyrosine in the urine was subsequently reported by a number of clinical observers, but there is little doubt that some of these reports were cases of mistaken identity. <sup>2</sup> Consequently the view gradually developed that the frequency and amount of tyrosine excretion may not be as great as was formerly believed. One will find few recent textbooks of biochemistry or clinical chemistry that refer to the existence of tyrosinuria.

Renewed interest in the subject has been aroused by the studies of Lichtman and Sobotka <sup>3</sup> of the Mount Sinai Hospital in New York. They have replaced the old crystalloscopic method of examination of the urine by a biochemical procedure that permits the detection of free tyrosine in untreated urine on the basis of the enzymatic oxidation of this amino acid. A quantitative evaluation of the tyrosine is also made possible. The tyrosinase method of Lichtman and Sobotka reveals concentrations of 12.5 mg per hundred cubic centimeters. The advantages of this method over the Frerichs-Stadel crystalloscopic method are economy of time and labor, specificity and sensitivity.

The real importance of tyrosinuria for the clinician may be gathered from the fact that in Lichtman's studies the condition occurred in approximately 30 per

cent of the cases of disease of the gallbladder, bile passages and liver. It occurred most frequently in patients suffering from acute and subacute degeneration of the liver and less frequently in patients with malignant disease of the liver and bile passages, obstructive jaundice due to stone, and toxic (from arsphenamine and cinchophen) or catarrhal jaundice. In cases of pneumonia, leukemia, pernicious anemia and hyperthyroidism the results were negative. Five patients with jaundice complicating pneumonia, heart failure or leukemia had no tyrosine in the urine.

Years ago, Wells and Bassoe <sup>4</sup> pointed out the probability that any poison which does not directly cause death but which causes a severe injury to the liver cells without at the same time destroying the autolytic enzymes, so that the cells die and undergo rapid autolysis, may produce a condition identical with or similar to acute yellow atrophy. Whether these hypothetical poisons are produced by abnormal fermentation and putrefaction in the alimentary tract, or by a specific organism elaborating its poison in this location, is unknown. Tyrosinuria also appears in the presence of extrahepatic parenchymal autolysis. In degenerating carcinoma of the lung, tyrosine may be found in the sputum. It may appear in the urine if the degenerating process does not discharge its products through the bronchial tract.

The appearance of readily detectable amounts of tyrosine in the urine has always been considered an ominous sign. Lichtman has recovered massive amounts of tyrosine varying from 0.9 to more than 2 Gm from the urine in a period of twenty-four hours in acute cases of the disease. Massive excretion apparently indicates an acute diffuse degeneration of the liver. The excretion of tyrosine is continuous throughout the brief course of this illness. Temporary tyrosinuria, usually slight in amount, does not preclude recovery. According to Lichtman and Sobotka, observations on the rate of excretion of tyrosine are of diagnostic significance. Continuous massive tyrosinuria occurs only in cases of acute yellow atrophy with a rapid and fulminant course. Transitory minimal and moderate tyrosinuria occurs in cases of subacute atrophy of the liver, in degenerating neoplasm of the liver, in toxic degeneration of the liver and sometimes in obstructive jaundice of long standing due to stone. Inflammatory lesions of the bile passages do not of themselves give rise to tyrosinuria. Extrahepatic foci of autolysis, such as degenerating tumors of the lung or extensive sloughs of the skin, may give rise to minimal or moderate amounts of tyrosine in the urine. The transitory nature of minimal or moderate tyrosinuria is demonstrated by repeated tests. During the phase of recovery from degeneration of the liver, the products of parenchymal autolysis have already been absorbed and tyrosine vanishes from the urine.

<sup>1</sup> Frerichs F T and Stadel G. *Wien. med. Wchnschr.* 4: 465, 1854, *Arch. Anat. Physiol. u. wissensch. Med.* 1856, p. 47.  
<sup>2</sup> Wells H G. *Chemical Pathology*. Philadelphia: W B Saunders Company, 1925.  
<sup>3</sup> Lichtman S S and Sobotka Harry. *An Enzymatic Method for the Detection of Tyrosine in Urine*, *J. Biol. Chem.* 85: 261 (Dec.) 1929.  
Lichtman S S. *Origin and Significance of Tyrosinuria in Disease of the Liver*, *Arch. Int. Med.* 53: 680 (May) 1934.

<sup>4</sup> Wells H G and Bassoe Peter. *Acute Yellow Atrophy of the Liver*, *J. A. M. A.* 44: 685 (March 4) 1904.

The conditions just described should not be confused with what has lately been described by Medes<sup>5</sup> as tyrosinosis. This appears to be an "inborn error of metabolism" reminiscent of alkaptonuria. In tyrosinosis, tyrosine, dihydroxyphenylalanine, hydroxyphenylpyruvic acid and hydroxyphenyl acetic acid appear in the urine. Although only one case of this remarkable condition has been described thus far, its careful study by this investigator has given considerable information concerning several stages of the intermediary metabolism of tyrosine. Briefly stated, the condition described consists in a slowing up of the first steps of tyrosine metabolism and a complete stop at the stage of *p*-hydroxyphenylpyruvic acid.

### PRESSORECEPTOR NERVES AND THYROTOXIC CRISES

Von Cyon and Ludwig in 1866 showed that central stimulation of the sectioned superior cardiac nerve in rabbits caused a fall in the blood pressure and a slowing of the heart action. Two reflex effects resulted from electrical stimulation of this nerve: a vasodilating stimulation of the vasomotor center in the medulla oblongata and the slowing effect on the heart center. These authors named them "depressor" nerves. Koster, Tschermak and Schumacher demonstrated that these nerves terminated on the arch of the aorta and further designated them aortic nerves. The bilateral aortic or depressor nerves have been considered ever since to possess the function of reflex regulation of the circulation.

Hering<sup>1</sup> announced in 1924 that in addition to the two known depressors he had found two more nerves having the same action. These were the nerves of the carotid sinus bearing the anatomic name of *rami carotici nervi glossopharyngei*. These two sets of nerves appear to possess identical functional properties in that their receptor fibers are located in the arterial wall, the adequate stimulation of both manifests itself through endo-arterial blood pressure changes, and both give rise to two circulatory reflexes—vasodilatation and cardiac depression. They seem to constitute one functional unit. Koch<sup>2</sup> named them the pressoreceptor nerves of the circulation. In his experiments, Koch demonstrated that sectioning of all four pressoreceptor nerves in experimental animals resulted in a marked rise of blood pressure, which, when long continued, led to a permanently high blood pressure, cardiac hypertrophy and aortic sclerosis.

Braeucker<sup>3</sup> states that his anatomic studies of the pressoreceptor nervous system demonstrated that, con-

trary to the physiologic conception of the two nerves, the pressoreceptor nervous system is represented anatomically by a complex network of periarterial plexuses, which spread from the cardiac plexus over the arch of the aorta, the common carotid artery, its bifurcation and its branches. He therefore questions the specificity of the four nerves mentioned as constituting a separate functional unit. Careful experiments were performed in rabbits in which both cardiac branches of the superior laryngeal nerve as well as both carotid branches of the glossopharyngeus were sectioned at their origins. He succeeded in sectioning these with sufficient anatomic accuracy to avoid all injury to the neighboring periarterial plexuses and anastomosing branches. Nine animals survived, some of them living as long as 630 days. The blood pressure remained normal in all the animals. Sinus pressure on both sides caused a fall in the blood pressure, while clamping of both carotid arteries caused a rise in the blood pressure. The animals did not show cardiac hypertrophy or aortic or renal changes. Subsequent careful anatomic studies demonstrated that no regeneration of sectioned nerves took place. These results were at variance with the experiments of Koch, whose animals showed high blood pressure, cardiac hypertrophy and sclerosis of the aorta.

To throw light on this disparity, Braeucker in another series of experiments removed, in addition to the four pressoreceptor nerves, considerable areas of nerve plexuses of the internal carotid artery and of the common carotid artery. All the surviving animals showed high blood pressure, cardiac hypertrophy and sclerosis of the aorta. The more of the peripheral plexuses of the carotid that were destroyed, the more striking were the changes. Braeucker concludes that the afferent pressoreceptor paths are not limited to the four nerves but are parts of the peripheral vegetative nervous structure of the neck and the upper part of the thorax. The specific receptors are a part of the local periarterial nerve plexuses of the arch of the aorta and of the carotid sinus. According to Braeucker the same anatomic relations were found in dogs, cats and monkeys. In his anatomic studies in man he found the same relations as in animals, with the additional observation that the fibers of the pressoreceptor system here extend to the thyroid gland and form a plexus within the so-called thyroid capsule.

Jonnesco and Ionescu<sup>4</sup> had an opportunity, while operating on the sympathetic nerve in the neck, to section and stimulate the central end of the upper cardiac branch of the vagus as well as of the upper and the middle cardiac branches of the sympathetic. Stimulation of each of these produced a typical depressor effect, a fall in the blood pressure, slowing of the pulse and an alteration in the depth and rhythm of respiration. The pressoreceptor nerves can be stimu-

<sup>5</sup> Medes, Grace. A Hitherto Undescribed Inborn (?) Error of Metabolism Related to Tyrosine. *abstr. J Biol Chem* 87: vi (June) 1930. A New Error of Tyrosine Metabolism. Tyrosinosis. The Intermediary Metabolism of Tyrosine and Phenylalanine. *Biochem J* 26: 917 1932.

<sup>1</sup> Hering, H. E. Die Karotissinusreflexe auf Herz und Gefässe. *Dresden Leipzig* 1927.

<sup>2</sup> Koch, Eberhard. Die reflectorische Selbststeuerung des Kreislaufs. *Dresden Leipzig* 1931.

<sup>3</sup> Braeucker, W. *Beitr z klin Chir* 158: 309 (Sept.) 1933.

<sup>4</sup> Jonnesco, T. and Ionescu, D. *Ztschr f d ges exper Med* 48: 490 1926.



lated through mechanical and electrical stimuli, through changes in the arterial blood pressure and probably by chemical stimuli. These stimuli run centrally toward the centers of respiration, heart and vasomotor centers in the medulla. The possibility of reflex stimulation of bulbar centers at a distance has been established.

The significance of these facts in relation to surgery of the deep structures of the neck and especially to that of the thyroid gland is evident. The question arises as to the possible reflex effect of trauma to the nerve plexus of the thyroid capsule in the course of the delivery and resection of the gland. Braeucker believes that the frequent occurrence of sudden death of an animal in the course of his experimental work was of a reflex nature. He made the interesting observation that the grave symptoms of impending paralysis of bulbar centers developing in the course of his operative work on animals could be successfully combated by a prompt venesection. Braeucker made use of this observation in his clinical work and found that venesection was capable of averting what appeared to be imminent death in cases in which grave symptoms developed in the course of a thyroidectomy. He submits the histories of five patients with thyrotoxicosis, three of whom in the course of a thyroidectomy, and two several hours later, had grave disturbances of respiration and of cardiac and vasomotor functions. A prompt venesection of the anterior jugular vein had the immediate effect of completely relieving these symptoms. Venesection was effective in two cases in which signs of involvement of the bulbar centers developed some time after the operation. These so-called postoperative thyroid crises were believed to be caused by the flooding of the organism with thyroxine. Later, the opposite theory was suggested that the reaction was the result of sudden thyroxine deprivation of the organism. There was no experimental proof for either theory. These late crises may well be caused by accumulated chemical irritation of bulbar centers, the result of acidosis. Braeucker considers that the sudden death occurring in the course of a thyroidectomy, and the postoperative thyrotoxic crises, are reflex phenomena resulting from irritation of the pressoreceptor nerves. A timely venesection, by lowering the blood pressure, is capable of reflexly diminishing the irritative stimuli in the entire pressoreceptor system and so averting imminent death. To avoid undue irritation of the pressoreceptor paths in the course of a thyroidectomy, this author advises the use of general anesthesia aided by local procaine hydrochloride blocking of the pressoreceptor paths. He deposits procaine hydrochloride solution at the site of bifurcation of the common carotid artery, about the stem of the vagus (lower third of the ganglion nodosum), and into the area of the upper cervical ganglion and the stellate ganglion. Dangerous reactions occurring in spite of these measures are best treated by a prompt venesection.

## Current Comment

### OXYGEN INHALATION AND ATHLETIC ACTIVITY

In the Olympic games held in California in 1932 the Japanese swimming team inhaled oxygen for five minutes about half an hour before competition. The charge was made that such inhalations were unethical and that they were largely responsible for the successful showing of the Japanese competitors. Karpovich<sup>1</sup> has recently made available the reports of an investigation of the possibilities. His experiments follow others which establish fairly well the fact that the breathing of oxygen is an immediate aid to an athletic performance if taken just before exercise. Leonard Hill and Martin Flack found in 1910 that preliminary inhalation of oxygen is useful in running short distances only. Karpovich tested the effects of two deep inhalations of pure oxygen immediately before plunging into water. In eleven out of seventeen cases, men who did this were able to break their own unofficial records. Moreover, of six who could not break their own records, four did not follow instructions and exhaled the oxygen before striking the water. However, swimmers who inhaled oxygen for a period of from three to five minutes and discontinued it from four to five minutes before a hundred yard swim found that the inhalation had no noticeable effect on the speed of swimming. It was found that the inhalation of oxygen after any athletic activity hastens recovery. Karpovich concludes that oxygen taken immediately before strenuous exercise does benefit the athlete but that oxygen taken a long interval before the exercise has little, if any, effect. He explains the value of oxygen inhalations immediately before swimming by the fact that respiratory movements retard speed and that oxygen inhalations make respiratory movements unnecessary for a certain length of time. The interesting fact was established that after three inhalations of oxygen a person can hold the breath in a lying position up to six minutes and thirty seconds.

### THE WOMAN'S AUXILIARY

The business program and the program of women's entertainment for the Woman's Auxiliary at the Cleveland session indicated how far the Auxiliary has advanced in rendering aid to organized medicine and in developing the medical consciousness of its members. Committees are actively studying problems of public relations, legislation and similar questions in relationship to medical affairs. In many states the Woman's Auxiliary has been an invaluable aid in developing circulation for *Hygeia*. Moreover, the Woman's Auxiliary cooperated fully with the local women's entertainment committee in developing programs of interest and entertainment for all women visitors. The members of the Woman's Auxiliary are taking in earnest their responsibilities as a body associated with organized medicine and have more than justified the time and money spent on their efforts.

<sup>1</sup> Karpovich, P. V. The Effect of Oxygen Inhalation on Swimming Performance. *Research Quarterly*. American Physical Education Association. Vol. 5. 24 (May) 1934.

# PROCEEDINGS OF THE CLEVELAND SESSION

## MINUTES OF THE EIGHTY-FIFTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT CLEVELAND, JUNE 11 15, 1934

(Concluded from page 2207, volume 102)

### MINUTES OF THE SECTIONS

#### SECTION ON PRACTICE OF MEDICINE

WEDNESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr C T Stone, Galveston, Texas

Dr Harlow Brooks, New York, read a paper on "The Cause of Death in Adult Pneumonia" Discussed by Drs James H Means, Boston, L J Moorman, Oklahoma City, Maxwell Finland, Boston, Robert G Torrey Philadelphia, A L Barach, New York, and Harlow Brooks, New York

Dr Harry G Wood, Rochester Minn, read a paper on "Congenital Polycystic Disease of the Lungs" Discussed by Drs L J Moorman, Oklahoma City James L Dubrow Des Moines, Iowa, J J Singer, St Louis, and Harry G Wood, Rochester, Minn

Dr Jonathan C Meakins, Montreal read a paper on "The Treatment of Emphysema" Discussed by Drs Adolphus Knopf, New York, and Dr Jonathan C Meakins, Montreal

Dr Walter L Bierring Des Moines, Iowa, introduced the Frank Billings lecturer for this year, Dr James B Herrick, Chicago, who read a paper on "The Practitioner of the Future"

Dr Ralph A Kinsella, St Louis read a paper on "Epidemic Encephalitis" Discussed by Dr J P Leake, Washington, D C

Drs Herrmann L Blumgart and David D Berlin, Boston, presented a paper on "A Review of Eighteen Months' Experience with Total Ablation of the Thyroid for Angina Pectoris and Congestive Failure" Discussed by Drs Samuel A Levine, Boston James H Means, Boston, R R Snowden, Pittsburgh William B Porter Richmond Va W O Thompson, Chicago George M Curtis Columbus Ohio Emanuel Libman New York Edmund Horgan, Washington, D C, and Herrmann L Blumgart, Boston

THURSDAY, JUNE 14—AFTERNOON

Dr Alfred Friedlander, Cincinnati, read a paper on "Recognition of Types of Arteriosclerosis by Oscillometry" Discussed by Drs Carl J Wiggers, Cleveland, and Alfred Friedlander, Cincinnati

Dr Lea A Riely, Oklahoma City read a paper on "Diabetic Complications" Discussed by Drs Priscilla White, Boston S Edward King, New York Henry J John, Cleveland, Henry W Meyerding Rochester, Minn, W S Collens, Brooklyn, and Lea A Riely, Oklahoma City

Dr L M S Miner Boston, read a paper on "The Relation of Dentistry to Medicine"

The following papers were read as a symposium on "The Treatment of Chronic Arthritis"

Dr Ernest E Irons, Chicago "General Considerations"

Dr Russell L Cecil New York "Medical Treatment"

Dr Loring T Swaim, Boston "Orthopedic and Physical Therapeutic Treatment"

These three papers were discussed by Drs Walter Bauer, Boston Linn J Boyd, New York, W Paul Holbrook, Tucson, Ariz, Maurice F Lautman, Hot Springs Ark, S C Woldenberg, New York Heinrich F Wolf New York, William J Kerr, San Francisco, H M Davidson, Atlanta, Ga, S Adolphus Knopf, New York James Patterson, Scarsdale, N Y and A S Gordon, Brooklyn

FRIDAY, JUNE 15—AFTERNOON

The following officers were elected chairman, Dr George R Minot, Boston, vice chairman, Dr M A Blankenhorn, Cleveland, secretary, Dr William J Kerr, San Francisco, delegate, Dr J E Paullin Jr, Atlanta, Ga, alternate, Dr E E Irons, Chicago, executive committee, Dr Reginald Fitz, Boston, Dr C T Stone, Galveston, Texas, Dr George R Minot, Boston

Drs Harold W Jones and Leandro M Tocantins, Philadelphia, presented a paper on "Treatment of Hemophilia"

Drs Edward C Reifstein and Ellery G Allen, Syracuse, N Y, presented a paper on "Treatment of Hemolytic Jaundice by Liver Extract"

Drs Cyrus C Sturgis and S M Goldhamer, Ann Arbor, Mich, presented a paper on "The Occurrence and Treatment of Neurologic Changes in Pernicious Anemia"

These three papers were discussed by Drs Adolph Sachs, Omaha, Wann Langston, Oklahoma City, V P Sydenstricker, Augusta, Ga, Russell L Haden, Cleveland, Jackson Blair, Cleveland, M A Blankenhorn, Cleveland, Leandro M Tocantins Philadelphia S M Goldhamer, Ann Arbor, Mich, and Ellery G Allen, Syracuse, N Y

Dr C T Stone, Galveston, Texas, read the chairman's address, entitled "Mortality from Heart Disease, a Challenge"

Dr Louis E Viko, Salt Lake City, read a paper on "Prognosis in Arteriosclerotic Heart Disease" Discussed by Drs Walter L Bierring, Des Moines, Iowa, R Wesley Scott, Cleveland, and Louis E Viko, Salt Lake City

Dr Fred H Kruse, San Francisco, read a paper on "The Syndrome of Hypertonic and Atonic Colopathy" Discussed by Drs Lewellys F Barker, Baltimore, W L Palmer, Chicago, E L Eggleston, Battle Creek, Mich, William Lintz, Brooklyn, and Fred H Kruse, San Francisco

#### SECTION ON SURGERY, GENERAL AND ABDOMINAL

WEDNESDAY, JUNE 13—MORNING

The meeting was called to order at 9 10 by the chairman, Dr Harold Brunn, San Francisco

Dr R L Payne, Norfolk, Va, read a paper on "Femoral Hernia Operative Repair by Fascial Sutures" Discussed by Drs H W Cave, New York, and F W Bailey, St Louis

Dr Claude S Beck, Cleveland, read a paper on "Contusions of the Heart" Discussed by Drs R L Sanders, Memphis, Tenn, and Joseph T Wearn, Cleveland

On motion of Dr Frank H Lahey, Boston, seconded by Dr M G Seelig, St Louis, it was voted to nominate Dr H H Loucks of Peiping Union Medical College, Peiping, China, for Associate Fellowship

Dr Waltman Walters, Rochester, Minn, read a paper on "Surgical Treatment of Extensive Malignant Lesions of the Stomach" Discussed by Drs Frank H Lahey, Boston Gatewood, Chicago, J T Mason, Seattle, J Shelton Horsley, Richmond, Va, J W Thompson, St Louis, and Waltman Walters, Rochester, Minn

Dr Hugh H Trout, Roanoke, Va, read a paper on "The Treatment of Perforated 'Peptic Ulcers'" Discussed by Drs Roy D McClure, Detroit, Edward J Donovan, New York,

J M Donald, Birmingham, Ala, and Hugh H Trout, Roanoke, Va

Drs Roscoe R Graham and Frederick I Lewis, Toronto, presented a paper on "The Recognition and Treatment of Jejunal Ulceration" Discussed by Drs Dean Lewis, Baltimore, Donald C Balfour, Rochester, Minn, and Roscoe R Graham, Toronto

Dr William F Rienhoff Jr, Baltimore, read a paper on "The Surgical Treatment of Carcinoma of the Lungs and Bronchi" Discussed by Drs Evarts A Graham, St Louis, E F Butler, Elmira, N Y, Clyde I Allen, Detroit, and William F Rienhoff Jr, Baltimore

The members arose in silent tribute to the memory of Dr Carl A Hedblom

#### THURSDAY, JUNE 14—MORNING

Dr Harold Brunn, San Francisco, read the chairman's address, entitled "Lung Abscess"

Dr J Shelton Horsley, Richmond, Va, read a paper on "The Bearing of Certain Physiologic Facts on Gastro-Intestinal Surgery" Discussed by Dr George W Crile, Cleveland

Drs John F Gile and John P Bowler, Hanover, N H, presented a paper on "The Management of Perforated Appendicitis"

Dr Fred A Collier, Ann Arbor, Mich, read a paper on "The Treatment of Peritonitis Associated with Appendicitis"

These two papers were discussed by Drs Alton Ochsner, New Orleans, Le Grand Guerry Columbia, S C, C F Dixon, Rochester, Minn, R J Behan, Pittsburgh, George A Hendon, Louisville, Ky, F G Lawrence, Columbus, Ohio, and Fred A Collier, Ann Arbor, Mich

Dr J C Bloodgood, Baltimore, read a paper on "Diagnosis and Treatment of Tumors of the Breast, Clinically Benign and Clinically Malignant, as Based on Biopsy" Discussed by Drs Irvin Abell, Louisville, Ky, Max Cutler, Chicago, and J C Bloodgood, Baltimore

Dr Thomas E Jones, Cleveland, read a paper on "Intestinal, Rectal and Bladder Complication Resulting from Prolonged Radium and X-Ray Irradiation for Malignant Conditions of the Pelvis Surgical Treatment" Discussed by Dr George G Ward, New York

#### FRIDAY, JUNE 15—MORNING

The following officers were elected chairman, Dr John L Yates, Milwaukee, vice chairman, Dr Robert Scott Dinsmore, Cleveland, secretary, Dr Howard M Clute, Boston, delegate, Dr Fred W Rankin, Lexington, Ky, alternate, Dr Lloyd Noland, Fairfield, Ala

Drs I S Ravdin and C G Johnston, Philadelphia, presented a paper on "Alterations of Function in Biliary Tract Disease"

Dr A C Ivy Chicago read a paper on "Physiologic Principles to Be Considered in the Therapy of Biliary Tract Disease The Physiology of the Gallbladder, Some Principles to Be Considered in Therapy"

Dr Evarts A Graham, St Louis, read a paper on "A Consideration of the Stoneless Gallbladder"

These three papers were discussed by Drs Donald Guthrie, Sayre, Pa, Urban Maes, New Orleans, George A Hendon, Louisville, Ky, I S Ravdin, Philadelphia, and Evarts A Graham, St Louis

Dr C F Dixon, Rochester, Minn, read a paper on "Carcinoma of Cecum What Are the Chances for Cure?" Discussed by Drs Jerome M Lynch, New York, and J W Thompson, St Louis

Dr R B Cattell, Boston, read a paper on "Surgical Treatment of Ulcerative Colitis" Discussed by Drs F R Peterson, Iowa City, and Alfred A Strauss Chicago

Drs Richard H Miller and Horatio Rogers Boston presented a paper on "Present Status of Tetanus, with Special Regard to Treatment" Discussed by Drs Frederick W Taylor Indianapolis and Richard H Miller Boston

### SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

#### WEDNESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman Dr Joseph B De Lee, Chicago

The following papers were read as a symposium on "Modern Indications for Therapeutic Abortion"

Dr Clarence O Cheney, New York "Neuropsychiatry"

Dr Henry P Wagener, Rochester, Minn "Ophthalmology," Discussed by Dr Arthur J Bedell, Albany, N Y

Dr W W Herrick, New York "Nephrology" Discussed by Dr Robert D Mussey, Rochester Minn

Dr Harold E B Pardee, New York "Cardiology" Discussed by Dr Burton E Hamilton, Boston

Dr F M Pottenger, Monrovia, Calif "Pulmonology" Discussed by Dr Fred L Adair, Chicago

These five papers were discussed by Drs Frederick J Taussig, St Louis, Joseph B De Lee, Chicago, Misch Casper, Louisville, Ky, Clarence O Cheney, New York, Henry P Wagener, Rochester Minn, W W Herrick, New York, Harold E B Pardee, New York, and F M Pottenger, Monrovia Calif

#### THURSDAY JUNE 14—AFTERNOON

Drs R A Bartholomew and E D Colvin, Atlanta, Ga presented a paper on "The Advantages of Paraldehyde as a Basic Amnesic Agent in Obstetrics" Discussed by Drs Harold H Rosenfield Boston, H F Kane, Washington, D C, and R A Bartholomew, Atlanta, Ga

Dr B P Watson, New York, read a paper on "Practical Measures in the Prevention and Treatment of Puerperal Sepsis" Discussed by Drs J C Litzenberg, Minneapolis, Joseph B De Lee, Chicago, A F Lash, Chicago, J I Hofbauer, Cincinnati, William H Vogt, St Louis, and B P Watson, New York

Dr Joseph B De Lee read the chairman's address

Dr Lyle G McNeile, Los Angeles, read a paper on "The Conservative Treatment of Eclampsia" Discussed by Drs Paul Titus, Pittsburgh, and Albert Holman, Portland, Ore.

Dr M Edward Davis, Chicago, read a paper on "Pregnancy Changes in the Vaginal Epithelium in Relation to the Vaginal Cycle" Discussed by Drs Fred L Adair, Chicago, and M Edward Davis, Chicago

#### FRIDAY, JUNE 15—AFTERNOON

On motion regularly made and seconded it was voted to refer a letter dated May 31, 1934 from Dr T F Murphy, chief statistician for vital statistics, Department of Commerce Bureau of Census, Washington, D C, to the Standing Committee on Maternal Welfare

The chairman read the following report of the Committee on Maternal Welfare which was adopted and the secretary authorized to order a continuation of the committee

The Section Committee on Maternal Welfare reports progress Your representatives are now a part of a formally incorporated organization known under the name of the American Committee on Maternal Welfare The continuation of the section committee is recommended

RUDOLPH W HOLMES  
ROBERT MUSSEY  
FRED L ADAIR

The following officers were elected chairman, Dr James R McCord Atlanta, Ga, vice chairman, Dr A J Skeel, Cleveland secretary Dr E D Plass, Iowa City, delegate Dr George Gray Ward, New York, alternate, Dr J P Pratt, Detroit

Dr Ralph L Barrett, New York, read a paper on "Electro coagulation of Cervical Erosions and Endocervicitis in the Late Puerperium" Discussed by Drs Joseph B De Lee Chicago, A H Curtis, Chicago, and Ralph L Barrett, New York

Dr J I Hofbauer Cincinnati, read a paper on "Factors Predisposing to Carcinoma of the Uterus" Discussed by Drs J P Greenhill Chicago, Emil Novak, Baltimore, and J I Hofbauer, Cincinnati

Dr Chester M Echols, Milwaukee read a paper on "Comments on One Hundred Cases of Ectopic Pregnancy Encon"

tered in Private Practice' Discussed by Drs Joseph D Heimann Cincinnati, Joseph B De Lee, Chicago and W H Wier, Cleveland

Dr Henry Schmitz, Chicago, read a paper on "Early Histologic Diagnosis of Carcinoma of the Uterine Cervix" Discussed by Drs Emil Novak, Baltimore I C Bloodgood, Baltimore, Fred Wetmorell, Syracuse, N Y and Henry Schmitz, Chicago

Drs T O Menees and J Duane Miller Grand Rapids, Mich, presented a paper on "Demonstration of the Endometrium in Relief with Thorium Dioxide Sol" No discussion

## SECTION ON OPHTHALMOLOGY

WEDNESDAY, JUNE 13—MORNING

The meeting was called to order at 9:10 by the vice chairman Frank E Burch, St Paul

Vice Chairman Burch expressed regret at the loss of Dr William C Funnoff, chairman, and it was moved by Dr Frederick H Verhoeff, Boston, and seconded by Dr L J Goldbach, Baltimore, that a message of sympathy be sent from the section to his widow and family. The members stood in silence for one minute.

The Secretary, for the late Dr William C Funnoff, Denver, read the following resolutions for submission to the House of Delegates:

WHEREAS It has come to the attention of the officers of the Section on Ophthalmology that some hospitals employ optometrists to prescribe glasses and

WHEREAS The members of the section are convinced that this practice is not to the best interest of the patient and

WHEREAS The only reason for such an unprofessional method seems to be monetary reward to the hospital and

WHEREAS The younger ophthalmologists need practice in refraction which is best secured under the direction of skillful physicians devoting themselves to the treatment of disease of the eye be it

Resolved That the Section on Ophthalmology of the American Medical Association hereby registers its disapproval of the employment of optometrists by hospitals and further be it

Resolved That the House of Delegates of the American Medical Association be urged to institute the necessary measures to stop this pernicious invasion of the practice of medicine

The resolutions were adopted by the section, and the delegate was advised to submit them to the House of Delegates

The following papers were read as a symposium on "Treatment of Retinal Detachment by Electrical Coagulation"

Dr Mark J Schoenberg, New York "Clinical Experiences with the Diathermic Treatment of Retinal Detachments"

Dr Clifford B Walker, Los Angeles "New Devices and Modification for Diathermic Operation and Localization in Separation of the Retina"

These two papers were discussed by Drs Arnold Knapp, New York, Harry S Gradle, Chicago, Dohrmann K Pischel, San Francisco, L C Peter, Philadelphia, Harvey E Thorpe, Pittsburgh, Oscar Wilkinson, Washington, D C, Mark J Schoenberg, New York, and Clifford B Walker, Los Angeles

Dr Albert Louis Brown, Cincinnati, read a paper on "Bacteriologic and Immunologic Considerations of Chronic Uveitis" Discussed by Drs William Zentmayer, Philadelphia, Alan C Woods, Baltimore, Jonas S Friedenwald, Baltimore, Conrad Berens, New York and Albert Louis Brown, Cincinnati

Dr W H Wilmer, Baltimore, introduced Dr Edward Jackson, Denver, who was attending his fiftieth annual session of the American Medical Association

Dr Edward Jackson, Denver, read the report of the Committee on Definition of Blindness. On motion by Dr Conrad Berens, New York, seconded by Dr Frederick H Verhoeff, Boston, the report was sent to the House of Delegates

Dr Charles M Swab, Omaha, read a paper on "The Ocular Lesions Resulting from Thallium Acetate Poisoning as Determined by Experimental Research" Discussed by Drs Edward Jackson, Denver, George H Stine, Colorado Springs, Colorado, Arthur J Bedell, Albany, N Y, and Charles M Swab, Omaha

Dr Edward Stieren, Pittsburgh, read a paper on "Sarcoma of the Uveal Tract Following Trauma" Discussed by Drs Laura A Lane, Minneapolis, Frederick H Verhoeff, Boston, Leo L Mayer, Chicago, Adolph O Pfingst, Louisville, Ky, William L Benedict, Rochester, Minn, and Edward Stieren, Pittsburgh

THURSDAY, JUNE 14—MORNING

Dr George P Guibor, Chicago, read a paper on "Practical Details in the Orthoptic Treatment of Strabismus" Discussed by Drs Lawrence T Post, St Louis, Oscar Wilkinson, Washington, D C, Edward C Ellett, Memphis, Tenn, and George P Guibor, Chicago

Dr James Watson White, New York, read a paper on "Routine Muscle Examination in Its Practical Application" Discussed by Drs Edward C Ellett, Memphis, Tenn, Morris Davidson, New York, and James Watson White, New York

Dr John E L Keyes, Youngstown, Ohio, read a paper on "Observations of Four Thousand Optic Foramina in Human Skulls of Known Origin" Discussed by Drs N W Ingalls, Cleveland, Raymond L Pfeiffer, New York, and John E L Keyes, Youngstown, Ohio

Drs Alfred W Adson and William L Benedict, Rochester, Minn, presented a paper on "Hemangio-Endothelioma of the Orbit, Removal Through Transcranial Approach" Discussed by Drs Edmund B Sprath, Philadelphia, C S O'Brien, Iowa City, William L Benedict, Rochester, Minn, and Alfred W Adson, Rochester, Minn

Dr Walter I Lillie, Philadelphia, read a paper on "Unilateral Central and Annular Scotoma Produced by Fracture of the Optic Canal. Report of Two Cases" Discussed by Drs Webb W Weeks, New York, Walter L Lillie, Philadelphia, and Alfred W Adson, Rochester, Minn

Dr Benjamin Rones, Baltimore, read a paper on "Anterior Lenticonus" Discussed by Drs Clyde A Clapp, Baltimore, and Benjamin Rones, Baltimore

At the Demonstration Session the following were shown

Dr Conrad Berens, New York, presented a test for fusion and a fusion spectacle, also a Clinical Ophthalmic Ergograph

Dr Harvey E Thorpe, Pittsburgh, presented an Ocular Endoscope

Dr George P Guibor, Chicago, presented New Fusion Training Cards for Orthoptic Training

Dr Morris Davidson, New York, presented a useful test in squint cases

Dr Leo Mayer, Chicago, presented a Strabismometer

FRIDAY, JUNE 15—MORNING

The following officers were elected: chairman, Dr Arthur J Bedell, Albany, N Y, vice chairman, Dr C A Clapp, Baltimore, secretary, Parker Heath, Detroit, executive committee, Dr F H Verhoeff, Boston, Dr F E Burch, St Paul, and Dr Arthur J Bedell, Albany, N Y

The report of the Committee on Compensation Tables was accepted and the committee continued

The report of the Committee on Optics and Visual Physiology was accepted

The report of the Committee on the Knapp Testimonial Fund was accepted

The report of the Committee on American Board of Ophthalmology was accepted

The report of the Committee on Pathology was accepted and the committee continued

The report of the Committee to Cooperate with the National Committee for the Prevention of Blindness was accepted and the committee continued

The report of the Committee for Scientific Exhibit from the Section was accepted

The report of the Committee on Nomenclature was accepted and the committee continued

Dr Emory Hill reported as delegate to the House of Delegates

The report of the Committee on Museum of Ophthalmic History was accepted and the committee continued

The report of the Committee on Ophthalmic Standards was accepted and the committee continued as a standing committee

The report of the Executive Committee was accepted

The following members were nominated for the Committee on Awarding the Knapp Medal: Drs Arnold Knapp, Edmond E Blaauw and Walter Parker

Dr Bennett Y Alvis, St Louis, read a paper on "Blepharochalasis" Discussed by Drs Edward B Heckel, Pittsburgh, Leo L Mayer, Chicago, Edward Stieren, Pittsburgh, and Bennett Y Alvis, St Louis

Dr C S O'Brien, Iowa City, read a paper on "Diabetic Cataract Incidence and Morphology in One Hundred and Three Young Diabetic Patients" Discussed by Drs Arnold Knapp, New York, Sanford Gifford, Chicago, Edmond C Blaauw, Buffalo, and C S O'Brien, Iowa City

Dr Phillips Thygeson, Iowa City, read a paper on 'Etiologic Diagnosis of Conjunctivitis' Discussed by Drs Frederick H Verhoeff, Boston, Edward Jackson, Denver, and Phillips Thygeson, Iowa City

Dr T L Terry, Boston, read a paper on Pulsating Exophthalmos Due to Internal Carotid-Jugular Aneurysm The Use of Thorium Dioxide in Localization Discussed by Drs Adolph O Pfingst, Louisville, Ky Mont R Reid Cincinnati, and T L Terry, Boston

Dr Alfred Cowan, Philadelphia read a paper on Some Factors Concerned in the Correction of Aphakia Discussed by Drs Derrick T Vail Jr, Cincinnati, Frederick Verhoeff, Boston, and Alfred Cowan, Philadelphia

## SECTION ON LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

WEDNESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr William P Wherry, Omaha

On motion of Dr L W Dean, St Louis, seconded by Dr John W Carmack, Indianapolis, it was voted to nominate Dr George W Christiansen Detroit, for Associate Fellowship

Dr William P Wherry, Omaha read the chairman's address

Dr L W Dean, St Louis, read a paper on The Tonsils, Their Function and Indications for Their Removal" Discussed by Drs Frank R Spencer Boulder Colo, Edward Clay Mitchell, Memphis, Tenn Virgil J Schwartz, Minneapolis, and L W Dean St Louis

Dr Frank J Novak Jr, Chicago read a paper on "The Structure of the Secondary Nodule of the Tonsil" Discussed by Drs John B McMurray Washington Pa, and J D Heitger, Louisville, Ky

Dr Gordon B New Rochester Minn read a paper on "The Use of Reconstructive Surgery in Certain Types of Deformities of the Face" Discussed by Drs Samuel Iglauer, Cincinnati Fielding O Lewis, Philadelphia, George B Jobson, Franklin, Pa Claire L Straith Detroit, Myron Metzenbaum, Cleveland, and Gordon B New Rochester Minn

Drs R A Kern and H P Schenck, Philadelphia, presented a paper on 'The Importance of Allergy in the Etiology and Treatment of Nasal Mucous Polyps'

Dr Harold G Tobey, Boston read a paper on "An Attempt to Correlate the Various Theories of Vasomotor Disturbances of the Nasal and Bronchial Tracts" Discussed by Drs Warren T Vaughan, Richmond Va, Ernest M Seydell, Wichita, Kan Jonathan Forman Columbus Ohio, Harry L Baum, Denver, Oscar Wilkinson Washington D C, H P Schenck Philadelphia and Harold G Tobey Boston

THURSDAY JUNE 14—AFTERNOON

Dr Robert F Ridpath Philadelphia read a paper on 'Agranulocytic Angina or Malignant Neutropenia' Discussed by Drs James B Costen St Louis Claude L LaRue Shreveport, La John J Shea Memphis Tenn William H Gordon, Detroit Henry N Harkins Chicago and Robert F Ridpath Philadelphia

Drs George M Coates, Matthew S Ersner and David Myers, Philadelphia read a paper on 'X-Ray Changes in the Petrous Portion of the Temporal Bone Without Clinical Manifestations' Discussed by Drs John W Carmack Indianapolis B H Nichols Cleveland Henry K Taylor New York M C Myerson, New York, and Matthew S Ersner, Philadelphia

Dr Clarence H Smith New York read a paper on Practical Points in the Radical Mastoid Operation Discussed by Drs Harry P Cahill Boston Kenneth M Dav Pittsburgh, Horace Newhart Minneapolis George E Shambaugh Jr, Chicago and Clarence H Smith New York

Dr Anderson C Hilding Duluth Minn read a paper on Changes in the Lysozyme Content of the Nasal Secretion During Colds A Preliminary Report Discussed by Drs

Dean M Lierle, Iowa City, T C Galloway, Evanston Ill, and Anderson C Hilding, Duluth

Dr H Marshall Taylor, Jacksonville, Fla, read a paper on "Prenatal Medication as a Possible Etiologic Factor of Deafness in the New-Born" Discussed by Drs John H Foster, Houston, Texas, Robert D Mussey, Rochester, Minn, But R Shurly, Detroit, R G Reaves, Knoxville, Tenn, and H Marshall Taylor, Jacksonville

Dr Ralph A Fenton, Portland, Ore, read a paper on 'Diagnostic Factors Concerning Herpes Zoster Oticus' Discussed by Drs Harris P Mosher, Boston Gordon F Harkness Davenport, Iowa Harris H Vail, Cincinnati, and Ralph A Fenton Portland, Ore

Dr Romeo A Luongo, Philadelphia, presented a new mastoid retractor with light attachment, also a set of hand retractors and periosteal elevators for the external pansinus operation.

Dr Louis K Pitman, New York, presented the nasopharyngoscope and its operating attachments, an instrument to advance a soft rubber catheter automatically into the lung, also a self-angulating snare

Dr Horace Newhart, Minneapolis, presented a tonsil snare a tonsil probe and an audigram blank

Dr George B Jobson, Franklin, Pa, presented a set of instruments for electrosurgical tonsillectomy

Dr R G Reaves Knoxville Tenn, presented new instruments for irrigating antrums through the middle meatus

Drs Mervin C Myerson, Herman Rubin and Joseph G Gilbert New York, presented instruments for operation on the petrous pyramid

FRIDAY, JUNE 15—AFTERNOON

The following officers were elected chairman, Dr John J Shea, Memphis Tenn, vice chairman Dr John B McMurray, Washington, Pa secretary Dr John W Carmack, Indianapolis

The report of the Executive Committee was presented by Dr Harris P Mosher Boston, and accepted

Dr William V Mullin read the report of the Examining Board in Otolaryngology which was accepted

During 1933 two examinations were held, one in Milwaukee just prior to the American Medical Association meeting, and one in Boston, just previous to the meeting of the American Academy of Ophthalmology and Otolaryngology During the year, 151 candidates were examined and 136 were certificated.

The board was active in establishing a new advisory board which will serve as a coordinating body for all the specialties This advisory board is working in conjunction with the Council on Medical Education and Hospitals of the American Medical Association and has set up twelve specialties in medicine for which boards will be organized

The following branches of medicine now have examining boards that are functioning ophthalmology otolaryngology obstetrics and gynecology dermatology pediatrics and radiology

Dr Chevalier Jackson read a report on Lye Legislation, which was accepted He requested that Dr Clyde Brooks New Orleans replace the late Dr R C Lynch on the committee

Dr H Marshall Taylor read the report on Swimming which was accepted and the committee retained

Dr Edmund Prince Fowler New York read a paper on Hearing Reclamation and Preservation in the Moderately Deafened Child Management and Treatment Based on Ten Years of Clinical and Laboratory Research Discussed by Drs M Raymond Kendall Cleveland Horace Newhart Minneapolis Austin A Hayden Chicago Wendell C Phillips, New York and Edmund Prince Fowler New York

Dr O Jason Dixon Kansas City, Mo read a paper on Experimental Studies in Vascular Repair A Report of Two Hundred Experimental Studies Discussed by Drs Mont R Reid Cincinnati Lyman G Richards, Boston and O Jason Dixon Kansas City Mo

Dr Howard V Dutrow Dayton Ohio read a paper on Conservative Surgical Treatment of Hypertrophic Rhinitis Discussed by Drs J A Pratt Minneapolis H M Goodyear Cincinnati Clarence W Engler Cleveland, and Howard V Dutrow Dayton Ohio

Dr M M Cullom Nashville Tenn, read a paper on 'The Association of Middle Ear Infection with Sinus Disease'

Discussed by Drs Lamar G Richards Boston, Gordon D Hoople, Syracuse, N Y George E Shumbaugh Jr, Chicago S S Evans, Memphis Tenn, J A Pratt, Minneapolis, and M M Cullom Nashville

Dr Edward King Cincinnati read a paper on 'An X-Ray Study of the Maxillary Antrum Before and After Operation' Discussed by Drs Second H Large Cleveland, Louis L Brown Akron, Ohio Anderson C Hilding, Duluth, Minn, and Harris H Van Cincinnati

Dr Walter H Theobald Chicago read a paper on 'New Adaptation of X-Ray Prints and Slides Giving Stereoscopic Effect' Discussed by Drs Ira Frank Chicago, O Jison Dixon Kansas City, Mo, and Walter H Theobald, Chicago

## SECTION ON PEDIATRICS

WEDNESDAY, JUNE 13—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr Alfred A Walker Birmingham Ala

Drs Henry I Gerstenberger, A J Horeish J D Nourse and A L Van Horn Cleveland presented a paper on 'Further Studies on Tungsten Filament Radiation (Dual Purpose Lighting)' Discussed by Drs A Grieme Mitchell Cincinnati, John S Coulter, Chicago and Henry J Gerstenberger, Cleveland

Dr Arvid Wallgren Goteborg Sweden read a paper on 'The Value of the Calmette Vaccination in Prevention of Tuberculosis in Childhood'

Dr J A Myers, Minneapolis read a paper on 'The Effect of Initial Tuberculous Infection on Subsequent Tuberculous Lesions' Discussed by Drs Horton R Crispatis Nashville, Tenn W Ambrose McGee Richmond Va and J A Myers Minneapolis

Dr Stewart H Clifford Boston read a paper on 'The Application of Determinations of Fetal Size in Utero to the Problem of Reducing the Premature Infant' Discussed by Drs Fred L Adair Chicago Julius H Hess Chicago, and Stewart H Clifford Boston

Drs Clifford G Grulee and Heyworth N Sanford, Chicago and Paul H Herron, Spokane Wash presented a paper on 'A Study of the Influence of Breast and Artificial Feeding on the Morbidity and Mortality of Twenty Thousand Infants' Discussed by Drs Frank C Neff Kansas City Mo Paul H Herron Spokane, Wash Jay I Durand Seattle Berthold Fleischmann New York and Clifford G Grulee Chicago

Drs Charles Hendee Smith Irving Graef and Elizabeth H T Andrews New York, presented a paper on 'The Pathology of Pneumonia in Infancy' Discussed by Drs Frank W Konzelmann, Philadelphia Karl E Kassowitz, Milwaukee, Clifford Sweet, Oakland, Calif and Charles Hendee Smith, New York

THURSDAY JUNE 14—MORNING

Dr Lewis W Hill Boston, read a paper on 'Chronic Atopic Eczema (Neurodermatitis) in Childhood' Discussed by Drs Marion B Sulzberger New York, J Victor Greenebaum, Cincinnati, George Piness, Los Angeles Charles Hendee Smith New York and Lewis W Hill Boston

Dr Alfred A Walker Birmingham Ala read the chairman's address entitled 'One Dose Alum Toxoid in Diphtheria Immunization'

Dr Albert D Kaiser Rochester N Y read a paper on 'Factors That Influence Rheumatic Disease in Childhood' Discussed by Drs Albert J Bell Cincinnati, and Jesse R Gerstley, Chicago

Dr Robert L Schaefer Detroit read a paper on 'Therapeutic Results with the Pituitary Growth Hormone' Discussed by Drs Roy G Hoskins Boston Murry B Gordon, Brooklyn and Robert L Schaefer Detroit

Dr John Aikman Rochester N Y, read a paper on 'The Problem of Accidental Poisoning in Childhood' Discussed by Drs S W Clausen, Rochester N Y C W Wyckoff, Cleveland and John Aikman, Rochester N Y

Dr David T Smith Durham, N C read a paper on 'Diagnosis and Treatment of Lung Abscess in Children' Discussed by Drs Louis H Clerf, Philadelphia J W Epstein Cleveland, E F Butler, Elmira N Y and David T Smith Durham N C

FRIDAY, JUNE 15—MORNING

The following officers were elected chairman, Dr A Grieme Mitchell, Cincinnati vice chairman, Dr Walter B Stewart, Atlantic City, N J, secretary, Dr Ralph M Tyson, Philadelphia, delegates, Dr Isaac A Abt, Chicago, alternate, Dr A Grieme Mitchell, Cincinnati, Executive Committee, Drs A Grieme Mitchell Cincinnati Alfred A Walker, Birmingham, Ala, Frederick W Schlutz, Chicago representative on Scientific Exhibit, Dr F Thomas Mitchell, Memphis, Tenn

The following report was presented by the Committee on Scientific Exhibit

This committee wishes first to thank those gentlemen who have so generously devoted their energy and their time to the section exhibit this year This committee regrets that the Committee on Scientific Exhibit of the Board of Trustees had to refuse some requests for space because of the large number of applications received from the Association as a whole

Arrangements have been made to request the committee from the Board of Trustees to consider all the applications from a certain section in one group, which will we hope, insure a more even distribution of space between the sections cooperating in the future

For next year certain innovations are to be added to the exhibit of the Section on Pediatrics and the continued cooperation of the gentlemen in the section is asked

Respectfully submitted

F THOMAS MITCHELL  
W C FARGO  
ABRAHAM LEVINSON

Dr Frank C Neff Kansas City, Mo presented the following report on behalf of the Jacobus Fund Committee

The Jacobus Fund has been in existence and functioning for the ten years just completed During this time the friends of the Section on Pediatrics have contributed sufficient not only for current expenses but to permit a trust fund to be established

It seems to be the consensus of the members of the present committee that the attempt be made to secure only those speakers as guests who have a ready command of English and can be readily understood by an American audience, furthermore, that in most instances a smaller honorarium should be given to the foreign guest

During the coming year it is expected that a small marble tablet or bench will be erected at Lake George near the site of Jacobus's former residence as a memorial to him

The appended treasurer's report lists the activities and expenses of the fund for the past year There has just been completed also a ten-year audit of the committee's books This has been in the hands of the committee members and a copy of it given to the secretary of the section for his records

The following is the Treasurer's report on the Jacobus Fund

Total balance on hand June 1 1934	\$6 267 82
Receipts	
123 Subscriptions	\$627 64
Interest at Traders Gate City National Savings account on which occasional checks are written	11 17
Interest at Anchor Savings & Loan	1 50
Increase in Trust Fund	287 84
	888 15
	\$7 155 97
Expenses	
Czerny Festschrift	\$500 00
Bookkeeping expenses and clerical expenses of notices	35 00
Postage	31 82
Printing	21 00
Traveling expense William H Park to meeting	76 18
Professor Gorter foreign guest	400 00
Check tax	18
121 Transactions	181 50
Audit of books	15 00
	1 260 68
Balance on hand June 1 1934	\$5 895 29
Fund is held as follows	
On deposit at Traders	\$ 39 46
On deposit at Anchor	76 52
Trust Fund	1 779 31
	\$5 895 29

Frank C Neff Secretary Treasurer

One copy of Transactions returned—subscriber deceased  
One copy of Transactions not yet paid for

On motion regularly made and seconded the report of the Jacobus Fund Committee was adopted



Dr Isaac A Abt, Chicago, delegate, read the following resolution, presented by the board of directors to the Philadelphia Pediatric Society and adopted by the Philadelphia Pediatric Society at the monthly meeting held Tuesday, Jan 17, 1933

WHEREAS Therapeutics in diseases of infants and children constitutes an important and much neglected phase of pediatric practice and

WHEREAS Those remedial agents prescribed by the profession, official in the United States Pharmacopeia X and National Formulary V are employed extensively in treating disease in infants and children and

WHEREAS The acceptance of new drugs and the deletion of remedies at present official in the Pharmacopeia and National Formulary concerns pediatricians as well as the general practitioner who treats infants and children and

WHEREAS There is a strong tendency to undermine official remedies including those of pediatric importance and therapeutic usefulness by proprietary remedies through clever advertising exploitation and salesmanship therefore be it

*Resolved* That the Philadelphia Pediatric Society take the initiative in urging the American Academy of Pediatrics the American Pediatric Society and the pediatric section of the American Medical Association through its proper channels to suggest to the officers of the Pharmacopoeial Convention 1930 and to the officers of the National Formulary Convention of 1930 the appointment of a representative group of pediatricians whose function shall be to suggest and advise those remedial agents (drugs and preparations of pediatric importance and therapeutic necessity) to be deleted retained and added to both the Pharmacopeia and the National Formulary who will cooperate with all present committees of the Pharmacopeia and the National Formulary in furthering the work for revision be it further

*Resolved* That the suggestion of average doses for the periods of infancy and of preschool and school ages be included in both texts as has been carried out previously with Pharmacopoeial and National Formulary remedies in adults and that application be filed with the Committee of Credentials of the Pharmacopoeial Convention and the National Formulary for a permanent seat as delegates to the Convention for 1940

On motion regularly made and seconded, the resolution was adopted

Dr Alexis F Hartman, St Louis, read a paper on "Theory and Practice of Parenteral Fluid Administration" Discussed by Drs Arthur G Helmick, Columbus, Ohio, J C Ray, Louisville, Ky, and Alexis F Hartman St Louis

Dr H H Donnally, Washington, D C read a paper on "A Study of Vaccination in Five Hundred New-Born Infants" Discussed by Drs J A Doull, Cleveland, Frank P Gengenbach, Denver J P Leake Washington, D C, and H H Donnally, Washington, D C

Dr J M Frawley, Fresno Calif read a paper on "The Immunization of School Children Against Whooping Cough" Discussed by Drs Louis W Sauer, Evanston, Ill, H F Helmholtz, Rochester, Minn Reuben L Kahn, Ann Arbor, Mich, Jay I Durand, Seattle, J Victor Greenebaum, Cincinnati, and J M Frawley, Fresno, Calif

Drs James E Bowman and P F Lucchesi, Philadelphia, presented a paper on "Antitoxin vs No Antitoxin in Scarlet Fever"

Drs Archibald L Hoyne and John Hays Bailey Chicago, presented a paper on "The Secondary Case of Scarlet Fever"

These two papers were discussed by Drs John A Toomey, Cleveland J E Gordon, Detroit, P F Lucchesi Philadelphia, and Archibald L Hoyne Chicago

## SECTION ON PHARMACOLOGY AND THERAPEUTICS

WEDNESDAY, JUNE 13—MORNING

The meeting was called to order at 9 10 by the chairman, Dr John H Musser New Orleans

Drs Harry L Arnold, Honolulu H I William S Middleton, Madison Wis and K K Chen Indianapolis, presented a paper on 'Clinical Experiences with Thevetin a Cardiac Glucoside' Discussed by Drs R Wesley Scott Cleveland Charles N Hensel, St Paul K K Chen, Indianapolis Norman M Keith, Rochester, Minn, and William S Middleton, Madison

Drs Nelson W Barker George E Brown and Grace M Roth Rochester Minn presented a paper on 'Effect of Tissue Extracts on Muscle Pains of Ischemic Origin (Intermittent Claudication)' Discussed by Drs E V Allen, Rochester, Minn Wallace S Duncan, Cleveland Harold M Rabinowitz Brooklyn Benjamin Jablons, New York Joseph B Wolffe Philadelphia and Nelson W Barker, Rochester

Drs Alvan L Barach and Robert L Levy, New York, presented a paper on "Oxygen in the Treatment of Acute Coronary Occlusion" Discussed by Drs Walter M Boothby, Rochester Minn, A Carlton Ernestene, Cleveland, Ford K Hick Chicago, Louis F Bishop Jr, New York, Martin Friedrich, Brooklyn, Alvan L Barach, New York, and Robert L Levy, New York

Drs James B Collip and E M Anderson, Montreal, Canada, presented a paper on "Studies on the Thyrotropic Hormone of the Anterior Pituitary"

Drs James H Means and Jacob Lerman, Boston, presented a paper on "Action of Iodine in Thyrotoxicosis, with Special Reference to Refractoriness"

Drs W O Thompson and S G Taylor III, Chicago, S B Nadler, New Orleans, P K Thompson and L F N Dicke Chicago, presented a paper on "Pharmacology of the Thyroid in Man"

These three papers were discussed by Drs George W Crile Cleveland, E C Kendall, Rochester, Minn, Herrmann L Blumgart, Boston, A C Ivy, Chicago, George M Curtis Columbus, Ohio, Harold T Hymen, New York, E P McCullagh, Cleveland, Walter M Boothby, Rochester, Minn, James B Collip Montreal, James H Means, Boston, and W O Thompson, Chicago

THURSDAY, JUNE 14—MORNING

Dr Charles A Doan and Lowell A Erf, Columbus, Ohio, presented a paper on "The Differential Diagnosis and Therapeutic Rationale of Leukopenic States" Discussed by Drs Roy R Kracke, Emory University, Ga, Henry N Harkins, Chicago, William Dameshek, Boston William H Gordon, Detroit, and Charles A Doan, Columbus

Dr Frank H Bethell, Ann Arbor, Mich, read a paper on "The Diagnosis and Treatment of the Iron Deficiency Anemias"

Drs William Dameshek and William B Castle, Boston presented a paper on "An Assay of Various Extracts of Liver for Parenteral Use"

These two papers were discussed by Drs Cyrus C Sturgis Ann Arbor, W P Murphy, Boston, Adolph Sachs, Omaha C W Edmunds, Ann Arbor, Mich, Frank H Bethell, Ann Arbor, and William Dameshek, Boston

Dr John H Musser, New Orleans, read the chairman's address, entitled 'The Pharmacologist and the Therapeutist'

Drs Gerald S Shibley and Tom D Spies, Cleveland, presented a paper on "The Effect of Vitamin A on the Common Cold"

Dr Harold S Diehl, Minneapolis, read a paper on "The Treatment of the Common Cold"

These two papers were discussed by Drs K K Chen, Indianapolis, Tom D Spies, Cleveland, William J Kerr, San Francisco, Russell L Haden, Cleveland, Gerald S Shibley, Cleveland, and Harold S Diehl, Minneapolis

FRIDAY, JUNE 15—MORNING

The following officers were elected chairman, Dr C H Greene, New York, vice chairman Dr Chauncey D Leake San Francisco secretary, Dr Russell L Haden Cleveland, delegate, Dr Cary Eggleston, New York, alternate, Dr Robert L Levy, New York, executive committee, Dr E M K Geising Baltimore Dr John H Musser, New Orleans, and Dr C H Greene, New York

Drs C Glenville Giddings Jr and Everett L Bishop Atlanta Ga presented a paper on 'A Study of the Effect of Caffeine on Rabbits' Discussed by Drs C W Edmunds, Ann Arbor, Mich and Roy R Kracke, Emory University, Ga

Dr Elmer L Sevringhaus, Madison, Wis presented a paper on "The Relief of Menopause Symptoms by Follicular Hormone Therapy" Discussed by Drs Emil Novak, Baltimore, J P Pratt, Detroit, E P McCullagh Cleveland J I Hofbauer, Cincinnati and Elmer L Sevringhaus, Madison, Wis

Drs C W Edmunds and Nathan B Eddy, Ann Arbor Mich presented a paper on 'Studies of Morphine Substitutes'

Dr C K Himmelsbach Fort Leavenworth Kan, read a paper on 'The Addiction Liability of Codeine'

Dr C Malone Stroud St Louis read a paper on 'The Use of Dilaudid in the Pain of Cancer'

These three papers were discussed by Drs Torald Sollmann Cleveland Norman A David Morgantown, W Va, Harold

S Diehl, Minneapolis, Nathan B Eddy, Ann Arbor, Mich, C K Himmelsbach, Fort Leavenworth, Kan, and C Malone Stroud, St Louis

Dr Eugene de Savitsch, Chicago, read a paper on "The Role of Hypercalcemia in the Presence of the Tuberculin Reaction in Experimental Tuberculosis" Discussed by Drs Harry J Corper, Denver, David J Smith, Durham, N C, Torald Sollmann, Cleveland, and Eugene de Savitsch, Chicago

Drs Harold Thomas Hyman and Arthur S W Touroff, New York, presented a paper on "Further Observations on the Therapeutics of the Intravenous Drip" Discussed by Drs T G Orr, Kansas City, Mo Paul Titus, Pittsburgh, Robert Kapsinow, Lafayette, La, and Harold Thomas Hyman, New York

## SECTION ON PATHOLOGY AND PHYSIOLOGY

WEDNESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2 10 by the chairman, Dr William Carpenter MacCarty, Rochester, Minn

On motion regularly made and seconded, it was voted to nominate the following for Associate Fellowship Maurice L Cohn, Denver, and Moyer S Fleisher, St Louis

Dr Claude Moore, Washington, D C, read a paper on "Giant Cell Tumors Their Pathology and Possible Etiology" Discussed by Drs Eugene R Whitmore, Washington, D C, Joseph C Bloodgood, Baltimore E H Skinner, Kansas City, Mo, William Carpenter MacCarty, Rochester, Minn, and Claude Moore, Washington, D C

Dr Alvin G Foord, Pasadena, Calif, read a paper on "Hyperproteinemia, Autohemo-Agglutination and Abnormal Bleeding in Multiple Myeloma Observations in Three Cases" Discussed by Drs Russell L Haden, Cleveland, and Alvin G Foord, Pasadena Calif

Dr E B Krumbhaar, Philadelphia, read a paper entitled "Is Hodgkin's Disease a Neoplasm or Due to Infection?" Discussed by Drs Oscar B Hunter, Washington, D C, William Carpenter MacCarty, Rochester, Minn, and E B Krumbhaar, Philadelphia

Dr William Carpenter MacCarty, Rochester, Minn, read the chairman's address, entitled "The Cancer Problem Today"

Dr Max Cutler, Chicago, read a paper on "The Problems of Radiosensitivity of Tumors" Discussed by Drs Joseph C Bloodgood, Baltimore, J Shelton Horsley, Richmond, Va, E B Krumbhaar, Philadelphia, and Max Cutler, Chicago

Dr Eugene R Whitmore, Washington, D C, read a paper on "Hypernephroid Tumors of the Kidney" Discussed by Drs Lester Neuman, Washington, D C R M LeComte, Washington, D C, Russell Ferguson, New York, William Carpenter MacCarty, Rochester, Minn, and Eugene R Whitmore, Washington, D C

Dr Philip B Matz, Washington, D C, read a paper on "Heart Disease in Veterans A Survey of Six Hundred and Eleven Autopsies" Discussed by Dr Wallace M Yater, Washington, D C

THURSDAY, JUNE 14—AFTERNOON

Drs H J Corper, A P Damerow and Maurice L Cohn, Denver, presented a paper on "Specific Viable Vaccines in Tuberculosis" Discussed by Drs Francis M Pottenger, Monrovia, Calif, and H J Corper, Denver

Dr Maxwell Finland, Boston, read a paper on "The Significance of Mixed Infections in Pneumonia" Discussed by Drs W D Sutcliffe, Chicago, and Maxwell Finland, Boston

Dr Reuben L Kahn, Ann Arbor, Mich, read a paper on "Tissue Reactions in Immunity Some Clinical Implications" Discussed by Drs Walter M Simpson, Dayton, Ohio, Israel Davidson, Chicago, Francis M Pottenger, Monrovia, Calif, and Reuben L Kahn, Ann Arbor, Mich

Dr Edwin E Osgood, Portland Ore, read a paper on "Normal Hematologic Standards" Discussed by Drs Russell L Haden, Cleveland, M B Lyon, South Bend, Ind, and Edwin E Osgood, Portland, Ore

Dr B K Wiseman, Columbus, Ohio, read a paper on "The Origin of the White Blood Cells" Discussed by Dr Charles A Doan, Columbus, Ohio

Dr L W Diggs, Memphis, Tenn, read a paper on "The Splen in Sickle Cell Anemia" Discussed by Drs John Corrigan, Boston, Charles A Doan, Columbus, Ohio, and L W Diggs, Memphis, Tenn

Dr Leon Schiff, Cincinnati, read a paper on "A Study of One Hundred Cases of Jaundice (With Particular Reference to Lactose Tolerance)" Discussed by Drs F C Mann, Rochester, Minn, and Harry Shry, Philadelphia

FRIDAY, JUNE 15—AFTERNOON

The following officers were elected chairman, Dr Elias P Lyon, Minneapolis, vice chairman, Dr Henry C Swamy, Chicago, secretary, Dr J J Moore, Chicago, delegate, Dr D J Davis, Chicago, alternate, Dr J J Moore, Chicago, Executive Committee, Drs Elias P Lyon, Minneapolis, William Carpenter MacCarty, Rochester, Minn, and Clyde Brooks, New Orleans

The following motion was adopted

That a committee be appointed by the Section on Pathology and Physiology to consider the formation of a board of examiners in pathology and clinical pathology for the purpose of certifying physicians in these respective branches of medicine such committee to meet with similar committees from the American Association of Pathologists and Bacteriologists and the American Society of Clinical Pathologists

Dr Allan Winter Rowe, Boston, read a paper on "The Metabolism of Levulose VI The Influence of Gonadal Function on Tolerance" Discussed by Dr Henry J John, Cleveland

Drs Edward J Stieglitz and Alva A Knight, Chicago, presented a paper on "Sodium Ferrocyanide as a Clinical Test of Glomerular Efficiency" Discussed by Dr Edward J Stieglitz, Chicago

Dr Russell S Ferguson, New York, read a paper entitled "Preliminary Note on the Isolation of Aquamedin and Its Specific Effect in Diabetes Insipidus" Discussed by Drs Howard T Karsner, Cleveland, and Russell S Ferguson, New York

Dr William Bierman, New York, read a paper on "Some Changes Occurring During Hyperpyrexia Induced by Physical Means" No discussion

Dr Nicholas M Alter, Jersey City, N J, read a paper on "The Functions of a Full Time Pathologist" Discussed by Drs William Carpenter MacCarty, Rochester, Minn, and Nicholas M Alter, Jersey City, N J

Dr Margaret Warwick, Buffalo, read a paper on "Obtaining Permission for Autopsies" Discussed by Drs R S Rosedale, Buffalo, and William Carpenter MacCarty, Rochester Minn

## SECTION ON NERVOUS AND MENTAL DISEASES

WEDNESDAY, JUNE 13—MORNING

The meeting was called to order at 9 10 by the chairman, Dr Henry W Woltman, Rochester, Minn

Dr I S Wechsler, New York, read a paper on "Trauma and the Nervous System, with Special Reference to Head Injuries and a Classification of Posttraumatic Syndromes (Analysis of One Hundred Cases)" Discussed by Drs N W Winkelman, Philadelphia, George B Hassin, Chicago, Temple Fay, Philadelphia, J L Fetterman, Cleveland, George W Hall, Chicago, Walter Freeman, Washington, D C, Max H Weinberg, Pittsburgh, C C Nash, Dallas, Texas, E E Mayer, Pittsburgh, and I S Wechsler, New York

Drs N W Winkelman, Philadelphia, and John L Eckel, Buffalo, presented a paper on "Spastic Paraplegia Cases Illustrating the Common Etiologic Factors" Discussed by Drs I S Wechsler, New York, and N W Winkelman, Philadelphia

Drs Edward H Ryneanson and Frederick P Moersch, Rochester, Minn, presented a paper on "The Neurologic Manifestations of Hyperinsulinism and Other Hypoglycemic States" Discussed by Drs I S Wechsler, New York, George W Hall, Chicago, Harlow Brooks, New York, Tom B Throckmorton, Des Moines Iowa, and Edward H Ryneanson, Rochester, Minn

Drs A E Bennett and J Jay Keegan, Omaha, presented a paper on "The Diagnosis of Cerebral Neoplasm in the Absence of Generalized Intracranial Pressure Phenomena" Discussed by Drs Alfred W Adson, Rochester Minn, Lloyd H Ziegler, Albany, N Y, George W Hall, Chicago, Temple Fay, Phila-

delphia, W James Gardner, Cleveland, Albert S Crawford, Detroit, Walter D Abbott, Des Moines, Iowa, and A E Bennett, Omaha

Dr William P Van Wagenen, Rochester, N Y, read a paper on "The Diagnosis and Surgical Treatment of Chordoma of the Basilar Plate" Discussed by Drs John L Eckel, Buffalo, W James Gardner, Cleveland, and Alfred W Adson, Rochester, Minn

Dr H C Voris, Rochester, Minn, read a paper on 'Frontal Lobe Tumors Clinical Observations in a Verified Series' Discussed by Drs Alfred W Adson, Rochester Minn, F J Gerty, Chicago, Lloyd H Ziegler, Albany, N Y, Adrien H P E Verbrugghen, Chicago, and H C Voris, Rochester, Minn

Dr Walter Freeman, chairman, gave the report of the committee appointed by the section to meet with similar committees of the American Psychiatric Association and American Neurological Association to consider the formation of a Board of Examiners in Psychiatry and Neurology, the other members of the committee being Drs J Allen Jackson, Lloyd H Ziegler, George W Hall and Edwin G Zabriskie It was moved by Dr E E Mayer of Pittsburgh, seconded by Dr John L Eckel of Buffalo and carried, that the report of the committee be adopted as read

#### THURSDAY, JUNE 14—MORNING

Dr Henry W Woltman, Rochester, Minn read the chairman's address, entitled "Enduring Achievements of Sir Charles Bell"

The following papers were read as a symposium on "The Functions of the Cerebral Cortex"

##### "Frontal Lobes"

Dr Paul C Bucy, Chicago "The Relation of Cerebral Architecture of the Frontal Lobes of Primates to Functional Activity"

Drs J F Fulton, New Haven, Conn, and Henry R Viets, Boston "The Syndromes of the Motor and Premotor Areas"

Dr C F Jacobsen, New Haven, Conn "Functions of the Frontal Association Areas in Primates"

These three papers were discussed by Drs I S Wechsler, New York, John L Eckel, Buffalo, James B Ayer Boston, Walter Freeman, Washington, D C, Theodore Diller, Pittsburgh, A L Skoog, Kansas City, Mo Paul C Bucy, Chicago, Henry R Viets, Boston C F Jacobsen, New Haven, Conn, and J F Fulton, New Haven Conn

##### "Autonomic Representation in the Cortex"

Dr Margaret A Kennard, New Haven, Conn "Vasomotor Disturbances Resulting from Cortical Lesions"

Dr James W Watts, Philadelphia "The Influence of the Cortex on Gastro-Intestinal Movements"

These two papers were discussed by Drs John Paul Quigley, Cleveland Paul C Bucy, Chicago Thomas J Heldt, Detroit, Margaret A Kennard New Haven, Conn, and James W Watts, Philadelphia

##### "Occipital Lobes"

Dr Stephen Poljak, Chicago "Structure of the Retina and Its Cerebral Representation in Primates and in Man"

Dr Donald Marquis, New Haven Conn "A Phylogenetic Interpretation of the Functions of the Visual Cortex"

These two papers were discussed by Drs Franklin Jelsma, Louisville Ky Albert T Steegmann, Cleveland, Edmond E Blaauw, Buffalo Stephen Poljak, Chicago, and Donald Marquis New Haven, Conn

#### FRIDAY, JUNE 15—MORNING

The following officers were elected chairman, Dr H Douglas Singer, Chicago vice chairman Dr George S Johnson San Francisco secretary, Dr Henry R Viets Boston delegate, Dr Tom B Throckmorton, Des Moines, Iowa alternate, Dr Edward Delehanty Denver Executive Committee, Dr George B Hassin Chicago Dr Henry W Woltman, Rochester, Minn Dr H Douglas Singer Chicago

Dr Frederick S Wetherell, Syracuse N Y, read a paper on 'Multiple Sclerosis Cervicodorsal Sympathectomy as a Relief Measure' Discussed by Drs Noble R Chambers, Syracuse N Y George B Hassin Chicago Temple Fay, Philadelphia Henry R Viets, Boston W James Gardner, Cleveland Albert S Crawford Detroit Henry W Woltman, Rochester Minn and Frederick S Wetherell Syracuse N Y

Dr William Sharpe, New York, read a paper on 'Diagnostic and Therapeutic Lumbar Punctures of Spinal Drainage in Selected Traumatic and Allied Lesions of the Central Nervous System' Discussed by Drs Temple Fay, Philadelphia, Albert S Crawford, Detroit, Ned R Smith, Tulsa, Okla, Paul C Bucy, Chicago, Samuel D Swope, El Paso, Texas, A L Skoog, Kansas City, Mo, Adrien Verbrugghen, Chicago, and William Sharpe, New York

Drs Carlo J Tripoli, William M McCord and Howard H Beard, New Orleans, presented a paper on "Muscular Dystrophy, Muscular Atrophy and Myasthenia Gravis A Review of Chemical and Biochemical Studies of the Effects of Amino Acid" Discussed by Drs Walter M Boothby, Rochester, Minn, K K Chen, Indianapolis, Henry A Monat, Dayton, Ohio Clarence O Cheney, New York, Henry W Woltman, Rochester, Minn, Howard H Beard, New Orleans, and Carlo J Tripoli, New Orleans

Drs Siegfried E Katz and Carney Landis, New York, presented a paper on 'Physiologic and Psychologic Phenomena Produced by a Prolonged Vigil' Discussed by Drs Clarence O Cheney New York, Lloyd H Ziegler, Albany, N Y, and Siegfried E Katz, New York

Dr Lauren H Smith, Philadelphia, read a paper on 'The Treatment of Psychoneuroses in General Practice' Discussed by Drs Alan D Finlayson, Cleveland, Harold Cohn, Cleveland Lloyd H Ziegler, Albany, N Y, T Earl Moore, Miami, Fla and Lauren H Smith, Philadelphia

Drs Charles F Read and John F Nerancy, Elgin, Ill, presented a paper on "Modern State Hospital Treatment of Mental Diseases" Discussed by Drs Clarence O Cheney, New York, George B Hassin, Chicago, H J Gahagan, Chicago, and Charles F Read, Elgin, Ill

#### SECTION ON DERMATOLOGY AND SYPHILOLOGY

##### WEDNESDAY, JUNE 13—MORNING

The meeting was called to order at 9 20 by the chairman Dr C Guy Lane Boston

Dr Harold N Cole, Cleveland read the following resolution which had been adopted at the meeting of the American Dermatological Association

That a committee of five be appointed by the President of the American Dermatological Association to act as the representatives of the association at the international congress to be held at Budapest in 1935 and that it be the sense of the association that a committee of the same number shall be appointed from the Section on Dermatology and Syphilology of the American Medical Association the two to form a joint committee to act for the American members of the congress the committee to remain in force for two years or more if necessary until the meeting actually transpires

Dr Cole moved that the chairman be empowered to appoint such a committee from the Section on Dermatology and Syphilology The motion was seconded by Dr George M MacKee New York and carried

Dr C Guy Lane, Boston, read the chairman's address, entitled "Postgraduate Dermatologic Training and Its Relationship to Certification of Specialists in Dermatology"

Drs Erwin P Zeisler and Marcus R Caro Chicago, presented a paper on 'Necrobiosis Lipoidica Diabetorum' Discussed by Drs Udo J Wile Ann Arbor, Mich Fred D Weidman Philadelphia, Jeffrey C Michael, Houston, Texas, and Erwin P Zeisler Chicago

Dr Frank Stiles Jr Ann Arbor, Mich, read a paper on 'Clinical Mutations in Lymphoblastomas' Discussed by Drs Harther L Keim Detroit George M MacKee New York Marion B Sulzberger, New York William H Guy, Pittsburgh Fred D Weidman, Philadelphia, and Frank Stiles Jr, Ann Arbor, Mich

Dr George M Lewis, New York, read a paper entitled 'Is Spiegler-Fendt Sarcoid a Clinical or Histologic Entity?' Discussed by Drs Robert L Gilman Philadelphia, George M MacKee New York John Rauschkolb, Columbus, Ohio and George M Lewis, New York

Dr Ashton L Welsh Rochester, Minn read a paper on 'Studies on the Specificity of a Streptococcus Isolated from Cases of Pemphigus Preliminary Report' Discussed by Dr Louis A Brunsting Rochester, Minn Theodore Cornbleet, Chicago, and Ashton L Welsh Rochester Minn

Dr James Herbert Mitchell, Chicago, read a paper on "Streptococcal Infections Simulating Ringworm of the Hands and Feet" Discussed by Drs George C Andrews, New York, Frank P Zeisler, Chicago Marion B Sulzberger, New York John G Downing Boston, and James Herbert Mitchell Chicago

Drs George M MacKee and Anthony C Cipollaro New York presented a paper on "The Roentgen Unit in Dermatology" Discussed by Drs Otto Glisser Cleveland, Earl W Netherton, Cleveland, George C Andrews, New York, C Guy Lane Boston C F Ichmann San Antonio Texas, Lester Hollander, Pittsburgh George M MacKee New York, and Anthony C Cipollaro, New York

Drs Fred D Weidman and Jacques P Guequierre Philadelphia presented a paper on "The Role of High Frequency Currents in the Performance and Histologic Interpretation of Biopsy Samples" Discussed by Drs George M MacKee, New York Max S Wien Chicago Fred D Weidman, Philadelphia, and Jacques P Guequierre, Philadelphia

#### THURSDAY, JUNE 14—MORNING

Dr Fred D Weidman reported for the Scientific Exhibit Committee that the section had a balance of \$154 for use over a period of four or five years and that the collecting of contributions for the exhibit would be forbidden in the future, but that the American Medical Association had made an allotment to the fund Dr Weidman especially asked members who are heads of departments to call to the attention of the committee work representing scientific advance that might be available for exhibits

It was voted, on motion of Dr Howard Morrow San Francisco, seconded by Dr Francis E Seneff Chicago that the report of the auditing committee on the finances of the section referable to the Scientific Exhibit be accepted and filed

The chairman appointed the following Committee on the International Congress Drs Harold N Cole Cleveland John H Stokes, Philadelphia Fred D Weidman, Philadelphia, Paul O Leary, Rochester, Minn, and William H Guy Pittsburgh

Drs Theodore Cornbleet and Morris A Kaplan, Chicago presented a paper on "Urinary Protease in Eczema" Discussed by Drs Robert E Barney, Cleveland Frank J Eichenlaub, Washington D C Max E Obermayer, Chicago Warren T Vaughan, Richmond, Va, and Theodore Cornbleet, Chicago

Dr Arthur F Coca, New York, read a paper on "The Present Status of the Specific Diagnosis and Treatment of the Allergic Diseases of the Skin"

Drs Louis A Brunsting and C R Anderson, Rochester, Minn, presented a paper on "Ragweed Dermatitis"

Drs Samuel Ayres Jr and Nelson Paul Anderson Los Angeles, presented a paper on "Some Observations on Light Sensitive Dermatoses"

Dr Cleveland J White Chicago read a paper on "Acne-Like Dermatoses Due to Food Allergy"

These four papers were discussed by Drs Marion B Sulzberger New York, Jeffrey C Michael Houston Texas James R Driver Cleveland Albert H Rowe Oakland Calif C Malone Stroud St Louis George L Waldbott, Detroit A B Loveman, Louisville, Ky, Leon Unger Chicago, Joseph Muller, Worcester Mass, Samuel M Peck New York Howard Fox New York Armand E Cohen Louisville Ky Arthur F Coca New York Louis A Brunsting Rochester Minn Nelson Paul Anderson Los Angeles and Cleveland J White Chicago

Dr Richard L Sutton Jr Kansas City, Mo, read a paper on "Early Cutaneous Carcinoma" Discussed by Drs E W Netherton, Cleveland Harold N Cole Cleveland, Jeffrey C Michael Houston, Texas and Richard L Sutton Jr, Kansas City, Mo

Drs Herman Beerman George V Kulchar Donald M Pillsbury and John H Stokes Philadelphia presented a paper on "Dioxyanthranol 1-8 as a Substitute for Chrysarobin" Discussed by Drs Robert C Jamieson Detroit Max E Obermayer Chicago Fred D Weidman Philadelphia Louis A Brunsting Rochester, Minn, George W Raiziss Philadelphia and Herman Beerman Philadelphia

Dr Howard Fox, New York, read a paper on "Verruca Peruviana as Observed in Peru" Discussed by Drs Harold N Cole, Cleveland, and Howard Fox, New York

#### FRIDAY, JUNE 15—MORNING

The following officers were elected chairman, Dr Jeffrey C Michael, Houston, Texas, vice chairman, Dr James R Driver, Cleveland, secretary, Dr Harry R Foerster, Milwaukee, delegate, Dr Clyde L Cummer, Cleveland, alternate, Dr Robert C Jamieson Detroit

Drs Samuel M Peck and Harold A Abel, New York, presented a paper on "Clinical and Experimental Experiences with Snake Venom" Discussed by Drs John A Gammel, Cleveland, Marion B Sulzberger New York, Fred D Weidman, Philadelphia, and Samuel M Peck, New York

Drs Maurice J Strauss and Marion E Howard, New Haven, Conn, presented a paper on "The Frei Test for Lymphogranuloma Inguinale Recovery of the Antigen from a Pustular Reaction" Discussed by Drs Max S Wien, Chicago, Walter S Grant, Chicago, John E Dalton, Indianapolis Elmore B Tauber, Cincinnati, and Maurice J Strauss, New Haven, Conn

Dr Leslie P Barker, New York read a paper on "Organic Luetin Its Value in Diagnosis and Treatment of Syphilis A Study of Five Hundred Cases"

Dr Arthur G Schoch Dallas, Texas, read a paper on "Arsphenamine Dermatitis Attempted Sensitization to Neoarsphenamine and Further Observations on the Patch Test"

These two papers were discussed by Drs John E Rauschkolb, Cleveland Harry M Robinson, Baltimore, Marion B Sulzberger, New York, John V Ambler Denver, George W Raiziss, Phil D, Philadelphia, Drs Elmore B Tauber, Cincinnati, Maurice J Strauss, New Haven, Conn, Louis A Brunsting Rochester, Minn Leslie P Barker, New York, and Arthur G Schoch, Dallas, Texas

Drs Norman N Epstein and Maurice Cohen San Francisco, presented a paper on "The Effects of Hyperpyrexia Produced by Radiant Heat in Early Syphilis Description of a Simple Method of Producing Hyperpyrexia"

Drs Stanley O Chambers and George F Koetter, Los Angeles, presented a paper on "Bismarsen in the Treatment of Congenital Syphilis"

Dr Louis Chargin New York, read a paper on "The Application of the Intravenous Drip Method of Chemotherapy as Illustrated by Massive Doses of Neoarsphenamine in the Treatment of Early Syphilis"

These three papers were discussed by Drs Howard J Parkhurst Toledo, Ohio, Herman Beerman, Philadelphia, Clyde L Cummer, Cleveland Walter M Simpson, Dayton, Ohio, Harold N Cole, Cleveland, Harry M Robinson, Baltimore, Norman N Epstein, San Francisco Stanley O Chambers, Los Angeles, and Louis Chargin, New York

### SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

#### WEDNESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2 05 by the chairman, Dr Wilson G Smillie Boston

On motion made by Dr William A Sawyer Rochester N Y seconded by Dr J E Gordon, Detroit, it was voted unanimously that Dr James G McAlpine of Montgomery, Ala, be admitted to Associate Fellowship

The chairman appointed as the nominating committee Drs F D Stricker Portland, Ore J E Gordon, Detroit, and A J Chesley, St Paul

The following papers were read as a symposium on "Lead Poisoning"

Dr Wilson G Smillie Boston Chairman's address

Dr A J Lanza, New York Epidemiology of Lead Poisoning

Dr Joseph C Aub Boston Chemistry of Lead in the Body

Dr Robert A Kehoe, Cincinnati "Normal Absorption and Excretion of Lead"

Dr R R Jones, Washington, D C "Symptoms in Early Stages of Lead Poisoning"

Dr Elston L Belknap, Milwaukee "Control of Lead Poisoning in the Worker"

Dr Irving Gray, Brooklyn "Recent Progress in the Treatment of Plumbism"

These seven papers were discussed by Drs George H Gehrmann, Wilmington, Del, Paul A Davis, Akron, Ohio, Millard Knowlton, Hartford, Conn, Elbridge J Best, San Francisco, A J Lanza, New York, Robert A Kehoe, Cincinnati, R R Jones, Washington, D C, Elston L Belknap, Milwaukee, Irving Gray, Brooklyn, and Joseph C Aub, Boston

#### THURSDAY, JUNE 14—AFTERNOON

Dr Leroy E Parkins, Boston, read a paper on "The Relation of Postgraduate Medical Instruction to Public Health" Discussed by Drs J E Gordon, Detroit, Emery R Hayhurst, Columbus, Ohio, Dwight O'Hara, Boston, Benjamin Goldberg, Chicago, and Leroy E Parkins, Boston

Drs John W Miller, Washington, D C, William P Yant, Pittsburgh, and R R Sayers, Washington, D C, presented a paper on "The Response of Peritoneal Tissue to Dusts Introduced as Foreign Bodies" Discussed by Drs A J Lanza, New York, William D McNally, Chicago, Emery R Hayhurst, Columbus, Ohio, and John W Miller, Washington, D C.

Drs Alberto Hurtado, W W Fray, N L Kaltreider and William S McCann, Rochester, N Y, presented a paper on "The Estimation of Functional Disability in the Pulmonary Fibroses" Discussed by Drs James L Dubrow, Des Moines, Iowa, William D McNally, Chicago, Benjamin Goldberg, Chicago, William S McCann, Rochester, N Y, and Emery R Hayhurst, Columbus, Ohio

Dr C O Sappington, Chicago, read a paper on "The Control of Occupational Diseases by Laboratory Methods" Discussed by Dr Albert S Gray, Hartford, Conn

Dr Paul A Davis, Akron, Ohio, read a paper on "Carbon Tetrachloride as an Industrial Hazard" Discussed by Drs Carey P McCord, Cincinnati, Z T Wirtschafter, Cleveland, Emery R Hayhurst, Columbus, Ohio, William D McNally, Chicago, Wilson G Smillie, Boston, and Paul A Davis, Akron, Ohio

Dr F D Stricker, Portland, Ore, read a paper on "The Effects of Consolidation of State Health, Welfare and Licensure Functions to Preventive Medicine" Discussed by Drs John A Ferrell, New York, George H Coombs, Augusta, Maine, and F D Stricker, Portland, Ore

Dr H Jackson Davis, Albany, N Y, read a paper on "Coordination of Medical Relief, Federal, State and Local, Based on More Than Two Years' Experience in New York State" Discussed by Dr A J Chesley, St Paul

#### FRIDAY, JUNE 15—AFTERNOON

The following officers were elected chairman, Dr Robert H Riley, Baltimore, vice chairman, Harry L Rockwood, Cleveland, secretary, R R Sayers, Washington, D C, delegate, Stanley H Osborn, Hartford, Conn

The chairman announced the appointment of Dr A J Chesley, St Paul, as a member of the Executive Committee in the absence of Dr J N Baker, Montgomery, Ala

The following papers were presented on the topic "Epidemic Encephalitis"

Dr Josephine B Neal, New York "The Encephalitis Problem"

Drs J P Leake, Washington, D C, E K. Musson, Jefferson City, Mo, and H D Chope, St Louis "Epidemiology"

Drs Howard Anderson McCordock, William D Collier and Samuel H Gray, St Louis "Pathology"

Drs Ralph S Muckenfuss, St Louis, Charles Armstrong, Washington, D C and Leslie T Webster, New York "Etiology"

Dr Theodore C Hempelmann, St Louis "Diagnosis"

Dr J W Eschenbrenner, St Louis "Treatment"

Drs Joseph F Bredeck and Paul J Zentay, St Louis "Handling the Epidemic"

These seven papers were discussed by Drs W E Conklin, Paris, Ill, Frank R Finnigan, St Louis, J W Eschenbrenner, St Louis, Ralph S Muckenfuss, St Louis, and Paul J Zentay, St Louis

## SECTION ON UROLOGY

### WEDNESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr Harry Culver, Chicago

The following papers were read as a symposium on "Gonorrhea"

Dr Percy S Pelouze, Philadelphia "Immunologic Aspects of Gonococcic Infections"

Dr Russell D Herrold, Chicago "The Treatment of Gonorrhea Based on Laboratory Observations During the Course of the Disease"

Dr Emily Dunning Barringer, New York "The Treatment of Gonorrhea in Women"

These three papers were discussed by Drs Henry W E Walther, New Orleans, Herbert T Hayes, Houston, Texas, Roy W Mohler, Philadelphia, Augustus Harris, Brooklyn, A L Wolbarst, New York, A G Fleischman, Des Moines, Iowa, Percy S Pelouze, Philadelphia, Russell D Herrold, Chicago, and Emily Dunning Barringer, New York

Drs Robert E Cumming and Robert A Burhans, Detroit, presented a paper on "Experiences with Corbus Ferry Bouillon Filtrate and Other Forms of Intradermal Therapy in the Treatment of Gonorrhea" Discussed by Drs Budd C Corbus, Chicago, and Robert E Cumming, Detroit

Mr Ambrose J King, London, England, read a paper on "The Criteria of Cure of Gonorrhea" Discussed by Drs Miley B Wesson, San Francisco, Joseph A Hyams, New York, John F Hogan, Baltimore, and Mr Ambrose J King, London, England

Dr Joseph F McCarthy, New York, read a paper on "Instrumental Methods of Procedure in the Correction of Prostatic and Vesicular Conditions"

Dr Gershom J Thompson, Rochester, Minn, read a paper on "The Treatment of Chronic Prostatitis by Incision with Electrocautery"

Dr Albert E Goldstein, Baltimore, read a paper on "Indications and Methods in Handling the Surgical Complications Occurring in the Treatment of Gonorrhea"

These three papers were discussed by Drs William N Taylor, Columbus, Ohio, J Sidney Ritter, New York, Elmer Hess, Erie, Pa, Cyril K Church, New York, Joseph F McCarthy, New York, Gershom J Thompson, Rochester, Minn, and Albert E Goldstein, Baltimore

Dr Ralph L Dourmashkin, New York, read a paper on "The Operating Dilatocysto-Urethroscope for Use in the Female Urethra"

#### THURSDAY, JUNE 14—AFTERNOON

Dr Harry Culver, Chicago, read the chairman's address, entitled "The Importance of the Streptococcus in Genito-Urinary Diseases"

In the absence of two members of the Executive Committee, Drs J D Barney and N G Alcock, Chairman Culver appointed Drs H C Bumpus Jr and Alexander Raymond Stevens to serve on the committee

Drs Anson L Clark and Bert F Keltz, Oklahoma City, presented a paper on "A Simplified Treatment of Bacilluria"

Dr Albert M Crance, Geneva, N Y, presented a paper on "The Necessity for the Standardization of the Treatment of Bacilluria"

These two papers were discussed by Drs William P Herbst Jr, Washington, D C, Clifford J Barborka, Chicago, Henry F Helmholtz, Rochester, Minn, Anson L Clark, Oklahoma City, and Albert M Crance, Geneva, N Y

Drs Monroe E Greenberger and Leonard P Wershush, New York, and Oscar Auerbach, West New Brighton, S I, N Y, presented a paper on "The Incidence of Renal Tuberculosis in Five Hundred Autopsies for General and Pulmonary Tuberculosis"

Dr Frederick Lieberthal, Chicago, read a paper on "Tuberculous Nephritis"

These two papers were discussed by Drs Roy B Henline, New York, Thomas D Moore, Memphis, Tenn, William Rosenberg, Cleveland, Boris E Greenberg, Boston, Monroe E Greenberger, New York, and Frederick Lieberthal, Chicago.

Drs Stanley R Woodruff, Jersey City, N J, and H C Bumpus Jr, Pasadena, Calif, presented a paper entitled 'Is Nephrectomy Always Indicated Following a Diagnosis of Unilateral Renal Tuberculosis?' Discussed by Drs R M LeComte, Washington, D C, J C Pennington, Nashville, Tenn, Hugh H Young, Baltimore, and H C Bumpus Jr, Pasadena, Calif.

Dr Hugh H Young, Baltimore, read a paper on "Genital Tuberculosis" Discussed by Drs W F Brunsch, Rochester, Minn, and C I McDavitt, Cincinnati.

Dr Stanley L Wang, New York, read a paper on 'Quartz Light Therapy in Urogenital Tuberculosis' No discussion.

#### FRIDAY, JUNE 15—AFTERNOON

The following officers were elected chairman, Dr Stanley R Woodruff, Jersey City, N J, vice chairman, Dr Thomas P Shupe, Cleveland, secretary, Dr J H Morrissey, New York, delegate, Dr Henry W E Walther, New Orleans, alternate, Dr Henry L Sanford, Cleveland.

It was voted on motion of Dr Alexander Raymond Stevens, New York, that the executive committee be empowered to appoint three members of the section to the qualification board with power to act. Dr Stevens reported the consensus of the acting executive committee that each year one member of the qualification board committee should retire and one new member be appointed.

The following papers were read as a symposium on "Urolithiasis."

Drs Virgil S Counseller and James T Priestley, Rochester, Minn, "The Present Conception of Renal Lithiasis" Discussed by Drs Jerome M Lynch, New York, Richard Chute, Boston, and Virgil S Counseller, Rochester, Minn.

Dr Charles C Higgins, Cleveland, "Urinary Calculi: Experimental and Clinical Studies" Discussed by Dr Vincent J O'Connor, Chicago.

Dr Alexander Raymond Stevens, New York, "Bilateral Urinary Calculi: The Medical and Surgical Handling of Problems Involved" Discussed by Drs John S Lewis Jr, Youngstown, Ohio, and Moses Swick, New York.

Dr Linwood D Keyser, Roanoke, Va, "Recurrent Urolithiasis: Etiologic Factors and Clinical Management" Discussed by Drs George H Ewell, Madison, Wis, Francis P Twinn, New York, and Linwood D Keyser, Roanoke, Va.

Dr George F Cahill, New York, "The Medical and Surgical Treatment of Calculous Anuria" Discussed by Drs Harry R Trattner, Cleveland, Ernest M Watson, Buffalo, and George F Cahill, New York.

Dr Frederic E B Foley, St Paul, "Management of Ureteral Stone: Operation Versus Expectancy and Manipulation" Discussed by Drs William J Engel, Cleveland, F C Herrick, Cleveland, and Frederic E B Foley, St Paul.

Dr Abraham Ravich, Brooklyn, "Present-Day Management of Bladder Stones, with a Description of Visualized Litholapaxy."

### SECTION ON ORTHOPEDIC SURGERY

#### WEDNESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2:10 by the chairman Dr James S Speed, Memphis, Tenn.

Dr J E M Thomson, Lincoln, Neb, read a paper on "The Treatment of Communitated Fracture of the Patella in Which There Are One Large Fragment and Several Small Fragments" Discussed by Drs James S Speed, Memphis, Tenn, H R Conn, Akron, Ohio, Marcus H Hobart, Evanston, Ill, H W Orr, Lincoln, Neb, and Frank R Ober, Boston.

Dr Louis G Howard, Boston, read a paper entitled 'Report of One Hundred Cases of Fracture of the Hip' Discussed by Drs Archibald F O'Donoghue, Sioux City, Iowa, J Laurence Jones, Kansas City, Mo, and G A Hendon, Louisville, Ky.

Drs Halford Hallock and James W Toumey Jr, New York, presented a paper on 'End Result Study of Tuberculosis of the Hip Joint Treated by Fusion: A Study of One Hundred and Seventy Cases' Discussed by Drs Henry W Meyerding, Rochester, Minn, Frank R Ober, Boston, C H Heyman, Cleveland, and Joseph S Barr, Boston.

Dr Rex L Diveley, Kansas City, Mo, read a paper on "The Treatment of Simple Foot Imbalance" Discussed by Drs Carl E Badgley, Ann Arbor, Mich, Theodore A Willis, Cleveland, Lewis Clark Wagner, New York, and J J Kurlander, Cleveland.

Dr Voigt Mooney, Pittsburgh, read a paper on "Nonoperative Treatment of Fractures of the Bones of the Forearm, with Special Reference to the Treatment of These Fractures in Children and Adolescents: A Report of One Hundred and Fifty Consecutive Recent Cases" Discussed by Drs Rudolph S Reich, Cleveland, and Wallace S Duncan, Cleveland.

Drs Arthur G Davis and E L Armstrong, Erie, Pa, presented a paper on "The Epiphyseal Growth Disk" Discussed by Drs J A Key, St Louis, and Maxwell Harbin, Cleveland.

#### THURSDAY, JUNE 14—AFTERNOON

Dr Paul Crenshaw Colonna, New York, read a paper on "Congenital Pseudarthrosis of the Tibia" Discussed by Drs Philip Lewin, Chicago, and Oscar L Miller, Charlotte, N C.

Dr James Warren Sever, Boston, read a paper on "Nonunion in Fractures of the Shaft of Humerus: A Report on Four Cases" Discussed by Drs William B Owen, Louisville, Ky, and William L Sneed, New York.

Dr James S Speed, Memphis, Tenn, read the chairman's address entitled "An Analysis of End Results in the Treatment of Central Fractures of the Neck of the Femur."

Dr Sumner L S Koch, Chicago, read a paper on "Disabilities of the Hand Resulting from Loss of Joint Function" Discussed by Drs Walter G Stern, Cleveland, Arthur Steindler, Iowa City, and L E Papurt, Cleveland.

Dr Arthur Steindler, Ernest Freund and Jacob Kulowski, Iowa City, presented a paper on "Statistical Analysis and Report on the Treatment of Five Hundred Cases of Congenital Dislocation of the Hip: Bloodless and Open Reduction and Late Palliative Operations" Discussed by Drs Joseph A Freiberg, Cincinnati, and Samuel L Robbins, Cleveland.

Dr Theodore P Brookes, St Louis, read a paper on "Dislocations of the Cervical Spine: Some Predisposing Causes" Discussed by Drs Robert D Schrock, Omaha, and Carl B Davis, Chicago.

Dr Charles N Pease, Chicago, read a paper on "Injuries to the Vertebrae and Intervertebral Disks Following Lumbar Puncture" Discussed by Drs Edward L Compere, Chicago, C G Barber, Cleveland, E Bennette Henson, Charleston, W Va, and L E Papurt, Cleveland.

#### FRIDAY, JUNE 15—AFTERNOON

The following officers were elected chairman, R D Schrock, Omaha, vice chairman, A T Legg, Boston, secretary, Fremont A Chandler, Chicago, delegate, Henry W Meyerding, Rochester, Minn, alternate, James Warren Sever, Boston.

Dr Sylvan L Haas, San Francisco, read a paper on "Treatment of Permanent Paralysis of Deltoid Muscle with Luxation at the Shoulder Joint" Discussed by Drs James A Dickson, Cleveland, A H Brewster, Boston, Robert D Schrock, Omaha, and Walter A Hoyt, Akron, Ohio.

Dr Joel E Goldthwait, Boston, read a paper on "The Mechanics of the Function of the Viscera in the Upper Part of the Abdomen" Discussed by Drs F C Kidner, Detroit, and Emil D Hauser, Chicago.

Drs Albert B Ferguson and M Beckett Howorth, New York, presented a paper on "Coxa Magna: A Condition of the Hip Related to Coxa Plana" Discussed by Dr Oscar L Miller, Charlotte, N C.

Dr C Howard Hatcher, Chicago, read a paper on 'The Changes in Autogenous Bone Transplants' Discussed by Drs Eslie Asbury, Cincinnati, and Sylvan L Haas, San Francisco.

Dr R A Griswold, Louisville, Ky, read a paper on "Fracture of Both Bones of the Leg: Treatment by a Modified Bohler Method with a New Apparatus" Discussed by Drs William B Owen, Louisville, Ky, J A Caldwell, Cincinnati, Maxwell Harbin, Cleveland, F G Murphy, Chicago, Ralph G Carothers, Cincinnati, and Edson B Fowler, Evanston, Ill.

Dr R Plato Schwartz, Rochester, N Y, read a paper on "The Influence of the Shoe on Gait as Recorded by Electro-



basograms and Slow Motion Pictures" Discussed by Drs Ernst Freund, Iowa City, G I Bauman, Cleveland, and Robert Johnson, Baltimore

## SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

WEDNESDAY, JUNE 13—MORNING

The meeting was called to order at 9 05 by the chairman, Dr Albert F R Andresen, Brooklyn

The chairman announced the appointment of Dr Sidney K Simon, New Orleans, as third member of the Executive Committee in place of Dr George B Eusterman

Dr Ernest H Gaither, Baltimore, presented the following resolution

WHEREAS The Section on Gastro Enterology and Proctology of the American Medical Association at its regular meeting in June 1933 adopted a resolution favoring the organization of an American Board of Gastro Enterology and authorized the appointment by the chairman of three members to serve on this board and

WHEREAS At its meeting on April 30 1934 the American Gastro Enterological Association also approved the formation of a Board of Gastro Enterology and appointed four members to serve on this board be it

Resolved That the chairman of this section be directed to appoint another fourth member for the purpose of equalizing the representation of this section on the American Board of Gastro Enterology with that of the American Gastro-Enterological Association

On motion by Dr Sidney K Simon, New Orleans, seconded by Dr Anthony Bassler, New York the resolution was adopted

Dr Lewis Gregory Cole New York read a paper on 'The Morphology and Function of a Continuous Reticular Coat of the Small Intestine' Discussed by Drs Eugene P Pendergrass, Philadelphia, Frank Smithies, Chicago, and Lewis Gregory Cole, New York

Dr John L Kantor, New York, read a paper on 'Regional (Terminal) Ileitis Its Roentgen Diagnosis' Discussed by Drs Harry M Weber Rochester, Minn James T Case Chicago Anthony Bassler, New York Burrill B Crohn New York, John L Kantor, New York, and Frank Smithies, Chicago

Drs Russell S Boles and Jacob Gershon-Cohen, Philadelphia read a paper on "Intestinal Tuberculosis An Analysis of One Thousand Autopsies, with Remarks on the Early Diagnosis by Double Contrast Barium Enema" Discussed by Drs Irving Gray, Brooklyn, and Russell S Boles Philadelphia

Dr Asher Winkelstein, New York, read a paper on 'Peptic Esophagitis A New Clinical Entity' Discussed by Drs Chevalier Jackson, Philadelphia, Rudolph Kramer New York, Henry A Rafsky, New York, Herman J Moersch, Rochester, Minn, and Asher Winkelstein New York

Drs Chevalier Jackson and Chevalier L Jackson, Philadelphia presented a paper on Gastroscopy" Discussed by Drs Gabriel Tucker, Philadelphia William A Swalm, Philadelphia, Samuel Weiss, New York, Edward B Benedict Boston and Chevalier Jackson, Philadelphia

Drs Claude C Tucker and C Alexander Hellwig Wichita Kan, presented a paper on "Histopathology of the Anal Crypts" Discussed by Drs Charles E Pope Evanston, Ill Curtice Rosser, Dallas Texas, John L Jelks, Memphis, Tenn, V K Allen Tulsa, Okla, and Claude C Tucker, Wichita, Kan

THURSDAY, JUNE 14—MORNING

Dr Albert F R Andresen, Brooklyn, read the chairman's address, entitled "The Undergraduate Teaching of Gastro Enterology in American Medical Schools"

Dr Anthony Bassler New York, read a paper on "Digestive Manifestations of Gout and Their Treatment" Discussed by Drs Horace W Soper, St Louis E W Shank, Dayton Ohio Philip S Hench Rochester, Minn and Anthony Bassler, New York

Drs Sidney A Portis and J S Grove, Chicago presented a paper on Gastro-Intestinal Manifestations of Urologic Disease Discussed by Drs Harlow Brooks New York Charles M McKenna Chicago Julius Friedenwald Baltimore Leon Bloch Chicago, Anton W Oelgoetz Columbus Ohio, and Sidney A Portis Chicago

Drs F C Mann and J L Bollman, Rochester, Minn read a paper on "Jaundice A Review of Experimental Investigations"

Dr David H Rosenberg, Chicago, read a paper on "The Galactose and Urobilinogen Tests in the Differential Diagnosis of Obstructive and Intrahepatic Jaundice"

Drs H M Rozendaal, M W Comfort and A M Snell, Rochester, Minn, read a paper on "Latent and Slight Jaundice The Significance of Slightly Elevated Concentrations of Serum Bilirubin"

These three papers were discussed by Drs I S Ravdin Philadelphia A C Ivy, Chicago, M A Blankenhorn, Cleveland, Leon Schiff, Cincinnati, A H Aaron, Buffalo V C Rowland Cleveland, I R Jankelson, Boston Franklin W White Boston, Harry Shay, Philadelphia, Norman W Elton, Reading, Pa, Frank Smithies, Chicago, Frank S Perkin Detroit, Hyman I Goldstein, Camden N J, Frank C Mann, Rochester, Minn, David H Rosenberg, Chicago, and M W Comfort, Rochester, Minn

Dr Clement L Martin, Chicago, read a paper on "Gonococcal Infection of the Rectum" Discussed by Drs Herbert T Hayes, Houston, Texas Curtice Rosser, Dallas, Texas Claude C Tucker Wichita Kan, and Clement L Martin Chicago

The chairman announced the appointment of Dr Adolph Sachs Omaha, to serve on the American Board of Gastro-Enterology in addition to the three members appointed last year, Drs Frank Smithies Chicago, H L Bockus, Philadelphia, and Albert F R Andresen, Brooklyn

FRIDAY, JUNE 15—MORNING

The following officers were elected chairman, Dr Walter A Fansler, Minneapolis, vice chairman, Dr Ernest H Gaither, Baltimore, secretary, Dr Henry L Bockus, Philadelphia delegate, Dr Curtice Rosser Dallas, Texas, alternate, Dr Frank D Gorham, St Louis

On motion of Dr Curtice Rosser, Dallas, Texas, seconded by Dr Ernest H Gaither Baltimore, the following resolution was adopted

At the request of the American Proctologic Society the committee appointed in 1933 to cooperate with a similar committee from that society in the establishment of a national board on proctology is hereby increased from three to four in number the additional member to be appointed by the new chairman of this section

The chairman announced that the additional member would be appointed by the incoming chairman

Dr Joseph W Ricketts, Indianapolis, read a paper on "Cancer of the Rectum" Discussed by Drs Dudley A Smith San Francisco Curtice Rosser, Dallas, Texas Jerome M Lynch, New York, and Joseph W Ricketts, Indianapolis

Dr F G Runyeon, Reading, Pa read a paper on "Krukenberg Tumor" Discussed by Drs Joseph C Bloodgood Baltimore, Harry E Bacon Philadelphia, Julius Friedenwald, Baltimore, and F G Runyeon Reading Pa

Dr Martin E Rehfuss Philadelphia, read a paper on 'Proteins Versus Carbohydrates A Study of Their Gastric Digestion' Discussed by Drs J Earl Thomas, Philadelphia, Ernest H Gaither Baltimore, Anthony Bassler, New York Frank Smithies, Chicago, and Martin E Rehfuss, Philadelphia

The chairman announced that the House of Delegates on Thursday afternoon passed the resolution introduced by the delegate of the section adding gastro enterology and proctology to the list of specialties approved by the American Medical Association

Drs Julius Friedenwald and Maurice Feldman, Baltimore presented a paper on "The Unstable or Irritable Duodenum Clinical Observations in One Hundred Cases" Discussed by Drs Elmer L Eggleston Battle Creek Mich, John G Mateer, Detroit Sara M Jordan Boston and Maurice Feldman Baltimore

Dr Andrew B Rivers Rochester Minn read a paper on Pain in Benign Ulcers of the Esophagus Stomach and Small Bowel The Diagnostic Significance of Type and Radiation with Some Observations of Pain Conduction Pathways Discussed by Drs Ralph C Brown Chicago Frank Smithies Chicago Sidney K Simon, New Orleans A H Aaron Buffalo and Andrew B Rivers Rochester, Minn

Drs Sara M Jordan and Everett D Kiefer, Boston, presented a paper on "Complications of Peptic Ulcer Their Prognostic Significance" Discussed by Drs Burrill B Crohn, New York, J Tate Mason, Seattle, Henry A Rafsky, New York, Julius Friedenwald, Baltimore, Walter L Palmer, Chicago, Ralph C Brown, Chicago, and Sara M Jordan, Boston

## SECTION ON RADIOLOGY

WEDNESDAY, JUNE 13—MORNING

The meeting was called to order at 9 10 by the chairman, Dr A U Desjardins, Rochester Minn

Dr W E Chamberlain, Philadelphia, was appointed to serve on the Executive Committee in place of Dr Henry K Pancoast, Philadelphia, who was absent

Dr A U Desjardins, Rochester, Minn read the chairman's address, entitled The Etiology of Lymphoblastoma

Drs Paul C Hodges Alexander Brunswick and S P Perry, Chicago, presented a paper on The Role of X-Ray Wavelength in Skin Tolerance" Discussed by Drs A U Desjardins, Rochester, Minn, and Otto Glasser, Cleveland

Drs J M Martin and Charles L Martin Dallas, Texas, presented a paper on 'A Modified Coutard X Ray Technic for Cancer Therapy' Discussed by Drs Douglas Quick New York E L Ryms, Iowa City, G E Pfahler, Philadelphia, Robert G Lenz, New York A G Ray Jackson, Ohio, and I S Trostler, Chicago

Drs G E Pfahler and Jacob H Vastine, Philadelphia presented a paper on 'The Roentgen Diagnosis of Tumors of the Bladder and Their Serial Study Under Treatment by Irradiation' Discussed by Drs Russell S Ferguson, New York B S Baringer, New York, and Leo Dolan, Toledo, Ohio

Dr Frank E Adair, New York, read a paper on "Radiologic Aspect of Cancer of the Breast from Memorial Hospital Discussed by Drs W D Cutter, Chicago Joseph C Bloodgood Baltimore, Albert Soiland, Los Angeles, and Dr John T Murphy, Toledo, Ohio

Drs Frank E Butler and Ivan M Wooley, Portland Ore, presented a paper on Roentgen Therapy in Chronic Paranasal Sinusitis A Further Report Discussed by Drs A U Desjardins, Rochester, Minn, Ralph S Fenton Portland, Ore, G A Robinson, New York and John D Osmond, Cleveland

THURSDAY, JUNE 14—MORNING

Drs W Edward Chamberlain and Barton R Young, Philadelphia, presented a paper on Roentgen Evidence of Ossification (So Called Calcification) of Normal Laryngeal Cartilages Mistaken for Foreign Body" Discussed by Drs Chevalier Jackson, Philadelphia, and Samuel Brown, Cincinnati

Drs E V Allen and John D Camp, Rochester Minn, presented a paper on "Arteriography in Peripheral Vascular Disease" Discussed by Drs Urban Maes, New Orleans Dr Herman E Pearse Rochester N Y, and Irving Wright, New York

Dr Russell L Haden Cleveland read a paper on Classification and Differential Diagnosis of the Anemias

Dr Roy R Kracke Emory University, Ga read a paper on Differential Diagnosis of the Leukemic States, with Particular Reference to the Immature Cell Types

Dr Raphael Isaacs Ann Arbor, Mich read a paper on The Relation of Cell Types in Leukemia to Sensitivity to Radiation'

Drs Nathan Rosenthal and William Harris New York presented a paper on Leukemia Its Diagnosis and Treatment

These four papers were discussed by Drs Charles A Doan, Columbus, Ohio, Victor Levine Chicago W Edward Chamberlain Philadelphia George J Kastlin Pittsburgh A U Desjardins Rochester Minn John T Murphy Toledo Ohio, and I S Trostler, Chicago

FRIDAY, JUNE 15—MORNING

The following officers were elected chairman Dr John W Pearson Baltimore, vice chairman Dr Bernard Nichols Cleveland secretary, Dr John T Murphy, Toledo Ohio delegate

Dr Albert Soiland, Los Angeles, alternate, Dr Eugene P Pendergrass, Philadelphia

Dr Albert Soiland, Los Angeles, presented the following resolution

WHEREAS The International Congress of Radiology which convenes every three years has already had three such meetings abroad in London in 1925 in Stockholm in 1928 in Paris in 1931 and now in Zurich in 1934 and

WHEREAS The radiologists of the United States desire to invite the European radiologists to America for the 1937 convention and

WHEREAS In the opinion of the members of the Section on Radiology of the American Medical Association such an international meeting would at this time engender a national good feeling and would be of high value to scientific radiology be it therefore

Resolved That the House of Delegates of the American Medical Association authorize the Section on Radiology to cordially invite the fifth International Congress to be held in America at such time and place as may be decided on by the International Committee of the fifth Congress of Radiology

On motion of Dr G W Grier, Pittsburgh, seconded by Dr Ursus V Portmann, Cleveland the resolution was adopted

Dr Albert Soiland Los Angeles, offered also the following resolutions and moved their adoption

WHEREAS It has been reported to the officers and members of the Section on Radiology of the American Medical Association that an intolerable condition exists between certain otherwise acceptable hospitals and their departments of radiology and

WHEREAS It is known that in several such hospitals the business management does the collective bargaining for xray business with staff members and outsiders to the detriment and the professional and financial loss of their staff roentgenologists and

WHEREAS Such practice is not only unethical but places such hospitals on a direct competitive medical practice basis with their respective roentgenologists which practice has been declared illegal in several states and

WHEREAS The practice of roentgenology or radiology is ipso facto the practice of medicine and cannot be separated therefrom be it therefore

Resolved That the House of Delegates of the American Medical Association go on record as opposing the exploitation of members of their own body in the manner outlined and be it further

Resolved That the House of Delegates of the American Medical Association in session duly assembled order this resolution referred to the Council on Medical Education and Hospitals for the study and formulation of plans tending to the abatement of these highly unprofessional and obnoxious evils

The resolutions were seconded by Dr G W Grier, Pittsburgh, and adopted

Dr Eugene P Pendergrass, Philadelphia, presented the following resolution and moved its adoption

The Section on Radiology of the American Medical Association recommends that the American Medical Association through its Bureau of Medical Economics make a complete survey of the radiologic departments of hospitals throughout the United States with special reference to the relation of radiologists to the hospital from a professional and economic standpoint

The motion was seconded by Dr L R Sante, St Louis, and adopted

Dr Edgar P McNamee, Cleveland, presented a paper on "Intrahepatic Gallbladder" No discussion

Drs Edgar C Baker and John S Lewis Jr, Youngstown, Ohio presented a paper on 'Comparison of the Urinary Tract in Pregnancy and in Pelvic Tumors' Discussed by Dr George C Prather, Boston

Drs Karl Kornblum and Leslie H Osmond, Philadelphia, presented a paper on The Effect of Intracranial Tumors on the Sella Turcica" Discussed by Drs M C Sosman, Boston, and John D Camp Rochester Minn

Drs Staige D Blackford and Vincent W Archer, University, Va presented a paper on Pulmonary Manifestations in Human Tularemia'

Dr B P Stivelman, New York read a paper on Interlobar Pleural Effusions'

Dr Henry K Taylor, New York, read a paper on 'Interpretation of Roentgenographic Pathology in Pulmonary Tuberculosis'

Dr Franklin B Bogart, Chattanooga, Tenn read a paper on Early Diagnosis of Fulminating Pulmonary Tuberculosis in Adults Necessity for Repeated Roentgen Examinations"

These four papers were discussed by Drs L R Sante, St Louis Kennon Dunham, Cincinnati Eugene P Pendergrass Philadelphia James L Dubrow, Des Moines, Iowa, and G E Pfahler, Philadelphia

## SECTION ON MISCELLANEOUS TOPICS

## Session on Forensic Medicine

WEDNESDAY, JUNE 13—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Ludvig Hektoen, Chicago.

Dr. Oscar T. Schultz, Evanston, Ill., read a paper on "Reform of County Government and the Office of Coroner." Discussed by Drs. H. R. Fishback, Chicago, Timothy Leary, Boston, M. Scott Kearns, Cincinnati, and Oscar T. Schultz, Evanston, Ill.

Dr. Charles Norris, New York, read a paper on "The Office of the Chief Medical Examiner of New York City as a Medico-legal Center." No discussion.

Dr. Timothy Leary, Boston, read a paper on "Subdural Hemorrhage." Discussed by Drs. Milton Helpert, New York, and Timothy Leary, Boston.

Drs. Samuel A. Levinson and Clarence W. Muehlberger, Chicago, presented a paper on "An Introductory Course in Legal Medicine for Medical Students." Discussed by Drs. J. M. Looney, Worcester, Mass., and Clarence W. Muehlberger, Chicago.

Dr. Karl Landsteiner, New York, read a paper on "Forensic Application of Serologic Individuality Tests." Discussed by Drs. Alexander S. Wiener, Brooklyn, Herman A. Heise, Milwaukee, and Karl Landsteiner, New York.

Dr. Herman A. Heise, Milwaukee, read a paper on "Alcohol and Automobile Accidents." Discussed by Drs. Alexander O. Gettler, New York, H. A. Rothrock, Jr., Bethlehem, Pa., Charles Norris, New York, W. C. Woodward, Chicago, and Herman A. Heise, Milwaukee.

Dr. Alexander O. Gettler, New York, read a paper on "The Isolation of Volatile Poisons from Tissues and Their Identification." Discussed by Dr. Harrison S. Martland, Newark, N. J.

Dr. William D. McNally, Chicago, read a paper on "The Medico-legal Aspect of Silicosis." Discussed by Drs. Henry C. Sweeney, Chicago, and Morris Davidson, New York.

Dr. Milton Helpert, New York, read a paper on "An Epidemic of Fatal Estivo-Autumnal Malaria Among Drug Addicts

in New York City Transmitted by Common Use of Hypodermic Syringe." Discussed by Dr. Charles Norris, New York.

Dr. Harrison S. Martland, Newark, N. J., read a paper on "Carbon Monoxide Poisoning." Discussed by Drs. James N. Patterson, Cincinnati, Alexander O. Gettler, New York, William D. McNally, Chicago, and Harrison S. Martland, Newark, N. J.

On motion by Dr. Harrison S. Martland, duly seconded and carried, it was voted that the section organize a committee for the purpose of acquainting the suitable authorities in the legal profession with the existence and reliability of the blood grouping tests, so that statutes may be enacted authorizing courts to order individuals to submit to blood grouping tests when they are required, in those jurisdictions in which blood tests are not obligatory at present.

On motion by Dr. Oscar T. Schultz, Evanston, Ill., seconded by Dr. Harrison S. Martland, Newark, N. J., it was voted that the section, through the secretary, express its appreciation to the proper officials of the American Medical Association for the privilege of having held this meeting, of the necessity and advisability of future meetings of this section at other meetings of the Association, and that a committee be appointed to study the question of the advisability of future meetings.

## Session on Nutrition

THURSDAY, JUNE 14—AFTERNOON

Dr. James S. McLester, Birmingham, Ala., read the chairman's address, entitled "Changing Concepts of Nutrition."

Dr. S. W. Clausen, Rochester, N. Y., read a paper on "Nutrition and Resistance to Infection." Discussed by Drs. J. R. Gerstley, Chicago, and S. W. Clausen, Rochester, N. Y.

Dr. H. R. Geyelin, New York, read a paper on "The Treatment of Diabetes with Insulin (After Ten Years)."

Dr. Walter Bauer, Boston, read a paper on "What Should a Patient with Arthritis Eat?" Discussed by Dr. L. Maxwell Lockie, Buffalo.

Dr. Thomas T. Mackie, New York, read a paper on "Ulcerative Colitis. II. The Factor of Deficiency States. A Clinical Study."

## THE SCIENTIFIC EXHIBIT

The Scientific Exhibit at the Cleveland session was the largest in the history of the Association. All fifteen sections of the Scientific Assembly participated through special section exhibit committees appointed for the purpose, while sixty-three individuals reading papers before the various sections also had exhibits on the same subjects.

There were three special exhibits authorized by the Board of Trustees. The exhibit on encephalitis, a cooperative undertaking by the Committee on Scientific Exhibit, with the United States Public Health Service, placed special stress on certain features of the 1933 outbreak, a pamphlet prepared by Theodore C. Hempelmann, St. Louis, was distributed. The committee in charge consisted of James P. Leake, Washington, D. C., Ralph S. Muckenfuss, St. Louis, and Ralph C. Williams, chairman, Washington, D. C.; this committee was assisted by the following demonstrators: E. K. Musson, Jefferson City, Mo.; Charles Armstrong, Washington, D. C.; and from St. Louis, H. D. Chope, H. A. McCordock, W. D. Collier, Elizabeth Moore, J. E. Smadel, R. A. Kinsella, T. C. Hempelmann, and G. C. Broun.

The exhibit on nutrition was conducted in conjunction with the session on nutrition in the Section on Miscellaneous Topics. The exhibit, presented under the joint auspices of the Committee on Scientific Exhibit, the Committee on Foods, and *HYGIENE*, the Health Magazine, was under the direction of a committee composed of Walter C. Alvarez, Rochester, Minn., Reginald Fitz, Boston, and P. C. Jeans, Iowa City, assisted by a competent corps of demonstrators. A pamphlet on nutrition prepared for the occasion, was distributed at the exhibit.

The special demonstrations in pathology were presented under the direction of Benjamin S. Kline, Cleveland, assisted by a group of local pathologists. In addition to the continuous demonstrations in the booth, practical talks were given at

stated intervals in a space adjoining the exhibit by R. S. Reichle, Rafael Dominguez, A. R. Moritz, A. M. Young, Allen Graham, H. T. Karsner, Harry Goldblatt, and B. S. Kline, all of Cleveland.

Among the section exhibits there were several special features. The Section on Ophthalmology presented a comprehensive display on first aid in eye injuries and distributed a pamphlet on the same subject to supplement the exhibit, the Section on Obstetrics, Gynecology and Abdominal Surgery had an exhibit on home delivery technique and also showed motion pictures in an area adjoining the exhibit, the Section on Dermatology and Syphilology presented a symposium on cutaneous allergy, the Section on Practice of Medicine showed motion pictures on a prearranged schedule.

There were several symposiums to which exhibitors from different sections contributed with highly profitable results. The symposium on the treatment of burns was a cooperative undertaking sponsored by the Section on Surgery, General and Abdominal, the Section on Practice of Medicine, and the Section on Pathology and Physiology. Besides nine exhibits dealing with various phases of the subject there was a motion picture program shown in an adjoining area.

The symposium on amebiasis included contributions from the Section on Gastro-Enterology and Proctology, the Section on Pathology and Physiology, the Section on Pharmacology and Therapeutics, and the Section on Preventive and Industrial Medicine and Public Health.

The group of exhibits on thyroid diseases was presented through the cooperation of the Section on Practice of Medicine, the Section on Surgery, General and Abdominal, the Section on Pharmacology and Therapeutics, and the Section on Pathology and Physiology.

There were 162 individual exhibits open to medal awards, nineteen educational exhibits and five special exhibits sponsored by the Committee on Scientific Exhibit or by section exhibit committees, making a total of 186 exhibits. There were 364 persons identified with the various exhibits.

## REPORT OF THE COMMITTEE ON AWARDS

The Committee on Awards made the following report

### CLASS I

[Awards in Class I are made for exhibits of individual investigations, which are judged on the basis of originality and excellence of presentation]

The gold medal to Gregory Schwartzman Mount Sinai Hospital, New York, for original investigations of skin reactivity to bacterial filtrates, its role in immunology and its practical applications

The silver medal to Timothy Leary Boston for original work on the relation of cholesterol to atherosclerosis

The bronze medal to Charles C Higgins, Cleveland Clinic, Cleveland, for original work on experimental production and solution of urinary calculi

Certificates of merit, Class I, are awarded to the following (alphabetically arranged)

Herrman L Blumgart, J E F Riseman David Davis and A A Weinstein, with the surgical collaboration of David D Berlin, Beth Israel Hospital and Harvard Medical School, Boston, for exhibit illustrating the treatment of angina pectoris and congestive failure by removal of the thyroid

Roy R Kracke and Francis P Parker, Emory University School of Medicine, Atlanta, Ga for exhibit illustrating the knowledge of the etiology of granulopenia

Jane Sands Robb and J G Fred Hiss, Syracuse University College of Medicine, Syracuse, N Y, for exhibit illustrating the individual cardiac muscles

Philips Thygeson, University of Iowa, Iowa City for exhibit on the laboratory diagnosis of certain conjunctival diseases

In addition, the following exhibits are deemed worthy of Honorable Mention (alphabetically arranged)

That of Thomas B Magath, Mayo Clinic, Rochester, Minn for excellence in illustrating the lesions of amebiasis and the life history of *Endamoeba histolytica*

That of T O Menees, and J D Miller, Blodgett Memorial Hospital, Grand Rapids, Mich, for study of the endometrium by means of thorium hydroxide solutions

That of George C Shivers, University of Colorado Medical School, Colorado Springs, for exhibit illustrating the avoidance of pulmonary embolism from intravenous arsenicals

### CLASS II

[Awards in Class II are made for exhibits which do not exemplify purely experimental studies and which are judged on the basis of excellence of correlating facts and excellence of presentation]

The gold medal to Lewis B Bates, Lawrence Getz, Ernesto Icaza and William M James, Medical Association of the Isthmian Canal Zone Panama City, for excellence of presentation of an exhibit illustrating diagnosis and pathology of human amebiasis

The silver medal to Claude S Beck, Western Reserve University School of Medicine, and Lakeside Hospital, Cleveland for excellence of presentation of exhibit illustrating circulatory failure produced by compression of the heart and curable by operation

The bronze medal to William P Murphy, Peter Bent Brigham Hospital, Boston, for excellence of presentation of exhibit illustrating the therapeutic effects of intramuscular injections of liver extract in pernicious anemia and in secondary anemia

Certificates of merit, Class II, are awarded to the following (alphabetically arranged)

Vincent W Archer S D Blackford and J E Wissler, University of Virginia Hospital, University Va for excellence of presentation of an exhibit on radiologic observations of the pulmonary changes in tularemia

Russell L Haden, Cleveland Clinic, Cleveland for excellence of presentation of an exhibit illustrating the examination of the blood

Byrard T Horton, Mayo Foundation, Rochester, Minn, for excellence of presentation of an exhibit illustrating congenital arteriovenous fistula of the extremities

R R Jones, United States Public Health Service, Washington, D C for an exhibit illustrating the control of the lead hazard in industry

In addition, the following exhibits are deemed worthy of Honorable Mention (alphabetically arranged)

That of Lloyd Arnold and C J Gustafson, University of Illinois College of Medicine, Chicago, for an exhibit on normal menstruation

That of John D Camp, Mayo Foundation for Medical Education and Research, Rochester, Minn, for exhibit of roentgenographic study of the osseous changes in tumors of the spinal cord

That of W Edward Chamberlain and Barton R Young Temple University Medical School, Philadelphia, for exhibit on primary bone tumors

That of Wallace B Hamby and W James Gardner, Cleveland Clinic, Cleveland, for exhibit on intracranial neoplasms

That of Edwin E Osgood, Clarice Ashworth and Richard Young University of Oregon Medical School, Portland, Ore, for exhibit on morphologic hematology

A special certificate of merit is awarded to A W Adson, W McK Craig, J G Love, H W Woltman, F P Moersch, W D Shelden and J W Kernohan, Mayo Clinic and Mayo Foundation, Rochester, Minn, for the excellence of their exhibit on neurologic diseases and neurosurgical procedures

### EDUCATIONAL CLASSIFICATION

A special certificate of merit is awarded to the Chicago Board of Health for its exhibit illustrating the Chicago outbreak of amebiasis

The committee also wishes to emphasize especially the cooperation with the American Medical Association, of the government and of various national and local organizations in providing educational exhibits to show the progress of organized activities for the promotion of health and the prevention of disease

### SPECIAL COMMENDATION

The Committee on Awards desires to commend especially the following exhibits

Those exhibits illustrating the symposium on the treatment of burns sponsored by the Section on Surgery, General and Abdominal, Section on Practice of Medicine and Section on Pathology and Physiology

The group of exhibits sponsored by the Section on Dermatology and Syphilology

The group of exhibits on Growth and Repair from the Department of Anatomy and Associated Foundations, Western Reserve University School of Medicine

The exhibit of Victor C Myers, E Muntwyler, F C Bing R F Hanzal and C T Way, Western Reserve University School of Medicine, illustrating biochemical diagnostic methods

The Committee on Awards wishes to draw to the attention of the section exhibit committees, and through them the Committee on Scientific Exhibit, the fact that a large percentage of the exhibits are based on observation and a much smaller percentage on actual experimentation. While realizing the value of accurate observation in medicine and recognizing that the physician in general practice must ever be kept in mind in the presentation of exhibits, the Committee on Awards recommends that greater efforts be made to secure exhibits representing the most recent advances in experimental medical investigations

The Committee on Awards believes that the policy of correlating the Scientific Exhibit with the Scientific Assembly by the appointment of section exhibit committees is advantageous, and it is noted with satisfaction that all the sections now have appointed such committees. The attention of the section officers is respectfully directed to the fact, however, that the section exhibit committees must be chosen with great care so that the most noteworthy research in the various specialties may be represented in the Scientific Exhibit

The Committee on Awards views with favor the grouping of subjects in symposiums as portrayed this year by the exhibits on burns, amebiasis and thyroid diseases

The Committee on Awards wishes to commend the large number of individual exhibitors who have developed their exhibits entirely from their own resources and without financial aid

The Committee on Awards desires to call attention to the special exhibits sponsored by the American Medical Association, as follows: nutrition pathologic demonstrations and the 1933 outbreak of encephalitis. Especial commendation is given to the physicians who have assisted in the preparation and presentation of these special exhibits with a particular vote of thanks to Dr Theodore C Hempelmann, St Louis, who prepared the manuscript for the pamphlet on encephalitis, and to the committees that prepared and assembled the special exhibits on eye injuries and home delivery technic. By their participation in these special exhibits these men are excluded from the opportunity of competing for individual awards that might have been merited by a number of them. The exhibit on the 1933 outbreak of encephalitis merits special commendation.

The Committee on Awards wishes to take this occasion to render for the medical profession an expression of appreciation to the members of the various section exhibit committees and to the Committee on Scientific Exhibit of the Board of Trustees for their untiring efforts, and especially to Dr D Chester Brown, who is now completing his term on the Board of Trustees after a period of fourteen years as chairman of the Committee on Scientific Exhibit.

The Committee on Awards believes that the members and Fellows of the American Medical Association owe a debt of gratitude to the Committee on Scientific Exhibit to the Advisory Committee, and to Dr Thomas G Hull, executive in charge of the arrangements of the Scientific Exhibit. The Committee cannot commend too highly the appropriate arrangements general and special, the excellent management, the instructiveness and the scientific as well as the practical value of the exhibit. Many physicians and investigators, often at great personal sacrifice, have presented exhibits dealing with various aspects of the specialties in medicine, prepared by means of modern methods and devices for the visualization of the most recent advances in medicine.

LUDVIG HEKTOEN, Chairman, Chicago  
E J CAREY, Milwaukee  
TEMPLE FAY, Philadelphia  
ROGER I LEE, Boston  
JAMES D TRASK, New Haven

## Association News

### COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

#### Abstract of Minutes of the Council Business Meeting held at Cleveland, June 10

1 The Council recommended the appointment of a committee to appraise the aims and methods of medical education. Dr Ray Lyman Wilbur, the chairman, accordingly appointed the following committee: Dr Reginald Fitz (chairman), Dr Waller S Leathers, Dr Willard C Rappley, Rev Alphonse M Schwitalla, Dr Dean Lewis and Dr Harold Rypins.

2 Representatives of the University of Georgia School of Medicine appeared before the Council and presented plans for the rehabilitation of the medical school. In particular, it was requested that the school be permitted to carry on its program during the next academic year without penalizing those students who might later desire to transfer to other institutions. The Council, therefore resolved that in the resolution adopted in February 1934 the provision regarding transfer of students be amended so as to include those enrolled for the session of 1934-1935.

3 It was resolved "that hospitals outside the United States and Canada be omitted from the list of hospitals approved for the training of interns because of the difficulty of inspecting them."

4 It was resolved "that the lists of hospitals for approval or otherwise be acted on in accordance with the recommendations of the staff."

5 It was resolved "that pathologists and radiologists affiliated with unrecognized medical schools be not approved."

6 The Subcommittee on Specialists submitted the accompanying statement of the Essentials for Examining Boards in Specialties. These Essentials were then approved by the Council for presentation to the House of Delegates.

7 It was resolved "that, concerning applications of special examining boards for the Council's approval, the Council will consult the Advisory Board for Medical Specialties, provided the Advisory Board supports the standards established by the Council and with the understanding that the Council is in no way bound by recommendations of the Advisory Board."

8 It was resolved "that in the proceedings for the revocation of certificates whether conducted by a special examining board or by the Advisory Board for Medical Specialties, the Council requests that it be consulted, with the understanding that neither such special board nor the Advisory Board is bound by the Council's recommendation."

9 It was resolved "that the lists of pathologists and radiologists, submitted by the staff, be approved."

### ESSENTIALS FOR EXAMINING BOARDS IN SPECIALTIES

BY THE COUNCIL ON MEDICAL EDUCATION AND  
HOSPITALS OF THE AMERICAN MEDICAL  
ASSOCIATION, CHICAGO

#### I ORGANIZATION

1 A special examining board to be approved by the Council should represent a well recognized and distinct specialty of medicine.

2 It should be composed of representatives of the national organizations of that specialty including the related section of the American Medical Association.

3 It should be incorporated.

4 A special board should

- (a) Determine whether candidates have received adequate preparation as defined by the board.
- (b) Provide a comprehensive test of the ability and fitness of such candidates.
- (c) Certify to the competence of those physicians who have satisfied the requirements of the board.

#### II DEFINITION OF SPECIAL FIELDS

The following branches of medicine at present are recognized as suitable fields for the certification of specialists:

- |                             |                               |
|-----------------------------|-------------------------------|
| 1 Internal Medicine         | 7 Dermatology and syphilology |
| 2 Surgery                   | 8 Neurology and psychiatry    |
| 3 Pediatrics                | 9 Urology                     |
| 4 Obstetrics and gynecology | 10 Orthopedic surgery         |
| 5 Ophthalmology             | 11 Radiology                  |
| 6 Otolaryngology            | 12 Pathology                  |

#### III QUALIFICATION OF CANDIDATES

Each applicant for admission to the examination should be required to present evidence that he has met the following standards:

##### A General Qualifications<sup>1</sup>

- 1 Satisfactory moral and ethical standing in the profession.
- 2 A license to practice medicine.
- 3 Membership in the American Medical Association or by courtesy membership in such Canadian medical societies as are approved by the Council on Medical Education and Hospitals of the American Medical Association. Membership in other societies should not be required.

##### B Professional Education<sup>1</sup>

- 1 Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association.
- 2 Completion of an internship of not less than one year in a hospital approved by the same Council.

##### C Special Training<sup>1</sup> (to be effective not later than Jan 1, 1938)

- 1 A period of study after the internship of not less than three calendar years in clinics, dispensaries, hospitals or laboratories recognized by the same Council as competent to provide a satisfactory training in the special field of study.

<sup>1</sup> In case of an applicant whose training has been received outside the United States and Canada the credentials must be satisfactory to the Advisory Board.

- 2 This period of specialized preparation shall include
  - (a) intensive graduate training in anatomy physiology pathology and the other basic medical sciences which are necessary to the proper understanding of the disorders and treatment involved in the specialty in question
  - (b) an active experience of not less than eighteen months in hospitals clinics dispensaries or diagnostic laboratories recognized by the Council as competent in the specialty
  - (c) examinations in the basic medical sciences of a specialty as well as in the clinical laboratory and public health aspects
- 3 An additional period of not less than two years of practice

## IV WITHDRAWAL

For reasons which are deemed sufficient in the judgment of the Council on Medical Education and Hospitals the recognition extended by the American Medical Association to holders of certificates from special examining boards may be withdrawn

## MEDICAL BROADCASTS

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Central daylight saving time. The speaker will be Dr W W Bauer. The next three broadcasts will be as follows:

- July 12 A Healthful Vacation
- July 19 Entertaining the Convalescent Child
- July 26 The First Month

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION PUBLIC HEALTH ETC)

## ALABAMA

**Changes at the University**—Dr John Howard Ferguson recently of Yale University, has been named assistant professor of physiology and pharmacology at the University of Alabama School of Medicine, succeeding Dr Gene H Kistler who is transferring to the department of pathology and bacteriology as associate professor. Albert Sydney Harris Ph D Banks has been appointed instructor in physiology and pharmacology. Dr Kistler recently received the Joseph A Capps Prize of \$500, awarded by the Institute of Medicine of Chicago.

**Society News**—Dr Jay Arthur Myers, Minneapolis addressed the annual meeting of the Alabama Tuberculosis Association, April 17 on "The Child and the Tuberculosis Problem."—Dr Howard R Mahorner, New Orleans, spoke before the Alabama Academy of Science at Mobile recently, on "Etiology of Gout."—Dr Roscoe C Stewart Sylacauga was elected president of the Alabama Hospital Association at its annual meeting recently, Dr Charles N Carraway, Birmingham, and Carl A Grote, Huntsville, vice president, and Albert C Jackson Jasper, secretary.

## CALIFORNIA

**Mussel Quarantine**—A quarantine on mussels has been established to cover the coast area extending from the southern boundary of Monterey County to the California Oregon boundary, excluding San Francisco Bay. Laboratory examinations have shown that mussels from these areas are now poisonous although mussels within the bay region have shown no toxicity. The sale or offering for sale of mussels from these specified areas is prohibited during the period May 31 to September 30.

**Hospital News**—The laboratory for neuropathology in the new acute unit of the Los Angeles County Hospital has been named in honor of Dr Santiago Ramon y Cajal Madrid Spain. A bronze plaque of Dr Ramon y Cajal has been made for the director's laboratory and a bust will be placed later in the departmental library. The work of the laboratory will be under the direction of Dr Cyril B Courville. Dr Ramon y Cajal has given many books to the laboratory.

**Special Meeting on Infantile Paralysis**—A special meeting was held June 28 by the pediatric section of the Los Angeles County Medical Association to consider the present epidemic of poliomyelitis in southern California. Dr Alfred J Scott Jr reported on a survey made by a special committee and Drs George Stevens and George Roth of the city and

county health departments, respectively, the symptomatology and diagnosis. Dr Mary F Bigler discussed treatment. Other speakers included Drs George Parrish and John L Pomeroy.

**Health Survey**—The State of California Emergency Relief Administration is conducting a survey to obtain knowledge of health conditions and the extent of need for more adequate medical care. Information being sought includes the name of the family physician whether or not medical bills are paid on an annual basis and, if so, the annual fee; the number of months since the family has received medical care; the bills accrued for this care during the past few months; and the total the family owes in medical bills. According to the *Bulletin* of the Los Angeles County Medical Association, the survey will list the persons who have been ill and the nature, degree and the period of their illnesses. It will show the nature of care received whether by physician group clinic, public clinic city physician or practitioners other than doctors of medicine. It will also indicate the time spent in private and public hospitals and whether or not the patients received nursing care and how much. A classification of all charges made will be included.

## COLORADO

**Society News**—Speakers before the Crowley County Medical Society in Ordway, May 9, were Drs George P Lingenfelter and George M Blickensderfer, Denver, on "Diagnosis of the Commoner Skin Diseases" and "Present Status of Serum Therapy in Pediatrics" respectively.—Dr George B Kent, Denver, addressed the Larimer County Medical Society in Fort Collins, May 2 on "Surgical Management of Peptic Ulcer."—At a meeting of the Mesa County Medical Society in Grand Junction May 15, Drs Robert B Porter Glenwood Springs and James S Orr, Fruita spoke on "Thyroid Disturbances" and "Mechanical Conditions in the Abdomen Requiring Operative Intervention," respectively.—A symposium on cancer of the breast constituted the program of the Weld County Medical Society, meeting at Greeley, May 7, speakers were Drs Samuel B Potter, William C Black and William W Wasson Denver.—Dr Thomas A Stoddard discussed fibroid tumors before the Pueblo County Medical Society recently.

## CONNECTICUT

**Dr Edwards Resigns**—Dr Herbert R Edwards, acting health officer of New Haven since the resignation in January of Dr John L Rice to become health commissioner of New York, has resigned effective May 10, to direct the tuberculosis program in New York. For the present a committee of the board of health will manage the activities of the department.

## GEORGIA

**Cancer Clinic**—Dr George H Semken, New York, formally opened the new cancer division in the Georgia Baptist Hospital, Atlanta, June 1. Dr James L Campbell is the director of the new section which will care for pay patients only. In attendance at the opening of the clinic were Drs Dan Y Sage formerly president of the Fulton County Medical Society and Clarence L Ayers, Toccoa, president of the Medical Association of Georgia. It is planned to hold cancer conferences each Friday.

**State Medical Election**—Dr James E Paullin Atlanta was chosen president-elect of the Medical Association of Georgia at its annual session in Augusta May 11, and Dr Clarence L Avers, Toccoa, was inducted into the presidency. New vice presidents are Drs George A Traylor, Augusta and Walter G Elliott, Cuthbert, and Dr Allen H Bunce Atlanta was reelected secretary. The next annual meeting of the association will be held in Atlanta, May 7-10 1935. The house of delegates authorized the creation of an advisory board to its council, to be composed of all living past presidents of the association who shall hold office for life. The committee on legislation was directed to draw up and sponsor at the next session of the state legislature a basic science law for Georgia. Dr Charles H Richardson Macon, the outgoing president was presented with the 'badge of service' of the association at this session in recognition of his many years of service to the profession.

## ILLINOIS

**Society News**—Dr Robert E Schlueter St Louis addressed the Clinton County Medical Society at Breese, June 13 on cancer of the breast.—Dr Logan Clendening, Kansas City, was the guest speaker at the eightieth anniversary celebration of the McLean County Medical Society in Bloom-



ington, May 8, his subject was "Historical Medical Books, Paintings and Places"—Dr Charles P Emerson, Indianapolis, discussed oriental medicine before the Peoria City Medical Society, June 5

**Chest Examinations at the State Fair**—Opportunity will be given to adults for chest examinations to detect heart impairment as a part of the program of the state health department at the State Fair, August 18-25, in Springfield. The examinations will include electrocardiograms in as many cases as practicable. All volunteers, so far as facilities permit, will be tested for blood pressure, height, weight and perhaps one or two other factors, such as lung capacity. Facilities for taking roentgenograms of 500 young persons between 12 and 19 years of age to detect early tuberculosis will also be available. Those from families with a history of the disease to be given preference. Well babies and children will also be given medical examinations.

### Chicago

**Personal**—Dr William Allen Pusey delivered the Prosser White Oration before the St. John's Hospital Dermatological Society, June 27, at the Royal Society of Medicine, England, his subject was "Disease, Gadfly of the Mind, Especially the Stimulus of Disease in the Development of the Mind."

**Society News**—Dr George K Fenn was elected president of the Chicago Society of Internal Medicine at its annual meeting, recently, Dr Walter L Palmer, vice president, and Dr Clarence F G Brown, secretary.—Dr Joseph Welfeld was elected president of the Chicago Urological Society at the annual meeting, May 24.—Dr Julius H Hess was elected president of the Chicago Medical Society at its annual meeting, June 19, succeeding Dr Austin A Hayden.

**Fraudulent Motor Club Memberships**—A salesman claiming to represent the Chicago Motor Club and the American Motorist Service Association has been selling memberships, costing from \$1 to \$3, to physicians in this territory. Mr William H Thomson of the Chicago Motor Club reports that the man is not a bona fide representative of the Chicago Motor Club and urges all physicians to get in touch with him immediately if approached by such a person. Mr Thomson states that he is not familiar with the policy of the American Motorist Service Association, which could not be located in the Chicago telephone directory. Later information from the national headquarters of the American Automobile Association indicates that this man is using the name H Hackett. It was said that he has dark hair and prominent features, weighs 170 pounds and is about 40 years old.

### INDIANA

**Society News**—Dr Will W Holmes, Logansport, was elected president of the Eleventh Indiana Councilor District Medical Association at its fifty-first semiannual meeting in Kokomo, May 16, speakers included Arthur L Harter, DDS, former president of the Indiana Dental Association, on "Dental and Medical Relationship"—Dr Werner W Duemling, Fort Wayne, addressed the Adams County Medical Society in Decatur, June 8 on "Syphilis—Its Problems and Treatment"—Dr John P Gentle, New Albany, spoke before the Floyd County Medical Society in New Albany, June 8 on "Diabetes in Pregnancy"—At a meeting of the Carroll County Medical Society in Flora, June 8, Dr John A MacDonald, Indianapolis, discussed "Differential Diagnosis of Diseases of the Chest."

### IOWA

**Personal**—Dr and Mrs William A Vincent, Belle Plaine, celebrated their fiftieth wedding anniversary, May 6.—Dr Lyman B Bacon, for forty-five years the only physician in Pacific Junction, has retired on account of ill health and has gone to Westboro, Mass.

**Society News**—A symposium on infections of the respiratory tract was presented before the Adair County Medical Society at Greenfield, June 5, by Drs George A May, Ralph H Parker and Charles C Walker, Des Moines.—At a meeting of the Jasper County Medical Society in Newton June 5, Drs Daniel J Glomset and Martin I Olsen, Des Moines, conducted a symposium on nephritis and hypertension.

**Public Reception to Dr Bierring**—The Chamber of Commerce of Des Moines sponsored a public reception in honor of Dr Walter L Bierring June 22 at the Savery Hotel in recognition of his induction into the presidency of the American Medical Association. Dr Bierring has been a member of the chamber of commerce for many years. Dr John T McClintock, chairman of the administrative committee, State University of Iowa College of Medicine Iowa City, spoke in appreciation of the guest of honor.

### LOUISIANA

**Society News**—The Orleans Parish Medical Society and the First and Second District Dental Society were addressed in New Orleans, June 11, by Samuel H McAfee, DDS, on "Food and Teeth," and William John Healey, DDS, "Unbalanced Occlusion and Its Relation to Adjacent Structures of the Oral Cavity." The society was addressed, June 23, by Dr Isidore L Robbins on "Use of Artificial Pneumothorax in the Treatment of Lobar Pneumonia," and Earl Z Browne "Variations in Origin and Course of the Hepatic Artery—Importance from Surgical Viewpoint"—Dr Edmund McC Connely, New Orleans, addressed the Second District Medical Society in Hahnville, May 17, on epilepsy.—At a joint meeting of the Ouachita Parish and the Rapides Medical Society in Alexandria, June 4, speakers were Drs James Q Graves Monroe, on "Ileocolic Adhesions," Aurelius E Fisher, Monroe, "Ectopic Gestation" and James E Walsworth, Monroe, "Cancer of the Stomach and Colon."

### MAINE

**Society News**—Dr Alvin A Morrison addressed the Portland Medical Club, May 1, on diverticulosis and diverticulitis.—At a meeting of the Kennebec County Medical Association in Togus, May 17, speakers were Drs Louis F Fallon, Augusta and Harrison L Robinson, Bangor, on "Intestinal Stasis and Sequelae" and "Hyperthyroidism," respectively.—Dr George H Coombs, Augusta discussed state health work before the Washington County Medical Society in Eastport, May 22, and Drs Benjamin B Foster, Portland, talked on dermatology in general practice, and Arch H Morrell, Augusta, routine tests at the state laboratory.

### MASSACHUSETTS

**State Medical Election**—Dr William H Robey, Boston was reelected president of the Massachusetts Medical Society at its annual meeting in Worcester, June 5. Other officers were also reelected, as follows: Drs Philemon E Truesdale, Fall River, vice president, Walter L Burrage, Brookline secretary, and Charles S Butler, Boston, treasurer.

### MINNESOTA

**Society News**—The Hennepin County Medical Society has established a "buy and sell" department for used medical equipment in its office in the Medical Arts Building, Minneapolis. Members wishing to dispose of their instruments may leave them with the secretary.

**State Medical Meeting at Duluth, July 15-18**—The eighty-first annual session of the Minnesota State Medical Association will be held at the Hotel Duluth, Duluth, July 15-18 under the presidency of Dr Francis J Savage, St Paul. The following physicians will be included on the program:

Peter T Bohan, Kansas City, Mo. Cardiac Irregularities  
Herbert H Leibold, Parkers Prairie, How We Treat Fractures in Rural Communities  
Donald K Bacon, St Paul, Blood Transfusion in the Treatment of Sepsis  
Burton Rosenholtz, St Paul, Statistical Analysis of 2186 Cases of Poliomyelitis  
Arthur F Bratrud, Minneapolis, Ambulant Treatment of Hernia  
John W Towey, Powers, Mich. Pneumonitis  
Arnold Schwyzer, St Paul, Combined Treatment (Surgery and Radiation) in Cancer of the Breast  
Robert G Green, Minneapolis, Occurrence of Tularemia in Wild Animals in Relation to Human Infection  
Melvin W Binger and Norman M Keith, Rochester, Ascites of Indeterminate Etiology

Among other features, there will be a symposium on "Recent Acquisitions in Endocrinology." Dr Alexander B Moore, professor of roentgenology, Georgetown University School of Medicine, Washington, D C, will deliver the Russell D Carman Memorial Lecture, Tuesday morning, on "Function of the Roentgenologist in the Diagnosis of Intra-Abdominal Conditions," and Clarence C Little, ScD, managing director American Society for the Control of Cancer will give the Citizens Aid Society Memorial Address, on "Recent Advances in Research on Heredity in Cancer." Scientific demonstrations will be held for one hour each morning. Meeting jointly with the state medical association will be the Northwestern Pediatric Society, the Minnesota Radiological Society, Minnesota Orthopedic Society, Minnesota Society of Neurology and Psychiatry and the Trudeau and Heart societies. The women's auxiliary will meet in McComb Hall of the Hotel Duluth Monday evening. Dr Walter L Bierring, Des Moines, Iowa, President American Medical Association who will take part in

discussions before the state association, will also address the association, among others, on "Medical Practice and the Changing Order"

### MISSISSIPPI

**Personal**—Dr James M Acker Jr, Aberdeen, past president of the Mississippi State Medical Association, has been appointed superintendent of the Mississippi State Hospital, Jackson, succeeding Dr Charles D Mitchell who has held the position for eighteen years—Dr Byron H Pashy, Como, has been appointed surgeon of the state penitentiary, succeeding the late Dr William P McDavid, Parchman—Dr Russell R Welch of the staff of the state hospital at Jackson, has been appointed superintendent of the East Mississippi Insane Hospital at Meridian, succeeding Dr Matthew J L Hove

### NEBRASKA

**Society News**—Dr Palmer Findley, Omaha, recently discussed "Irradiation in Pelvic Disorders" before the Cedar, Dakota, Dixon, Thurston and Wayne Counties Medical Society, in Wayne—The Southwestern Nebraska Medical Society was addressed at McCook, April 12, by Dr Leon S McGoogan, Omaha, on "The Induction of Labor"—Dr Andrew D Brown, Central City, discussed diarrheas of children before the Hall-Merrick and Howard Counties Medical Society at Grand Island in April

### NEW JERSEY

**Art and Hobby Exhibit**—At the annual session of the Medical Society of the State of New Jersey in Atlantic City, June 5-7, an exhibit of original works of art or collections made by members or their families was presented. Entries included photographic studies by Drs J Corwin Mabey, Montclair, William L Vroom, Ridgewood, William C Wescott, Atlantic City, and Lewis H Loeser, Newark, oil paintings by Drs Frederic J Hughes, Plainfield, and Hilliard L Lockwood, Jersey City, four busts by Dr Siegfried Husserl, Newark

**Dr Ill Honored**—The Academy of Medicine of Northern New Jersey held a special meeting in Newark, May 17, to celebrate the eightieth birthday of Dr Edward J Ill, Newark. Dr John F Hagerty, Newark, past president of the academy and of the Medical Society of New Jersey, presided and Drs George W Kosmak and George Gray Ward, New York, paid tribute to Dr Ill in formal addresses. A bust of Dr Ill, made by Dr Siegfried Husserl, Newark, was presented to the academy and accepted by Dr Arthur W Bingham, East Orange. Dr Frederic J Quigley, Union City, president of the Medical Society of New Jersey, brought greetings from the state society, and Dr Edward W Sprague, Newark, president of the Essex County Medical Society, greetings from that organization. Dr Ill is a past president of the state society and of the American Association of Obstetricians and Gynecologists and was the first president of the Academy of Medicine of Northern New Jersey

### NEW YORK

**Hospital News**—Albany Hospital has recently renovated its psychiatric wards and rededicated that section of the hospital as the Mosher Memorial, in memory of the late Dr Jesse Montgomery Mosher, who was the first physician of the hospital—Brig Gen Frank T Hines, Veterans' Administrator, made the principal address at the dedication of the new Veterans' Administration Facility at Batavia, June 23

### New York City

**Dr Rappleye Appointed Dean of Dental School**—Dr Willard Cole Rappleye, dean of Columbia University College of Physicians and Surgeons, has been appointed dean also of the School of Dental and Oral Surgery, effective July 1. He has been acting dean of the dental school during the absence on leave of Dr Alfred Owre, who has now resigned

**Dinner in Honor of Dr Ashford**—A dinner in honor of Dr Bailey K Ashford, recently retired as a colonel of the Medical Corps, U S Army, was held at the Harvard Club, June 27, in recognition of his contributions to tropical medicine. Dr Ashford was reported to be ill at his home in Puerto Rico. He is professor of tropical medicine and mycology at Columbia University collaborating with the School of Tropical Medicine of Puerto Rico. A bust of Dr Ashford was recently unveiled at the school in San Juan. The dinner was arranged by New York physicians and officials of the Pan American Medical Association on the occasion of the publication of Dr Ashford's autobiography, "A Soldier in Science"

### NORTH CAROLINA

**Personal**—Dr Merle D Bonner, Jamestown, has been appointed superintendent and medical director of the Guilford County Sanatorium to succeed the late Dr Joseph L Spruill—Dr Zack P Mitchell, Weldon, has been elected health officer of Vance County, the county has been without a health official since the resignation of Dr Crete N Sisk, Henderson, in the spring

**Society News**—Dr Robert W McKay, Charlotte, among others, spoke before the Guilford County Medical Society at High Point, April 5, on pyelitis—At a meeting of the Fifth District Medical Society in Sanford, April 19, speakers included Drs Wilburt C Davison, Durham, on pediatric therapeutics, Adlai S Oliver, Raleigh, newer conception of the female cycle, and Philander C Riley, Fort Bragg, common skin conditions—The Buncombe County Medical Society was addressed in Asheville, May 7, among others, by Dr John A Watkins on cesarean section—The Mecklenburg County Medical Society was addressed in Charlotte, May 15, by Drs John S Gaul on fracture of the spine, Roy B McKnight, intrathoracic goiter, and Edward J Wannamaker Jr, Charlotte, nephritis—Drs Rives W Taylor and Samuel M Carrington, Oxford, addressed the Granville County Medical Society, Oxford, April 28, on "Diarrheal Diseases in Children" and "Appendicitis in Children," respectively—Drs Edward W Phifer, Morganton, and Abner M Cornwell, Lincolnton, addressed the Catawba Valley Medical Society, Morganton, May 8, on "Repair of Fractures" and "Fractures of the Upper Extremities," respectively

### PENNSYLVANIA

**Fifty Years in Practice**—Dr Samuel P Glover, Altoona, was the guest of honor at a testimonial dinner given by his medical and dental friends at the Blairmont Country Club, April 19. Dr Joseph D Findley acted as toastmaster and Dr Olin G A Barker, Johnstown, was the principal speaker. Dr Glover was graduated from the University of Pennsylvania School of Medicine in 1884 and spent five years teaching at the American College in Beirut, Syria, before settling in Altoona to practice. He is the senior member of the medical staff of Altoona Hospital

**Society News**—Dr John Stewart Rodman, Philadelphia, addressed the Bucks County Medical Society, Bristol, May 9, on "Indigestion—Its Surgical Significance"—Dr Adrian S Taylor, Clifton Springs, N Y, addressed the Lycoming County Medical Society, Williamsport, June 8, on "Trifacial Neuralgia"—Dr Henry T Price, Pittsburgh, was the speaker at a meeting of the Blair County Medical Society, Altoona, in April, on "Adolescent Health"—Dr Moses Behrend, Philadelphia, president-elect, Medical Society of the State of Pennsylvania, discussed the society's policy for 1935 on workmen's compensation legislation at a meeting of the Erie County Medical Society, Erie, June 11. Dr Harold A Miller, Pittsburgh state director of emergency medical relief, discussed "Possibilities of State Medicine in Our Present Situation"—Dr James R Smith, Erie, was elected president of the Pennsylvania Public Health Association at its annual session in Philadelphia, May 22-23

### Philadelphia

**Society News**—Dr Leonard G Rowntree, among others, addressed the Philadelphia Pediatric Society, June 12, on "Demonstration of Results on Nutrition and Growth of Rats by Thymus Feeding"—Drs Frederick S Schofield and George L Weinstein among others, addressed the Philadelphia Urological Society, May 28, on "The Friedman Test in Testicular Tumors"—The library of the Philadelphia County Medical Society added ninety-six books and fourteen journals during the fiscal year ended May 1. These bring the number of books in the library to 3,106 and the number of journals to 69. A total of 2,345 persons used the library during the year, according to the annual report

**University News**—Prizes were recently awarded to several students at the University of Pennsylvania School of Medicine, for papers on research projects. The Mary Ellis Bell prize, a gold medal and \$25, went to Maurice S Sackey for a paper on "Absorption of Bilirubin from the Small Intestine", the John C Clarke Prize, a gold key and \$25, to Joseph L Hollander, Milton Mazer and Isadore S Epstein, for a joint paper on "Effect of Total Gastrectomy on the Blood Picture of the Cat as Bearing on the Castle Hypothesis of Pernicious Anemia," and the Grayhe Simpson Priestly Prize of \$10 to Gabriel A Schwarz, Hazelton, for a paper on "Formation of the Nissl Substance—An Experimental Study". Dr Isidor S Ravdin made the presentations at a meeting of the Undergraduate Medical Association in April

## RHODE ISLAND

**Fiske Prize Awarded**—Drs Charles O Cooke and James Murray Beardsley, Providence, received jointly the annual Fiske Fund Prize of the Rhode Island Medical Society, for their essay on "Appendicitis Its Diagnosis, Treatment and End Results." The prize, which this year amounted to \$200, was established about 100 years ago by Caleb Fiske, to encourage original work on the part of members of the society, of which he was one of the early presidents.

## SOUTH CAROLINA

**Faculty Changes**—At the annual commencement of the Medical College of South Carolina, Charleston, June 6, the following faculty elections and changes were announced, among others:

Dr Archibald E Baker emeritus professor of gynecology  
Dr Hillyer Rudisill Jr professor of roentgenology  
Dr Joseph Sumter Rhame associate professor of surgery  
Dr F Adelbert Hoshall assistant professor of orthopedics

The Ravenel award, a silver cup, was given to Dr William Townsend Barron Jr of the graduating class for his essay on "Selective Sterilization." This award was established by Dr Mazzyck P Ravenel, now of Columbia, Mo., in memory of members of the Ravenel family who have contributed to medicine and science in South Carolina. James C Kinard LL.D., president of Newberry College, Newberry, made the address to the graduating class.

## TENNESSEE

**New Advisory Council Appointed**—Governor McAlister recently appointed a new state council of public health to act in an advisory capacity to the state department of health. At the first meeting Dr John M Lee and Oren A Oliver DDS, Nashville, were elected president and vice president, respectively. Other members are Drs Ernest M Fuqua, Pulaski; Claude P Fox Sr, Greenville; William K Vance Jr, Bristol; John R Thompson Jr, Jackson; and John C Ayres, Memphis. The Tennessee Federated Women's Clubs and Parent Teacher Association is also represented on the council and a pharmacist member is to be appointed. Medical members of the council were chosen from a list recommended to the governor by the house of delegates of the Tennessee State Medical Association.

**Society News**—Speakers at the annual meeting of the Upper Cumberland Medical Society at Red Boiling Springs, June 6-7 included Drs George R Livermore, Memphis, on "Evolution of Prostatic Resection," James B E Neil, Knoxville, "Use of High Frequency Currents for the Relief of Prostatic Obstruction," Carl R Crutchfield, Nashville, "Cure of Inguinal Hernia," George A Hendon, Louisville, Ky., "Treatment of Peptic Ulcer," and Carl C Howard, Glasgow, Ky., "Cause of Death from Emboli."—Dr Thomas P Sprunt, Baltimore, addressed the Sullivan-Johnson Counties Medical Society, Bristol, June 5, on "Common Types of Chronic Arthritis."—Drs Raymond M Price, Sweetwater, and Spencer B McClary, Etowah, among others, addressed a meeting of the Five County Medical Society (McMinn, Monroe, Loudon, Roane and Blount counties) at Athens, May 25, on "Surgical Indications and Treatment of Gallbladder Disease" and "Diagnosis and Treatment of Peptic Ulcer," respectively.—Dr Charles C Stockard, Lawrenceburg, among others, addressed the Hardin-Lawrence-Lewis-Perry-Wayne Counties Medical Society in Linden, May 25, on postpartum hemorrhage.

## VIRGINIA

**University News**—Dr Rudolf B Teusler, director of St Luke's International Medical Center, Tokyo, Japan, received the honorary degree of doctor of science at the annual commencement of the Medical College of Virginia, Richmond, May 29. Dr Teusler is an alumnus. There were ninety-seven graduates in medicine.

**Academy Approves Report on Hospital Insurance**—The Richmond Academy of Medicine recently approved a report of its committee on economics recommending that the academy formulate plans for group hospital insurance. The committee was instructed to prepare plans for approval of the academy, with due regard to certain safeguards enumerated in the report and to economic soundness.

**Personal**—Dr Oscar Swineford Jr, instructor in medicine, University of Virginia Department of Medicine, University, was awarded the John Horsley Memorial Prize at the annual meeting of Sigma Xi in April for a paper on "Specific Control of Experimental Serum Reactions." The prize awarded every two years by a committee of the medical faculty of the university was established by Dr John Shelton Horsley.

Richmond, in 1925 in memory of his father. The "President and Visitors' Prize" was awarded for the second year in succession to Carl Caskey Speidel, Ph.D., for a paper on "Studies of Living Nerves."

## WISCONSIN

**Personal**—Dr William T Clark, Janesville, has been appointed adviser on medical aspects of the joint federal and state relief department.—Dr Henry F Hoesley was elected mayor of Shullsburg in April.

**Survey of Hospital Occupancy**—Wisconsin hospitals operated at an average of 45 per cent of their bed capacity during 1933, as compared with 65 per cent in 1930, according to an economic survey recently made by the Wisconsin Hospital Association. The survey showed that the number of obstetric cases declined sharply in the three year period 1930-1933. Hospitals with less than fifty beds reported a decline from 83 in 1930 to 43 in 1933, those with between fifty and 100 beds from 225 to 126, and those with more than 100 beds from 442 to 352. Free work practically doubled in the largest and smallest hospitals and in the middle group it increased from 39 per cent in 1930 to 199 per cent in 1933. The data indicated the effect of the Federal Emergency Relief Administration's omission of hospitalization from the care provided for the indigent, according to the report. All hospitals reported drastic economies and rates have been generally reduced. Several hospitals have instituted flat rates for obstetric cases.

## GENERAL

**Bequests and Donations**—The following bequests and donations have recently been announced:

St Mary's Free Hospital for Children, New York, \$8,000 from the will of the late Fannie Henrietta Youngs.  
Somerset Hospital, Somerset, N.J., \$10,000 by the will of the late William Morgan Savin Annandale.  
Nassau Hospital, Mineola, L.I., \$30,000 by the will of the late John C Herrick Little Neck, L.I.  
Seton Hospital and French Hospital, New York, \$4,000 and \$25,000 respectively and St Agnes Hospital for Crippled Children, White Plains, \$20,000 from the will of the late George Logan Durval.  
House of Rest at Sprain Ridge, Yonkers, N.Y., \$5,000 by the will of the late Mrs Florence Macy Sutton.  
Clarksdale Hospital, Clarksdale, Miss., \$30,000 by the will of Mrs E B Johnson.

**Tuberculosis Sanatorium Directory**—The National Tuberculosis Association, 50 West Fiftieth Street, New York City, has issued a new directory of tuberculosis sanatoriums, corrected to May 1934. This directory is the tenth in a series that started in 1904. It lists 659 institutions with a total bed capacity of 86,917. It includes tuberculosis departments, pavilions, and separate wards in general hospitals. A number of institutions that previously did not admit children now report a definite number of children's beds. Several institutions have added new buildings for children. There is an increase in the number of general hospitals that admit patients suffering from tuberculosis. Information about each institution listed includes name, location, ownership, rates, types of cases admitted, limitation as to residency, person and organization in control. The price of the volume is \$1.

**Eradication of Bovine Tuberculosis**—There were 1,784 modified accredited counties practically free from bovine tuberculosis on May 1 according to the U.S. Department of Agriculture. This figure represents about 58 per cent of the total and includes fourteen states in which all counties were within that classification. This eradication of the disease dates from July 1923, when seventeen counties within four states were designated as the first modified accredited areas. Biennial surveys are made to determine the progress of eradication work, the first in 1922 indicated that 4 per cent of all cattle in the country were tuberculous, while in 1934 the corresponding percentage was only 1.1. The fourteen states in which all the counties are almost free from bovine tuberculosis are North Carolina, Maine, Michigan, Indiana, Wisconsin, Ohio, Idaho, North Dakota, Nevada, New Hampshire, Utah, Kentucky, West Virginia and Washington.

**Medicine at Science Meeting**—The American Association for the Advancement of Science met in Berkeley, Calif., June 18-23. The section on medicine held four sessions, two of which were given over to a consideration of the field of endocrinology, while two dealt with aspects of hygiene and parasitology. According to *Science*, the first session was devoted to a symposium on general phases of the endocrine problem under the general title of "A Survey and Evaluation of the Present Status of Endocrine Investigations." Speakers were Dr Eugene M K Geiling, associate professor of pharmacology, Johns Hopkins University School of Medicine, Baltimore, and

cent du Vignerud, Ph.D. professor of biochemistry, George Washington University School of Medicine Washington, D. C., and James M. Luck, Ph.D., assistant professor of biochemistry, Stanford University Calif. Speakers for the remainder of the program were not published. Meeting conjointly with Section N was the Pacific Coast branch of the Society for Experimental Biology and Medicine.

**Grants by National Research Council**—The committee on grants in aid of the National Research Council has announced the following grants in the field of the medical sciences:

- Dr. Joseph D. Aronson, assistant professor of bacteriology, Henry Phipps Institute of the University of Pennsylvania Philadelphia: mutual effect of tuberculosis and syphilis in experimental animals.
- Dr. Henry G. Barbour, associate professor of pharmacology and toxicology, Yale University School of Medicine, New Haven: Conn. relation of the pituitary gland to water shifting reflexes in primates.
- Delley W. Bronk, Ph.D. professor of biophysics, University of Pennsylvania School of Medicine Philadelphia: properties and functions of the sympathetic ganglions.
- Dr. Samuel J. Crowe, adjunct professor of laryngology and otology, Johns Hopkins University School of Medicine Baltimore: physiology of the middle ear.
- Dr. John A. E. Lyster, professor of physiology, University of Wisconsin Medical School, Madison: on the electrical field around the contracting heart and skeletal muscle and related phenomena.
- Dr. Eugene M. K. Ceiling, associate professor of pharmacology and experimental therapeutics, Johns Hopkins University School of Medicine: histologic and pharmacologic study of pituitary glands of whales, porpoises and seals.
- Dr. Arthur Crollman, associate professor of pharmacology and experimental therapeutics, Johns Hopkins University School of Medicine: chemical study of the suprarenal cortical hormone.
- Dr. Harold E. Himwich, associate professor of physiology, Yale University School of Medicine: interrelated aspects of carbohydrate metabolism.
- Dr. Richard U. Light, research assistant in surgery, Yale University School of Medicine: new apparatus for investigation of neurologic functions.
- Dr. Frank A. McJunkin, professor and head of the department of pathology, bacteriology and preventive medicine, Loyola University School of Medicine Chicago: extraction and purification of agents that inhibit mitotic proliferation in the kidney.
- Dr. George C. Shattuck, assistant professor of tropical medicine, Harvard University Medical School: effects of heat.
- William F. Windle, Ph.D. associate professor of anatomy, Northwestern University Medical School Chicago: development of behavior in the embryo correlated with the development of intrinsic structure of the nervous system.

Further grants will be considered in the fall; the council announces. Application should be filed on blanks which will be furnished by the secretary of the committee before October 15. Action will be taken about the end of December.

**Society News**—At the annual session of the American Association for the Study of Gonorrhea, Dr. Allen Graham Cleveland, was installed as president. Dr. Julius R. Yung, Terre Haute, was chosen president elect and Dr. William B. Mosser, Kane, Pa., corresponding secretary and Dr. Frank B. Dorsey, Jr., Keokuk, Iowa, recording secretary. The next annual session will be held at Salt Lake City.—Dr. Clarence O. Cheney, New York, was chosen president elect of the American Psychiatric Association at its annual meeting, May 30, and Dr. Charles F. Williams, Columbia, S. C., was installed as president. Dr. William C. Sandy, Harrisburg, Pa., was reelected secretary. The next annual meeting will be held at Washington, D. C.—Dr. DeForest P. Willard, Philadelphia, was installed as president of the American Orthopedic Association at its annual meeting, June 9. Dr. Frederick J. Gaenslen, Milwaukee, was named president-elect, and Dr. Ralph K. Ghormley, Rochester, Minn., reelected secretary. The next annual session will be held at Philadelphia.—Dr. Colin K. Russel, Montreal, Canada, was elected president of the American Neurological Association at its meeting, June 5, and Dr. Henry Alsop Riley, 117 East Seventy-Second Street, New York, reelected secretary. The next annual meeting will be held at Montreal.—At a meeting of the American Laryngological Association, June 9, Dr. Dunbar Roy, Atlanta, Ga., was named president and Dr. William V. Mullin, Cleveland, was reelected secretary.—Dr. Charles M. Williams, New York, was selected president of the American Dermatological Association at its annual session, June 8, and Dr. William H. Guy, Pittsburgh, reelected secretary.—New officers of the American Association on Mental Deficiency elected May 29, are Dr. Mary M. Wolfe, Laurelton, Pa., president, Edgar A. Doll, Ph.D., Vineland, N. J., president-elect, and Dr. Groves B. Smith, Godfrey, Ill., secretary (reelected).—Dr. Edward B. Krumphaar, Philadelphia, was elected president of the American Association of the History of Medicine at the tenth annual session in Cleveland, June 11. Drs. Charles N. B. Camac, New York, and William S. Middleton, Madison, Wis., were elected vice presidents and Dr. Edward J. G. Beardsley, Philadelphia, secretary. Any one interested in the subject who wishes to become a member of the association is asked to communicate with Dr. Beardsley, 1919 Spruce Street, Philadelphia.

## CANADA

**Canadian Medical Association**—At the meeting of the Canadian Medical Association in Calgary, Alta., June 18-22, Dr. Jonathan C. Merkins, Montreal, was named president-elect of the association. Among guest speakers were the following:

- Dr. Max Cutler, Chicago: Cancer of the Breast.
- Dr. Sanford R. Gifford, Chicago: Treatment of Glaucoma. Corneal Infections.
- Dr. Ralph A. Ienton, Portland, Ore.: Recent Discoveries in Pathology of the Nasal and Aural Mucosa.
- Dr. John M. Frawley, Fresno, Calif.: Treatment of Typhoid in Children by Means of Lysed Vaccine. Prophylaxis and Treatment of Whooping Cough.
- Dr. Gordon B. New, Rochester, Minn.: Curability of Malignant Tumors of the Upper Jaw and Antrum.

The Blackader Lecture was delivered by James Craigie, research associate, Connaught Laboratories, University of Toronto, on "Some Aspects of Virus Infections, with Special Reference to Virus Diseases of Childhood." In a symposium on cancer participants were Drs. Alexander Primrose, Toronto, Earl E. Shepley, Saskatoon, William J. L. Deadman, Hamilton, and Donald C. Balfour, Rochester, Minn. A symposium on cardiovascular diseases was presented by Drs. Duncan A. L. Graham, John A. Oille, and John Hepburn, Toronto, and Cecil C. Birchard, Montreal.

## FOREIGN

**Dawson Williams Prize Awarded**—The third award of the Dawson Williams Prize, established in 1928 in memory of the late editor of the *British Medical Journal*, will be made to Dr. George F. Still, professor of diseases of children, King's College London, at the annual meeting of the British Medical Association, July 24, in Bournemouth. The prize a certificate and a check for fifty guineas, has previously been awarded to Dr. Frederick J. Poynton (1930) and the late Sir Robert Jones (1932).

**Congress on Electro-Radio-Biology**—The first International Congress of Electro-Radio-Biology will be held in Venice, September 10-15, for the study of the biologic phenomena caused by radiations. Physicists, chemists, biologists, naturalists and physicians are expected to attend. Among Americans listed on the preliminary announcement are William D. Coolidge, Ph.D., Schenectady, N. Y., Otto Glasser, Ph.D., Cleveland, and Arthur H. Compton, Ph.D., Chicago. Information may be obtained from the secretary of the congress, Dr. Giocondo Protti, Venice, Canal Grande, S. Gregorio 173.

**Medical Study Trip**—The twenty-seventh medical study trip sponsored by the mineral water and climatic resorts of France under the patronage of the minister of public health will take place during the first two weeks of September. It will be under the scientific direction of Dr. Maurice Villaret, professor of hydrology and therapeutic climatology of the Faculty of Medicine of Paris and physician of the Necker Hospital, among others. The trip will include les Gorges du Tarn, l'Aigoual, les Gorges de l'Hérault, Montpellier, les Corbières, la Montagne Noire, les Gorges de l'Aude and la Côte de Vermeil as well as all the resorts of the Languedoc, eastern section of the Pyrenees, and the republic of Andorra, breaking up at Toulouse. For information apply to Made-moiselle Machure, 138 avenue des Champs-Élysées, Paris (VIII).

## Government Services

### The Reporting of Venereal Diseases

Because of the widespread prevalence of venereal diseases, the U. S. Public Health Service is preparing a monthly morbidity report for physicians and others interested in the prevention and eradication of syphilis and gonorrhea to assist state and local boards of health in interesting individual physicians of the United States in more thorough reporting of these diseases. Surveys in representative communities throughout the United States have revealed that the monthly rate per 10,000 of population is 66 for syphilis and 102 for gonorrhea. During April, the figures for which have just been released 18,377 cases of syphilis and 10,111 of gonorrhea were reported for thirty-four states and the District of Columbia. The states not represented in these statistics include California, Pennsylvania and West Virginia, which have been reporting regularly, but for which no report had been received for the current month, Colorado, Nevada, Utah and Wyoming which do not report, and Connecticut, Iowa, Montana, Ohio, Oklahoma and South Carolina which had incomplete figures. Only cases in the infectious stage are reported for Wisconsin.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

June 9, 1934

#### Debate on Medical Versus Surgical Treatment of Peptic Ulcer

The Fellowship of Medicine arranges debates, in which leading authorities take part, on moot points in practice. The latest one was on the motion that, in the absence of complications, surgical intervention in cases of gastric and duodenal ulcer is unnecessary. Lord Moynihan was in the chair. Opening the debate, Dr A F Hurst said that ten years ago Lord Moynihan contended that a gastric ulcer large enough to produce a crater demonstrable by roentgen rays could be cured only by operation. But about that time Dr Hurst saw the largest gastric ulcer in his experience and treated it by medical means. The symptoms disappeared in three months and for years did not return. To be effective, medical treatment must be thorough and prolonged. Duodenal ulcer was a more difficult problem than gastric ulcer, largely because the duodenum was narrower than the stomach and slight swelling or spasm sufficed to cause obstruction. Nevertheless it was rare for an ulcer of less than ten years' duration not to heal under medical treatment. An exception was the familial type, in which the hemorrhage began early in life and gastrectomy alone was effective. Some advocated operation in order to prevent hemorrhage or perforation, but he had never seen perforation when the patient had proper medical treatment sufficiently long. In seconding the motion, Mr A E Mortimer Woolf did not think that all peptic ulcers, in the absence of complications, should necessarily be treated by medical means. In a straightforward case of ulcer without complications, he would try other methods before resorting to operation.

Dr Robert Hutchison said that he had maintained years ago that many unnecessary operations were performed for duodenal ulcer, but the results obtained by Mr James Sherren at the London Hospital had changed his views. He was astonished at Dr Hurst's claim that every uncomplicated gastric ulcer would heal under medical treatment. After five years the results remained satisfactory in only about half the cases. Patients who had been operated on could live a freer life without the rigorous restrictions of medical treatment.

Mr Herbert Patterson did not approve of duodenal intubation, which was based on unsound principles. Gastric ulcers could be healed under medical treatment, but he doubted whether this was true for well established duodenal ulcers. He opposed the motion because a large ulcer would not heal under medical treatment and a duodenal ulcer seldom or never healed. He had eleven physicians as patients who preferred medical treatment and three of them had perforations, one fatal.

Dr Walter Carr stated that sooner or later all or almost all cases of gastric, and certainly all cases of duodenal, ulcer relapsed. A second relapse should mean operation. The only alternative was severe restrictions for the rest of the patient's life. It was better to face the comparatively small risks of operation.

Lord Moynihan said that the point which needed insistence was the inefficiency of medical treatment as generally carried out. He was strongly in favor of medical measures. Of five patients consulting him for surgical treatment, three were referred back to the physician, but not infrequently some returned after medical treatment. Ulcers took long to heal, and rest in bed on a restricted diet was necessary for a considerable time. Because of the risk of perforation or hemorrhage medical treatment was more dangerous than surgical

But he rarely liked to operate until nonoperative treatment had been tried as thoroughly as possible. In contradiction to Dr Hurst, he had seen many deaths from hemorrhage or perforation while the patient was under medical treatment. The voting was for motion, 70, against, 73.

#### Antimony Poisoning from Enamel Ware

The Ministry of Health has repeated its warning that the use of cheap enamel ware may cause antimony poisoning. The substance normally used as an opacifier in enamel ware is tin oxide. In recent years this has been replaced to some extent by the cheaper oxides of antimony. Antimony trioxide dissolves in tartaric and other organic acids. The solution is a violent emetic and may cause death. When soft enamels are brought in contact with lemonade, whether artificial or made from lemons, a similar solution may be produced, and outbreaks of poisoning have so occurred. The use of antimony in hollow ware might be brought under control by the marking of enameled goods or allowing only the pentoxide or its compounds to be used, but it is suggested that prohibition would be better.

#### The Assistance of Foreign Scientists

The Academic Assistance Council, formed to assist scholars and scientists who were victims of the German persecution, has enabled 180 displaced teachers from German universities to continue their work. The aim of the council has been widened to the general defense of academic freedom and the helping of those of any nationality who on grounds of religion, race or political opinion are prevented from working in their own country. There are Russian and Italian emigres in a similar position to the German. In a letter to the *Times*, Lord Rutherford, who by his fundamental work on the atom has attained the leading position in British science and presides over the council, describes the number of refugees as "tragically swollen by the expulsion from Germany of persons possessing pacifist or international convictions or lacking that strangest qualification for the life of scholarship, 'Aryan genealogies'." To incorporate the services of these wandering scholars in the other universities of the world is more difficult today than in the Middle Ages, when the "communities of learners" were less hampered by administrative formalities, restrictive endowments and nationalist tendencies. Medieval scholars could migrate to other districts, and the "universitas" moved with them, the same catholicity of spirit has been fortified in the present crisis in both ancient and modern universities. The universities of Great Britain have responded generously to the council's suggestion of inviting displaced scholars to work as research guests. London University has received sixty seven. Cambridge has not only given hospitality to thirty one but has contributed over \$5,000 to the council's funds, Oxford has welcomed seventeen. Manchester University has invited sixteen and raised a special fund for their support. Almost all other universities and university colleges in Great Britain have opened their common-rooms, libraries and laboratories to temporary research guests and several have raised funds. The British university teachers have contributed liberally and the members of the staff of the London School of Economics have taxed themselves voluntarily for a period of three years. But there is urgent need of funds. Almost all that has been collected has been expended in maintenance grants, at the rate of \$900 per annum for a single person and \$1,250 for a married one. The council has received reports of the excellent results of the collaboration in research of English and foreign colleagues. Several notable discoveries have been made. The council is conducting a world-wide survey to discover openings in which the services of our colleagues can be used. The reorganization of the University of Istanbul has provided posts for more than thirty. The formation of the "University in Exile" in New

York and projects in Russia, Persia and Brazil for creation of university institutions show that group settlement is possible. In Germany, 1,202 university teachers have been displaced. So far only 389 are known to have found even temporary places elsewhere, and of these 178 have found academic refuge in Great Britain. The council is not merely a relief organization, in one of the greatest crises in the history of universities it is determined to preserve respect for the basic traditions of academic freedom and the integrity of science.

### Repeal of the Duty on Insulin

The removal of the tax on imported insulin almost as soon as it was imposed was reported in a preceding letter. It provoked an outburst in the house of commons from a protectionist, who said that it was inappropriate that on the day it was announced that Dr F. G. Banting the discoverer of insulin, was honored with a knighthood its manufacture should be 'handed over to a foreign monopoly.' The 33 per cent duty had not been followed by any rise in the price of insulin. He omitted to state that the abolition of the duty had been followed by a fall in the price of insulin or that it was behind tariff walls that monopolies flourished most. Mr Chamberlain, chancellor of the exchequer, said that the imposition of the duty was 'a kind of accident,' which the manufacturers asked for. It was opposed by the board of trade and taken before the tribunal appointed to decide on duties. The government repealed the duty because of representations that persons with diabetes felt that the price of insulin was higher than it would have been but for the duty. To a considerable number of people, diabetes was a matter of life and death. He admitted that the price had fallen since the duty had been repealed but being an ardent protectionist, he failed to see how this had exploded the pretense that the higher price was only a 'feeling' on the part of diabetic patients.

### PARIS

(From Our Regular Correspondent)

May 16, 1934

### French Congress of Gynecology

The third *Congres français de gynécologie* was held in Paris, May 5-9, under the chairmanship of Prof. André Binet of Nancy. Among the foreign official delegates present were Blair Bell of London, Leopold Mayer of Brussels, Koenig of Geneva, and Daniel of Bucharest. Professor Roussy, dean of the *Faculté de médecine de Paris*, opened the session with an address in which he endeavored to define the physical and psychic personality of woman. He pointed out that, in the physical sense, woman constitutes a harmony of endocrine influences. He emphasized the social role of woman and cited the following utterance of Pende of Genes: "Every decadence of a civilization is heralded by the decadence of woman and by the predominance of egoistic instincts, which are more or less antimaternal." The address of Professor Binet dealt likewise with the relations of gynecology to present-day sociology. He discussed the beneficent and harmful influences of sport activities—depending on their choice and management—on the physical development of woman. He condemned the spirit of competition, which induces women to try to establish absurd records and which removes them from their natural sphere, the home, and tends to make some modern women 'beings of uncertain sex,' poorly adapted to the duties of motherhood. Taking into account the constitution of young women the physician should prohibit too violent sports, such as skiing and motorcycle riding. The chief topic was "anatomic and physiologic aspects of the ovary." The study was divided among six speakers. The paper of Dr. Leopold Lévi (recently deceased) on the "Mutual Relations Between the Ovary and the Thyroid Body" was presented by Mr. Roland Leven and Mlle. Hirsch

and Vouaux. The paper threw new light on the relations between hypofunctioning and hyperfunctioning of the ovary in relation to exophthalmic goiter. Anovarianism due to ovariectomy, and congenital or acquired hypovarianism and dysovarianism may cause symptoms of exophthalmic goiter. Anovarianism and ovarian insufficiency, as these are manifested during the menopause or following repeated pregnancies, may cause hypothyroidism or even myxedema to appear. Menstruation, a period of hyperovarianism, is often accompanied by symptoms of hyperthyroidism—more rarely by symptoms of hypothyroidism, and sometimes by disturbances due to thyroid instability. Whatever the thyroid reactions secondary to ovarian disturbances may be, they are always conditioned by the evolution of the ovarian disturbances. The more or less rapid pathologic evolution of the ovary will necessitate different efforts at adaptation on the part of the organism and the endocrine system. Of still greater importance appears to be the previous state of the thyroid gland. Dependent on its previous functional trend, the deviation will be in the direction of hypothyroidism or hyperthyroidism. A previous state of thyroid instability makes more easy the reaction in the direction of hyperthyroidism. The thyroid disturbance may react on the utero-ovarian apparatus, causing thyro-ovarian syndromes. Hyperthyroidism and exophthalmic goiter may inhibit ovarian functions or induce genital atrophy. When there is a parallelism—hyperthyroidism and hyperovarianism—it is more a question of a constitutional state than a pathologic state. The thyroid insufficiency may be accompanied by symptoms of hyperovarianism (excessive menses). Often there is a parallelism between thyroid insufficiency and ovarian insufficiency. The syndrome of thyroid instability is associated more commonly with symptoms of hypovarianism. In other cases, one may observe symptoms of thyroid instability and of ovarian instability combined. In all the cases in which there is a predominance of signs of hypothyroidism, their significance is demonstrated by the influence of thyroid treatment on the functioning of the ovary after failure of ovarian treatment. A study of the ovariothyroid and thyro-ovarian syndromes throws light on various ideas: (1) the extragonadal influences, that is, endocrine and thyroid influences—particularly on the physiopathology of menstruation, (2) the rapid passage of a poorly developed glandular apparatus from infantilism to senilism, such as appears in the syndrome "late puberty and early menopause," and (3) the preponderant influence of the thyroid gland on the syndrome of premature aging of the organism.

### A Study of Acute Articular Rheumatism

The eleventh session of the *Assemblée des praticiens* was presided over by Professor Olmer of Marseilles. The chief topic was "The Present Status of Acute Rheumatism," which had been discussed in advance in the departmental medical societies. The meeting in Paris of all the delegates of these societies made possible a comprehensive synthesis of their conclusions. This sort of medical convention, which is held quarterly and which brings together the professors and the practitioners of even the most remote rural districts, always presents a high degree of interest. The conclusions reached by the discussion follow. Acute articular rheumatism is much more rarely observed than formerly, doubtless owing to the adoption of treatment with sodium salicylate, whereas rheumatism that is chronic from the start is increasing. Acute rheumatism reaches its highest point at the close of winter and the beginning of spring, with recrudescences during the summer and sometimes during the fall. Series of cases have been studied particularly in the young soldiers of the French army. An epidemic often affects a contingent of the army, although no cases appear in the homes of the vicinity. Acute rheumatism has been found hereditary through several generations.



But there are usually intervals between the succession of familial cases, so that the idea of habitual contagion is not well founded. Acute rheumatism has shown of late a marked decrease. The serious types especially are less often observed. There are, however, many attenuated articular forms, abortive types presenting incipient cardiac lesions. Acute articular rheumatism appears to be the arthropathic type of a disease that with its cardiac localization, is much more than articular. The abnormal localizations are much more frequent than the cerebral type, which is exceptional. The most common associated disorders are chorea and tuberculosis. Without assuming the tuberculous nature of Bouillaud's disease, the clinician sees typical cases of this disease in tuberculous patients and finds salicylate medication effective. The good effects of sodium salicylate are universally recognized. If used promptly and energetically for an extended period, without omission of regular doses through the night (for rheumatism never sleeps"), salicylate may accomplish excellent results. In a private clientele doses of from 8 to 12 Gm may be regarded as maximal and sufficient, although much lower than are used in the hospital services, and particularly in military hospitals. As regards prophylaxis, the practitioners, considering angina as the most frequent premonitory event advised salicylate medication, at least in rheumatic patients recognized or insufficiently treated. Victims of occupations that they did not know were contraindicated for persons in their condition show the need of spreading useful ideas on the subject as is done by the Ligue du rhumatisme. Before the general discussion was opened numerous communications were presented and gave rise to differences of opinion, particularly on the question of heredity and contagion in acute rheumatism, cardiac localization preceding articular localization the role of scarlet fever, and the association of tuberculosis and acute rheumatism.

#### The Pasteur Institute

The death of Prof. Emile Roux, director of the Institut Pasteur, and of Professor Calmette, assistant director, which occurred only a few weeks apart, left that famous scientific institution without a head. After three months of deliberation, the Conseil d'administration de l'institut has chosen Dr. Louis Martin as director. Dr. Martin is the oldest surviving collaborator of Pasteur. In collaboration with Dr. Roux he discovered antidiphtheritic serum at the same time as Behring. Mr. Felix Ramon, head of the Annexe de Garches, and inventor of diphtheria anatoxin, has been appointed assistant director.

#### BERLIN

(From Our Regular Correspondent)

May 14, 1934

#### The Number of Living Births in Europe

In 1933 the number of living births in Europe showed a further decline. According to a preliminary report, the greatest decrease occurred in the East European countries, which still have a comparatively high birth rate. In Rumania, in the first six months of 1933 there were 42,000 (12.4 per cent), in Poland, 35,400 (7.5 per cent), and in Czechoslovakia, 12,800 (7.9 per cent) fewer children born than in the first half of 1932. In Hungary the number of births for the first nine months of 1933 was 8.8 per cent, and in Lithuania 7.7 per cent lower than for the corresponding period of the previous year. The decline in the number of births was very marked in Austria (6.2 per cent) and in Bulgaria (6.0 per cent). In France which has had, since the war, a comparatively steady birth rate 33,110 or 6.0 per cent, fewer living births were recorded for the first nine months of 1933 than in the corresponding months of 1932, whereas the decline in births for the previous year in France was less than 8,000. For the period of nine months Great Britain reports a decrease in the number

of living births amounting to 26,450, or 4.7 per cent, and the Netherlands a decline of 4.4 per cent. In the German Reich however, in consequence of the slight increase of births in the third quarter, the total number of living births for the corresponding nine-month period was only 21,100, or 2.8 per cent fewer than for the same period of the previous year. Thus, in 1933, the German Reich stood, for the first time in many years, among the countries with a relatively slight decline in the birth rate, by the side of Spain, Portugal, Switzerland and Italy.

#### The Social Significance of Schizophrenia

According to an address by Wetzel before the Stuttgarter Aerztliches Verein, schizophrenia is the most frequent psychosis. In 1929, 69 per cent of the inmates of psychopathic hospitals in Wurttemberg (more than 3,000) were schizophrenic, two thirds of them being cared for at the expense of the department of public welfare. The average duration of hospitalization for schizophrenic patients is eight and one half years. This signifies more than 25,500 years of treatment for the whole group, which reveals the vast importance of the disease from the social point of view. Only a certain percentage of schizophrenic patients are in hospitals, since many do not require institutional treatment. The records of the public welfare department show that many asocial persons (beggars, vagrants, prostitutes and criminals), while not necessarily active in crime, are schizophrenic patients of long standing. A moralizing attitude often prevents the correct psychiatric understanding of these patients. The welfare services must therefore recognize the limits of their capacity and authority, since otherwise public and private funds will be wasted on useless courses of treatment. Otherwise the usual (though false) diagnosis of an 'unruly psychopath' will be made, whereas in many cases it is a question of unrecognized schizophrenia. The outstanding essential manifestation in schizophrenia is the unaccountability characterizing a patient's conduct. Between onset and internment lies often a violent deed due to an explosion resulting from excessive tension (suicide, pathologic whims that may have dangerous results).

The attitude of society toward schizophrenic subjects is characterized chiefly by two points of view: the desire to bring them under welfare treatment and the recognition of the need of defending itself against sudden violent attacks. Early dismissal from an institution constitutes a menace to the population, from a hereditary point of view. The recent application of sterilization to such patients with hereditary defects is therefore welcome legislation. The central problem in the application of welfare principles to the previously interned patient who is stamped as a schizophrenic subject is the providing of suitable employment. In the institution the work takes on a therapeutic character but, at the same time, it serves as a contribution of the patient toward the support of the institution, through a saving of personnel. So long as the schizophrenic subject is able to work he need not be reckoned among the invalidity class. It cannot be expected however, that he will fully readapt himself to the ways of society.

#### Treatment of Psoriasis with Low Fat Diet

Grutz addressed recently the Leipzig Medical Society on 'The Psoriasis Problem in the Light of Etiologic Research and Clinicodietetic Observations'. In the pathogenesis of psoriasis hereditary influence plays an important part. Nothing definite is known in regard to the cause. Never researches on the genesis and on new methods of treatment are based on histologic observations of Grutz on the skin of a patient who had simultaneously diabetes, psoriasis and xanthomatosis, with a permanent hyperlipidemia and hypercholesterolemia. In the psoriatic skin areas of the patient, by means of fat staining

he found an invasion of lipid substances that were stored in the psoriatic scaly deposits. Grütz explained this observation as a manifestation of the existing fat metabolism disturbance of lipoidosis or xanthomatosis, or as a revelation of a process that may occur regularly in psoriasis, but usually cannot be demonstrated because it is not sufficiently pronounced.

The question arose as to whether it might be possible in psoriasis to demonstrate, by a functional test of fat metabolism, similar disturbances to those that have been diagnosed in xanthomatosis and other lipoidoses. With Professor Burger of Bonn a large number of psoriatic patients were subjected to the Bürger functional test and to the analysis of their fat metabolism. The tests revealed in psoriatic patients disturbances in the lipid economy that represented on the average, about a 40 per cent increase over normal of the total blood serum fat and showed an increase of the total cholesterol and the phosphatids. Furthermore restoration of the fat metabolism to normal took a different course in psoriatic patients than in normal persons. Grütz regards these disturbances of fat metabolism as just as fundamental for the pathogenesis of psoriasis as the corresponding disturbances of the lipid economy have become for the conception of xanthomatosis. It is possible that in psoriasis there is an excess supply of the physiologic fats needed for the functioning of the skin. These are given off, in quantities too large to be utilized by the blood through the capillary system of the skin pass over into the epidermis, and there produce psoriasis. Another possibility is that the lipoids constantly transported to the epidermis reach the skin in such proportions as constitute an unphysiologic mixture. In both instances the psoriasis might be explained as inflammatory reactions toward a pathologic amount of lipid substances. This conception is opposed to Kerchhoff's view and makes unnecessary his theories in regard to a disturbed chemism of the epidermis in psoriasis.

In the Wuppertal-Elberfeld dermatologic department Gotz undertook to treat psoriasis by means of a diet poor in fats. In a number of grave cases these trials were successful so that the severest types of psoriasis were relieved by this fat-poor diet. The skin of the patients becoming absolutely clear of all lesions. The fundamental condition is the consistent application of the fat-poor diet, which permits the use of only 20 Gm of fat, at the most, for adults and 10 Gm for children (including the fat used in the preparation of the food for the table), over longer periods, if necessary, several months. In juveniles the good results are more quickly in evidence than in adults—often after from two to three weeks. The scales become loosened and the inflammatory infiltrates retrogress. In adults these results are not effected until after the lapse of six weeks or even longer and in stubborn cases from six to eight months are required for a complete cure. Often (particularly in psoriasis in the eruptive stage or in cases previously treated with roentgen rays) it proves impossible to check the disease manifestations by means of the fat poor diet. In a few instances the foci even become somewhat enlarged.

The psoriasis returns if the fat-poor diet is neglected. A distinct advance of the dietetic treatment is that the troublesome ointment treatment is done away with and the patients are spared the disappointments of roentgen treatment. A disadvantage of the new method is that it requires long periods of application, and can be used ambulant only under favorable home surroundings. In grave cases in which the patients are unable to work, the method presupposes a prolonged stay in the hospital. Hence, the fat-poor dietetic treatment of psoriasis should be reserved primarily for the severe cases.

The high incidence of psoriasis in butchers and in countries with a cold climate, and the retrogression of the disease during years of war with the shortage of fats find an explanation in the new conception.

## RIO DE JANEIRO

(From Our Regular Correspondent)

May 20, 1934

### Coccygodynia

Dr Achilles de Arujo, member of the National Academy of Medicine gave a conference in which he called attention to the differential diagnosis of lumbosacral disorders of the vertebral column. Pain is constant in all these disorders and frequently dominates the clinical picture. The systematic diagnoses of lumbago, rachialgia and so on constantly mask disorders that can be identified only by means of well directed examinations. Among numerous cases at first diagnosed traumatic lumbago the author succeeded in identifying such disturbances of the lumbosacral segment as spina bifida occulta, sacralization of the fifth lumbar vertebra, spondylolysis, movable sacrum and lumbosacral arthritis. One case merits especial mention. A woman, aged 21, born prematurely, slipped and landed on her buttocks so violently that for one hour she lost the use of the lower limbs. She continued to suffer for days from severe pain in the sacrococcygeal region with irradiations in the lower limbs, which practically prevented her from walking. In May 1932 the patient was examined by the author, who made a diagnosis of sacrum acutum, anterior dislocation of the coccyx and refractory coccygodynia and proposed resection of the coccyx and osteoplasty of the crista and of the lower extremity of the sacrum. He obtained excellent results. The patient was in excellent condition when seen recently by the author. The treatment of coccygodynia, according to the author is essentially surgical.

### The Lombroso Prize

The Lombroso prize, which is annually given in Italy for the best work on criminal anthropology, until now has been given only to three scientists of universal reputation, Profs Ruiz Funes of the University of Madrid, Isreal Castellanos, director of the office of identification of Cuba, and Benigno di Tullio of the Faculty of Medicine and police school of Rome. The work for which the prize for 1933 was awarded to Brazil was elaborated at the institute of police identification of Rio de Janeiro by its director, Dr Leonidio Ribeiro and his assistant Dr Berardimelli. It consists of three parts, in the first of which is described the organization of the institution. The second part shows the installations of the newly created laboratories, one of police technic and one of criminal anthropology. The last volume includes the first thirty-three anthropometric cards of criminal Negroes made at the institute, with the observations made on the biotype of each one of them. Several foreign specialists competed for the prize.

### Organization of an Order of Physicians

The Paulista Association of Medicine held a general meeting, March 9, to discuss the organization of the Order of Physicians or of the Federation of Medical Associations. The following objects of the federation were submitted for approval. To promote the compulsory federation of all medical societies in the country. All physicians who do not belong to any society must be inscribed directly in the federation. The federation will aim (a) to promote the study and adoption of a Brazilian code of deontology (b) to fight for the nationalization of medicine in other words, for the right to practice by native Brazilians only or by those who being naturalized take the whole medical course in one of the faculties of the country (c) to fight for penal laws which would make effective the action of police in the campaign against quackery (d) to fight for the creation of a private tribunal on matters pertaining to public health.

These propositions were widely discussed at the meeting and the project received a large majority of votes. The date for the next meeting of the association has not yet been fixed.

## Marriages

PERRY MARTIN WORKMAN, Woodruff, S C, to Miss Anne Thompson of Ware Shoals, May 24

WILLIAM VINCENT FETCHO, Jennerstown, Pa, to Miss Gertrude Gluck of Pittsburgh, June 13

HARRY LEE DENOON JR, Nassawadox, Va, to Miss Clara West Griffin of Eastville, recently

IRBY BAAXTER BALLENGER to Miss Mary Lou Jackson, both of Albuquerque, N M, May 16

EDWIN G QUATTLEBAUM JR to Miss Betty Cummings, both of Rockford, Ill, May 19

MARSHALL QUENTIN BAKER to Miss Belle Claire Good, both of Chicago, June 24

EARL R. CARLSON to Miss Ilse Schneider, both of New Rochelle, N Y, June 13

## Deaths

William Chris Finnoff Ⓢ Denver, University of Colorado School of Medicine, Denver, 1912, secretary of the Section on Ophthalmology, American Medical Association, 1923-1931, and elected chairman in 1933, member of the American Academy of Ophthalmology and Oto-Laryngology and the American Ophthalmological Society fellow of the American College of Surgeons, formerly associate professor of ophthalmology at his alma mater, served during the World War, ophthalmologist to the Colorado General, Mercy and St Luke's hospitals, aged 43, died, June 10, of heart disease

Alvah Hunt Doty Ⓢ New York, Bellevue Hospital Medical College, New York, 1878, at one time lecturer on quarantine sanitation, University and Bellevue Hospital Medical College, for many years health officer of the port of New York, medical director of the Western Union Telegraph Company, 1913-1933, during the World War member of the subcommittee on welfare work of the advisory commission of the Council of National Defense, aged 79, died, May 27, at his home in Pelham, of cerebral hemorrhage

William Temperance Dodge, Reed City, Mich, University of Michigan Medical School, Ann Arbor, 1880, member and past president of the Michigan State Medical Society, fellow of the American College of Surgeons, formerly member of the state board of registration in medicine, served during the World War, at one time mayor of Big Rapids, for many years on the staff of the Mercy Hospital, Big Rapids, aged 74, died, June 8, of cardiovascular disease and cerebral hemorrhage

John Henry Thompson, Kansas City, Mo, College of Physicians and Surgeons in the City of New York, medical department of Columbia College, 1877, member of the Missouri State Medical Association, past president of the Jackson County Medical Society, fellow of the American College of Surgeons, aged 82 on the staffs of the Kansas City General Hospital and St Mary's Hospital, where he died, April 7, of heart disease

Elmer Elsworth Liggett Ⓢ Oswego, Kan, College of Physicians and Surgeons, Keokuk, Iowa, 1884, Bellevue Hospital Medical College, New York, 1893, fellow of the American College of Surgeons, past president, and chairman of the necrology committee, Kansas Medical Society, 1920-1930, past president of the Labette County Medical Society, aged 73, died, June 3, of carcinoma of the bladder

Clarence Van Reynegom Bumsted, Newark, N J, University of Pennsylvania School of Medicine, Philadelphia, 1907, member of the Medical Society of New Jersey, on the staffs of the Lake Placid (N Y) General Hospital, Presbyterian and Babies hospitals, Newark and the Essex Mountain Sanatorium, Verona, aged 55, died, May 27, of cerebral hemorrhage

George Farrar Patton, New Orleans, University of Bonn, Germany, 1876, professor of the practice of medicine, emeritus, New Orleans Polyclinic member, 1892-1896, and secretary, 1896-1906, Louisiana State Board of Health visiting physician since 1893, and registrar since 1906, Charity Hospital, aged 81, died, April 2, in the Mercy Hospital

William Henry Righter, Topeka, Kan, Jefferson Medical College of Philadelphia, 1879, member of the Kansas Medical Society, formerly lecturer on genito urinary diseases, Kansas Medical College, Medical Department of Washburn College, Topeka, aged 81, died, April 24, of pneumonia and dilatation of the heart

John Peter Zohlen Ⓢ Sheboygan, Wis Marquette University School of Medicine, Milwaukee, 1913, fellow of the American College of Physicians, president of the Sheboygan County Medical Society, president of the Sheboygan Clinic, aged 47, died, June 2, in St Nicholas Hospital, of agranulocytosis

William Francis Cooper, Newport News, Va, Bellevue Hospital Medical College, New York, 1879, member of the Medical Society of Virginia, formerly councilman, member of the school board and health officer, aged 78, died, May 21, in the Elizabeth Buxton Hospital, of coronary thrombosis

Ernst Thum Ⓢ Bayonne, N J, University and Bellevue Hospital Medical College, New York, 1900, fellow of the American College of Surgeons, visiting surgeon to the eye, ear, nose and throat department of the Bayonne (N J) Hospital and the Christ Hospital, Jersey City, aged 55, died, May 31, in the Neurological Institute of New York

Harry Charles McCarthy Ⓢ Richland Center, Wis, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903, past president and secretary of the Richland County Medical Society, served during the World War, aged 54, died, May 14, of pneumonia

William Moore Bogart, Chattanooga, Tenn, Bellevue Hospital Medical College, New York, 1889, member of the Tennessee State Medical Association, past president of the Chattanooga and Hamilton County Medical Society, aged 67, died, May 29, in the Erlanger Hospital, of erysipelas

Martha Perry, New Bedford, Mass, Woman's Medical College of Pennsylvania, Philadelphia, 1882, member of the Massachusetts Medical Society, for many years on the staff of the Morton Hospital, Taunton, aged 93, died, March 29, of hypostatic pneumonia and pleurisy

Leeming Carr, Hamilton, Ont, Canada, University of Toronto Faculty of Medicine, 1885, LRCS, LRCP, Edinburgh, L F P S, Glasgow, 1886, sheriff of Wentworth County, formerly minister without portfolio in the Ferguson Cabinet, aged 72, died suddenly, June 6

Ernest J Cather, Oakdale, La, University Medical College of Kansas City, Mo, 1903, member of the Louisiana State Medical Society, aged 56, died, May 27, in a hospital at New Orleans of adenoma of the prostate, chronic myocarditis and aneurism of the aorta

Mathias Hubert Cremer Ⓢ Red Wing, Minn, Kentucky School of Medicine, Louisville, 1891, Rush Medical College, Chicago, 1893, past president of the Goodhue County Medical Society, on the staff of St John's Hospital, aged 64, died, June 2, of heart disease

John Robert McLaughlin Ⓢ Elmira, N Y, University of Buffalo School of Medicine, 1928, served during the World War, aged 32, on the staff of St Joseph's Hospital where he died, April 22, as the result of injuries received in an automobile accident

Charles Cunningham Sr, Hammononton, N J, Jefferson Medical College of Philadelphia, 1894, formerly mayor, coroner, inspector for the board of health and school physician, aged 64, died, June 1, in the University of Pennsylvania Hospital, Philadelphia

John Vanderlaan Ⓢ Muskegon, Mich, University of Michigan Medical School, Ann Arbor, 1880, for many years member and president of the board of education, on the staff of the Hackley Hospital, aged 76, died, March 10, of cerebral hemorrhage

Olin Henry Jennings, Williamson, W Va Jefferson Medical College of Philadelphia, 1916, member of the West Virginia State Medical Association formerly member of the Public Health Council of West Virginia, aged 45, died, March 24

Albert Theodore Russell, Barnwell, S C, University of the South Medical Department, Sewanee, Tenn, 1909, member of the South Carolina Medical Association, aged 53, died, April 27, in the Baptist Hospital, Columbia, of nephritis and uremia

Milton Monroe Bauer Ⓢ Uniontown, Ohio, Long Island College Hospital, Brooklyn, 1880, past president of the Stark County Medical Society, aged 80, died, June 3, in the City Hospital Akron, of hypertrophy of the prostate and pulmonary edema

**Herbert Elwood Cary**, Minneapolis University of Michigan Medical School, Ann Arbor, 1882 formerly county coroner, aged 78, died, May 28 at his summer home near Farmerd, of hypostatic pneumonia, uremia and cardiac asthma

**Frank Ashmore**, Santa Ana, Calif., College of Physicians and Surgeons, School of Medicine of the University of Illinois 1914, member of the California Medical Association, aged 49, died, April 30, of bronchopneumonia and pyemia

**Elmer Floyd Coulston**, Kalgan Chahar, China, College of Medical Evangelists, Los Angeles, 1930, medical missionary, rector of the North China Sanitarium, for the Seventh Day Adventist Mission, aged 28, died, May 26, of diphtheria

**Charles B Duerson** Mount Sterling, Ky University of Louisville School of Medicine, 1891, past president of the Montgomery County Medical Society, aged 63, on the staff of the Mary Chiles Hospital, where he died, June 12

**David Luther Barnard**, Salt Lake City Northwestern University Medical School, Chicago, 1907 member of the Utah State Medical Association, aged 54, on the staff of St Mark's Hospital, where he died, May 21, of heart disease

**Walter Edward Beattie** Alexandria, Va Georgetown University School of Medicine Washington, D C 1929, secretary of the Alexandria City Medical Society, aged 29, died, June 9, in the Alexandria Hospital, of septicemia

**James Edward Pridgen**, Thomaston, Texas University of Texas School of Medicine Galveston, 1896 member of the State Medical Association of Texas, aged 62, died, May 7, in Cuero, of myocarditis and pulmonary edema

**Henry Woodbridge Thayer**, Bloomfield, N J Rush Medical College, Chicago, 1886 veteran of the Spanish-American War, aged 74, died, March 28, in the U S Veterans' Hospital, New York, of carcinoma

**William Albert Nason** Roaring Spring, Pa, Eclectic Medical Institute, Cincinnati, 1887, Rush Medical College Chicago, 1892, on the staff and formerly superintendent of the Nason Hospital, aged 71, died, April 29

**Charles Lee Austin**, Norman, Okla, University of Maryland School of Medicine, Baltimore, 1882 aged 73, died May 5 in a hospital at Oklahoma City, of myocarditis, following an operation for removal of the prostate

**Albert John Toering**, Brooklyn, Columbia University College of Physicians and Surgeons New York, 1900, member of the Medical Society of the State of New York, aged 54, died, May 13, of carcinomatosis

**William Paul McDavid**, Parchman, Miss Memphis (Tenn) Hospital Medical College, 1910, member of the Mississippi State Medical Association, aged 48, died, April 24, in St Joseph's Hospital, Memphis

**Henry Bayon** New Orleans, Tulane University of Louisiana Medical Department, New Orleans, 1888 professor emeritus of applied anatomy at his alma mater, aged 68, died, in April, of coronary thrombosis

**Thomas Joseph Dailey** Plymouth, Pa, University of Pennsylvania School of Medicine, Philadelphia, 1909 for many years on the staff of the Mercy Hospital, Wilkes Barre, aged 50, died, May 7, of carcinoma

**Isaac Posnansky**, New Orleans, Tulane University of Louisiana Medical Department New Orleans, 1904 aged 55 died May 8, in the Charity Hospital, of chronic myocarditis nephritis and diabetes mellitus

**Neil Lawrence O'Herrin**, Oak Park Ill, College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1912, aged 58, died, June 10, of heart disease and diabetes mellitus

**Charles Wilbur MacConnell**, Keansburg N J, Omaha Medical College, 1891, member of the Medical Society of New Jersey, aged 67, died April 23, of bronchopneumonia and arteriosclerotic heart disease

**Joseph Vadasz** Cleveland, University of Budapest and Royal Hungarian University of Science Hungary, 1909 aged 49, died, April 14 of perirectal cellulitis, pyelonephritis and gangrenous appendicitis

**Ross Merrill Gamble**, Albert Lea, Minn University of Minnesota Medical School, Minneapolis, 1922 member of the Minnesota State Medical Association, aged 37, died suddenly May 6 of heart disease

**Addison S Robertson**, Flemingsburg Ky, Hospital College of Medicine, Louisville, 1890, member of the Kentucky State Medical Association, aged 66, died, April 15 of angina pectoris

**Daniel C Mills**, New Lebanon, Ohio Medical College of Ohio Cincinnati, 1893, member of the Ohio State Medical Association bank president, aged 67, died, April 17, of heart disease

**Louis Edward Walsh**, Clarkdale, Ariz, University of Michigan Medical School Ann Arbor 1916 aged 50, died, April 6, in the Santa Fe Hospital, Los Angeles, of heart disease

**Charles Evans Morris**, Hartford Conn University of the City of New York Medical Department, 1891 aged 66 died May 20 of diabetes mellitus and carcinoma of the rectum

**Andrew Arthur Dechman**, Bridgetown, N S, Canada Dalhousie University Faculty of Medicine, Halifax, 1894 formerly mayor of Bridgetown, aged 72, died, April 21

**R Henry Hawkins**, Fallon, Nev (licensed in Nevada in 1924) member of the Nevada State Medical Association aged 76 died, February 19 of diabetes mellitus

**John Fletcher Taylor**, Buda, Ill Rush Medical College Chicago, 1895 served during the World War, aged 59, died, March 1, of pulmonary carcinoma

**Joseph Aloysius Moore** Philadelphia Jefferson Medical College of Philadelphia, 1902, pathologist to St Joseph's Hospital aged 53 died, May 24

**John Joseph Travis**, Northport, Wash Vanderbilt University School of Medicine Nashville, Tenn, 1881, aged 74 died April 8, of angina pectoris

**Benjamin Franklin Beardsley**, Hartford, Conn, University of Buffalo School of Medicine, 1865, aged 93, died, June 2, of arteriosclerotic heart disease

**Benjamin F Lockwood** Brooktondale, N Y, Hahnemann Medical College and Hospital, Chicago, 1885, aged 72 died May 15 of myocarditis

**Harriet M Turner**, Rochester, N Y Woman's Medical College of Pennsylvania Philadelphia, 1886, aged 81, died February 17, of myocarditis

**Charles Clifford True**, Port Clinton, Ohio, Homeopathic Hospital College, Cleveland, 1884, aged 83, died, February 12, of coronary thrombosis

**Karl John Fauth** Wellsburg, Iowa, State University of Iowa College of Medicine, Iowa City, 1925, aged 36, died, May 17, of pneumonia

**William Elzie Tyson**, Chula, Ga, Chattanooga (Tenn) Medical College, 1904, aged 55, died suddenly, March 6, of cerebral hemorrhage

**Martin McMahon**, Palmyra, Ill, Missouri Medical College, St Louis, 1885, aged 75, died, April 29, in Peoria, of chronic myocarditis

**George Augustus Post**, Chicago College of Physicians and Surgeons of Chicago, 1889, aged 74, died, April 1, of chronic myocarditis

**George Frederick Swinnerton**, Los Angeles Medical Department of Hamline University, Minneapolis, 1906, aged 65 died, May 2

**Grover Cleveland Miller**, Chipley, Fla, Georgia College of Eclectic Medicine and Surgery, Atlanta, 1910, aged 47, died April 7

**William Henry Mills**, Boonville, Ind, Medical College of Ohio, Cincinnati, 1880, aged 82, died, April 17, in Grand Rapids, Mich

**Joseph Eugene Brown** Cincinnati, Cincinnati College of Medicine and Surgery, 1892, aged 66, died June 5, of heart disease

**Wyatt Sanford Beazley** Richmond, Va Medical College of Virginia, Richmond, 1893, aged 65, died June 6, of heart disease

**Peter John De Pree** Grand Rapids, Mich Detroit College of Medicine, 1906, aged 59, died May 15, of cerebral hemorrhage

**Franklin Pierce Tilford**, Nebo, Ky, University of Tennessee Medical Department, Nashville, 1898 aged 81, died, in March

**Seymour Traynor**, Victoria, B C, Canada, University of Toronto Faculty of Medicine, 1905, aged 54 died, March 2

**Bruce Downing Parrish**, Mattoon Ill Louisville (Ky) Medical College, 1889, aged 67 died April 5, of heart disease

**John W Keckler**, Greenville Ohio (licensed in Ohio in 1896) aged 69 died May 9 of diabetes mellitus

**Berry Daniel Marshburn**, Wendell N C (licensed in North Carolina in 1885), aged 80, died March 30

## Correspondence

### IDIOSYNCRASY TO SALYRGAN

*To the Editor*—Dr L. J. Wolf's communication in *THE JOURNAL*, April 7, page 1177, describing two cases of fatal idiosyncrasy to salyrgan, has prompted me to refer to a third case which I had the misfortune to be responsible for. Early last year I had to treat a boy about 10 years of age who had rheumatic mitral stenosis and regurgitation. Edema developed. It was spreading and would not yield to ordinary diuretics and digitalis. The urine contained only a trace of albumin and there were no casts in the deposit. I gave him 0.5 cc of salyrgan diluted with 10 cc of double distilled water intravenously. The father of the boy reported to me next day that within less than five minutes of my departure after giving the injection the boy complained of sudden pain in the chest and collapsed. The boy had had no salyrgan before.

Prior to this accident I had given several intravenous injections of undiluted salyrgan without mishap. After reading a report in the *Proceedings of the Royal Society of Medicine*, London, about the danger of undiluted salyrgan given intravenously, I had before this unfortunate incident begun to dilute salyrgan. Subsequently too I have given many intravenous injections of diluted salyrgan and have had no trouble.

S. K. SUNDARAM, M.D. (Madras),  
King George Hospital, Vizagapatam, India

### DINITROPHENOL AND EXTERNAL HEAT

*To the Editor*—In following the cases in which the use of dinitrophenol has been reported, in *THE JOURNAL* and elsewhere, it has seemed to us that not enough emphasis has been placed on the regulation of the dosage with relation to the external temperature. A dosage of 300 mg daily has been given as reasonable by Tanter and others, when the patient has become habituated to the drug by lesser doses, starting at about 100 mg daily. From observation, we have come to believe that when the external temperature is above 80° F this dosage is likely to cause discomfort to the patient, with excessive sweating and a possible rise in body temperature. We would suggest that, during the time such temperatures prevail, the dosage be cut to about 50 per cent of what the individual tolerates well in cooler weather.

O. M. COPE, M.D.,  
HELEN C. COOMBS, Ph.D.,  
New York

Professor of Physiology and Physiological Chemistry and Assistant Professor of Physiology, respectively, New York Homeopathic Medical College and Flower Hospital.

### TREATMENT OF FRACTURES OF THE JAWS

*To the Editor*—In *THE JOURNAL*, May 19, page 1655, appears an article by Dr. Frederick B. Moorehead of Chicago on "A Better Method of Treating Fractures of the Jaws." The title implies that the author has something new to offer. The principle of the use of elastic traction in reducing fractures of the mandible has been employed for many years. Sauer wrote about this in Germany in 1889 and many others have done so since then.

In our book on "Fractures of the Jaws" Dr. Robert H. Ivy and I devote several pages to the use of elastic traction and give at least six illustrations of its use in actual cases.

I must take exception to two statements made by Dr. Moorehead. Early in his article he says "in fractures of the jaws

with displacement, immediate complete reduction is rarely possible." That is perfectly true if one does not begin treatment until two or three weeks after the injury, but in our nationwide experience we have been able to reduce completely the great majority of our fractures of the mandible with no anesthesia within seventy-two hours after the accident. There are, of course, some cases wherein treatment must be delayed and some cases that are not seen until many days after the injury. In these, elastic traction is definitely indicated.

The author writes later on that "fractures involving the ramus or condyle usually require no treatment. Displacement is rare." It has been our experience that condylar fracture almost invariably cause a perfectly definite deformity, familiar to those who see many such cases, and that, with the possible exception of fractures about the symphysis with loss of substance, this group is treated in the most careless manner, resulting many times in permanent deformity.

LAWRENCE CURTIS, M.D., D.D.S., Philadelphia

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

### HAY FEVER AND ASTHMA

*To the Editor*—About a year ago a patient came to me who suffered perennially with spring hay fever and only on occasion did she have asthma with it. The offending pollens were those of various grasses that come out around the last of May. The time was limited so I gave her (beginning of course with very dilute solutions) increasing doses of the pollen extracts every three days. About May 30 I had some three or four doses yet to give and therefore the amount given at this time was not very large. The day following this injection she developed hives and her lips became edematous. Her face was puffed. There was a slight asthma. Calcium gluconate was given intravenously and epinephrine subcutaneously. At the end of a week there was almost complete relief. It is surprising that she states that her symptoms as far as her hay fever is concerned were hardly noticed during the case, although she thought her asthma was worse. Since that time, even in the fall she states that in damp weather her asthma returns and she has occasional hives. Would I dare again inoculate her? Please advise treatment. Kindly omit name.

M. D. Illinois

ANSWER—From a perusal of this history it is evident that the symptoms noted were due to the injection on May 30 of the extract of grass pollens. It is true that they were slower in appearing than is usual, but the urticaria and asthma are typical of the systemic reaction that all too frequently follows the injection of pollen (and other protein) antigens. As the grass hay fever season, at least in the north and northeastern part of the United States, starts about the last week of May, it would have been better to give the highest dose just before this time. It is a general principle which should be strictly adhered to: to reach the maximum dosage just before the hay fever season begins, and then, if further treatment is given coseasonally, it is advisable to reduce the following dose to about one half or two thirds of this maximum dose and repeat this reduced amount during the pollinating season.

Most allergists give both preseasonal and coseasonal injections and many are also giving injections all the year round (perennial treatment of hay fever).

Systemic reactions will occur in spite of the greatest care but their incidence can be greatly diminished by individualizing the dosages for each patient. The best rule is to begin with a small amount and increase from 30 to 50 per cent with each injection, provided there are no reactions. However, if the site of injection shows a moderate local reaction it is better to repeat the last dose and increase more cautiously when no local soreness results. If there is a severe local reaction it is advisable to reduce the amount and then increase with great caution. A systemic reaction calls for an immediate injection of epinephrine hydrochloride (from 0.5 to 1 cc of a 1:1000 solution) followed in a few days by a lower dose of the pollen extract. No injections of pollen or other protein antigens should ever be given unless epinephrine is available for immediate use.

The value of the calcium gluconate used here is questionable. These symptoms will subside spontaneously and will be quickly helped in most cases by epinephrine.

It is well known that systemic reactions are often attended by an improvement in the symptoms of the patient this would be in accord with the lessening of the hay fever but would not explain the aggravation of the asthma. As to why the asthma returned even in the fall and as to why hives occurred should be answered by a thorough check up. The patient should be questioned closely as to any possible new contact e. g., a dog or cat new food new pillows or mattress or a change of cosmetics. In addition, complete skin tests should be carried out not only for pollens but also for epidermal foods and miscellaneous antigens such as orris root or cottonseed. It may be that she is susceptible to ragweed as well as to grass pollens. This would explain the fall symptoms. In any case injections again of grass pollen extract are strongly indicated and should be started at once, the precautions mentioned should be strictly observed. The fact that she had this systemic reaction shows extreme susceptibility and indicates the need of further treatment.

#### PREGNANCY AT FORTY

*To the Editor*—A woman patient came to my office the other day. She said she was 42 years old, she looked 30 years. She asked me if it was safe and possible for her to have a baby if she became pregnant. She is vigorous physically in good condition and used to exercise and work. She wants to be married and she wants a baby. What advice and information should I give her? Please omit name. M D New York.

*ANSWER*—There is no valid reason why this woman should not marry and try to have a baby. It is true that the risks of motherhood are greater in elderly primiparas but with good care during pregnancy and proper management during labor no serious mishap should occur. Should any untoward symptoms arise such as toxemia near term or should the patient have a moderate degree of pelvic contraction or a breech presentation it would be advisable to perform an elective cesarean section. In other words in a woman of 42 or more the indications for abdominal delivery should be extended but it is not necessary to perform a cesarean section simply because the woman is of advanced age.

#### KOILONYCHIA OR LATERAL SEPARATION OF NAILS

*To the Editor*—I have a patient about whom I would like to have some information. She is a woman of 35 years and is in perfect health. She is well nourished and has never had any serious illness. Recently she had a test made for tuberculosis the reaction was positive and a roentgenogram of the chest showed some old healed scars of tuberculosis and no evidence of active tuberculosis. The information I seek is about her fingernails. One or two of these show an unhealthy condition. The color is good but the layers of the nail seem to separate laterally rather than split lengthwise. Can you give me any information about this condition? W L LAMBERT MD Asheville N C

*ANSWER*—"Lateral separation" of the nails is assumed to mean splitting off in lamellae. This is a rare condition according to the literature though it may be commoner than thought because overlooked by physicians and not reported when seen. Only one report has been found in the literature that of Bering, whose patient was a single woman of 21 with chloranemia. Her nails (Bering, S F Zur Kasuistik der Nagelerkrankungen, *München med Wchschr* 50 1777, 1903) were spoon shaped (koilonychia) and split in lines convex toward the root of the nail the lamellar portions coming off painlessly during her work. The nail condition improved on application of adhesive tape in the depressions though in the light of more recent reports the improvement might easily have been due to treatment of the anemia.

Koilonychia may be caused by local trauma as that of nail biters or of coal handlers who grasp the coal bags with the finger nails. It is often due to the irritation of cleaning solutions and in other cases to eczema of the nail folds. Freezing of the fingers has also been held responsible. General disease notably hyperthyroidism, rheumatism anemia and particularly achylic chloranemia, may cause spoon shaped nails. A large percentage of cases, Cipollaro says 35 per cent are hereditary. Spoon nails have also been reported in syphilitic and neurasthenic persons and in patients with acanthosis nigricans and lichen planus, but the etiologic connection is doubted. Of many the etiology cannot be discovered.

The case cited in the query if it is a case of koilonychia seems to belong in the latter group. Removal of the irritation and the treatment of eczema and anemia have restored the nails to the normal condition in many cases. Unless some such etiology can be discovered care to see that the patient has a well balanced diet, including all the vitamins and that she protects her nails from injury particularly by avoiding roughness during manicuring and applies some only lotion or cream

to the nail folds after washing, may be of benefit. The adhesive tape treatment used by Bering might be tried. Tuberculosis may directly or indirectly cause many nail deformities. The same deformities may be due to many other causes.

#### SYPHILIS AND BLOOD TRANSFUSION

*To the Editor*—In case blood from a syphilitic patient is used in giving a blood transfusion, would the patient who receives the transfusion be likely to develop a chancre at the site of the transfusion? How would the blood Wassermann reaction be in the person who receives the transfusion? Would it become positive immediately? If not how soon after the transfusion would it become positive? How soon would the macular or maculopapular rash which usually requires about eight weeks to appear after the ordinary syphilitic infection appear after the transfusion? Has syphilis transmitted by blood transfusion been reported very often? Have any cases been reported in which a blood transfusion from a person actively syphilitic did not cause syphilis in the person who receives the transfusion? Please omit name.

M D Minnesota

*ANSWER*—In all probability, whether syphilis is transmitted from donor to recipient in the course of blood transfusion depends on the stage of syphilitic infection of the donor. There is great danger if the infection is recent, i. e., at any time from the actual date of infection, even before the appearance of a chancre, up to the time of spontaneous disappearance of untreated secondary lesions, and probably either continuously or at intervals for two to four years thereafter. There are numerous reported cases of syphilis transmitted by means of blood transfusion. Infection of the recipient may occur even if the donor's blood Wassermann reaction is negative if, for example the donor has seronegative primary syphilis at the time of the transfusion. The recipient would not be likely to develop a chancre at the site of the transfusion, and the reported incidences of so called transfusion syphilis have all been direct blood stream infections, the primary lesion being completely absent. The blood Wassermann reaction in a recipient would not become positive immediately but requires a period of from two to six weeks to attain positivity. The secondary rash usually appears from six to eight weeks after transfusion. So far as is known there are no reported instances of the recipient's having escaped infection provided the donor had an active early infection, in the sense and within the time limits outlined. If the donor has been infected for a number of years and whether or not he has active lesions at the time of transfusion the recipient may not be infected. W L McNamara (*Am J Syph* 9 470 [July] 1925) reports several instances in which emergency transfusions were performed with donors who were known to have late syphilis. The recipients were followed for some months after transfusion with clinical observation and repeated Wassermann tests, but no signs of infection developed.

#### KHAT HABIT AMONG ORIENTALS

*To the Editor*—I read in *Collier's Weekly* that at Yamen Arabia and in other towns the people buy a bunch of khat a native herb sometimes called the flower of paradise lie down on a rug and pillow in market places for the purpose and chew this khat which exhilarates them and that they do this daily before going to work. Would you inform me just what that herb is and under what name it is known in America?

F F YOUNG MD Covington La

*ANSWER*—Khat, *Catha edulis*, of the family Celastraceae, is a plant grown in Abyssinia, Arabia and Somaliland. The leaves are chewed or made into an infusion and drunk like tea by the natives of those districts. It is locally known as kat, khat chaat, kus es salahin, tchaad, tschut, tohat, tohai or gat.

The chewing of the leaves is said to produce a vague sense of stimulation, and the drinking of an infusion of powdered leaves is said to cause a feeling of fullness in the head. It has been suggested that the so called stimulating effect of small amounts can be felt only by those accustomed to the drug.

The limited experience in the United States with this substance does not justify an opinion as to its possessing habit-forming qualities. A perusal of the literature available however, reveals nothing which would suggest that the drug has narcotic characteristics.

No extensive pharmacologic investigations have been made respecting *Catha edulis*. As a matter of convenience, however, the following references have been reviewed.

- Mosso U *Riv clin* 30 65 1891
- Chevalier *Bull gen de therap* 1911 pp 161 and 572
- Stockman R *Pharm J* 1912 p 676
- Stockman R *J Pharmacol & Exper Therap* 4 251 1913

According to Stockman both the leaves and the wood of *Catha edulis* contain at least three alkaloids. These have been designated cathine, cathimine and cathidine. Cathidine is the



least important, because of its insolubility in water and the fact that it does not form soluble salts. The other two alkaloids are quite similar in action.

Cathine sulphate in large doses produces a marked depression accompanied by paralysis of the voluntary muscles. Smaller doses produce excitement and increase reflex excitability. The alkaloid cathine is less depressant than the alkaloid cathine.

The substance is not mentioned in any of the federal or state antinarcotic laws.

#### FAMILIAL ICTERUS GRAVIS

*To the Editor*—I have a patient who is five months pregnant and who gives a history of having had five children all severely jaundiced during the first week after birth. Three of these babies died during the first four or five days. The patient has two living children, both well in every way. Can you suggest a treatment that might help in this case?

C W LOCKHART M D Mellen Wis

**ANSWER**—This is an instance of habitual or familial icterus gravis, which is uncommon. Its etiology, according to such authorities as Pfannenstiel, Ylppo, Ibrahim and Reuss, is the same as that of icterus neonatorum simplex, except that the former is a malignant form. The exact cause is unknown. Occasionally intra-uterine toxic or infectious processes are concerned, but syphilis does not appear to be a causative factor. The disease affects full-term strong children more frequently than premature infants and the jaundice appears early, even a few hours after birth. The urine contains bilirubin, the stool is highly colored and the blood shows a pronounced anemia with strikingly rich, nucleated red blood cells. In some cases, hemorrhages are observed in the skin, mucous membranes, the bowel and the umbilicus. Frequently there are cerebral disturbances, motor stimulation, clonic or tonic convulsions, bulbar symptoms such as difficulty in swallowing or breathing and other symptoms. The prognosis is bad but some children recover. Unfortunately there is no specific treatment, but symptoms should be treated as they appear. Blood transfusions are helpful. No way has been found of treating an expectant mother during pregnancy to avoid this serious condition. Undoubtedly there is a hereditary predisposition in some cases. There is one case on record (Hilgenberg, F C *Monatschr f Geburtsh u Gynak* 70 261 [Sept] 1925) in which a woman gave birth to healthy children in her first marriage but in her second marriage she gave birth to six babies, all of whom developed icterus gravis and died as the result of it. If the child born of the present pregnancy has icterus gravis, it is best to instruct the patient in methods of contraception.

#### RELATION OF PREMATURITY IN CHILDBIRTH TO A FALL

*To the Editor*—A pregnant woman Oct 30 1933, fell into a hole and suffered a contusion of the leg. She later vomited and continued to do so for several days. November 13 jaundice developed which lasted until December 16 one week before she was delivered of a viable infant. In the child hemorrhagic disease of the newborn developed. This was successfully treated and the child is now growing normally. Three points in this interesting case come up for discussion: 1 Can jaundice be caused by trauma during pregnancy? It does occur I believe without that factor entering in. 2 The child was about three weeks premature. Could one ascribe its prematurity to a fall sustained almost two months before? 3 Is there any possibility that the hemorrhagic diathesis might be accounted for by the trauma sustained by the mother. Please omit name.

M D, Connecticut

**ANSWER**—1 Since the only apparent injury sustained by the patient from the fall was a contusion of the leg, the jaundice most likely did not result from the fall. However, if the patient suffered an injury to the liver it is possible for icterus to have developed as the result of this.

2 The prematurity almost certainly was not due to the fall. The only possibility of a relationship between the accident and the early onset of labor is that during the fall there was some damage to the placental site. Usually, however in such a case there is noticeable escape of blood from the uterus.

3 The jaundice in the mother and the hemorrhagic diathesis in the infant most likely have a common etiology or a definite relationship with each other. However, if the fetus in utero suffered direct injury from the fall, there may be some connection between the accident and the hemorrhagic diathesis. But direct injury to the fetus in utero is extremely rare.

If in the process of the fall the patient's abdomen struck the sides of the hole forcibly, damage to the child and the patient may have resulted. If, however, the abdomen did not come in contact with the sides of the hole during the fall it is hardly likely that any of the harmful effects noted after the fall can be attributed to the accident.

#### PROTECTION AFFORDED BY ANTITYPHOID INOCULATION

*To the Editor*—I have understood that in the U S Army, inoculation with triple typhoid vaccine for two successive periods of two or three years is believed to confer permanent immunity. May I ask what is the basis of this belief and whether in your opinion one would be justified in following this procedure in private practice beginning in childhood? Also is it established that one proved case of typhoid protects one for a lifetime against further attacks?

H G BULL M D Ithaca N Y

**ANSWER**—The belief that one or more courses of injection of triple vaccine will protect against typhoid rests on experience. A single course of such injections proved effective beyond doubt in the Great War. One certainly would be justified in following this procedure in private practice when there is obvious danger of typhoid infection. It cannot be stated that the protection given by any form of vaccination against typhoid is absolute and permanent, because an overwhelming infection might break down whatever resistance is present. It is stated on good evidence that, when a protected person does come down with typhoid, the disease is likely to be mild. The safest course would be to repeat the vaccination every third year if there is constant danger of infection, and, if an epidemic develops, revaccination should be practiced even if the time elapsed since the previous vaccination is less than three years.

After recovery from an attack of typhoid, the immunity is generally regarded as permanent or nearly so. Some statistics on this point show that, in cases of typhoid, special inquiry may bring out the history of a previous attack in about 2 per cent of the cases. Here it must be remembered that the immunity is effective only against the particular kind of organism causing the primary disease, that is to say, an attack of typical typhoid may not protect against paratyphoid or vice versa.

#### HAZARDS OF CEMENT INDUSTRY

*To the Editor*—I am desirous of obtaining information as to whether there are any particular industrial hazards connected with the manufacture and handling in industry of cement plaster and gypsum other than silicosis, burns and allergic dermatitis. I am interested in this from the point of view of insurance. Please omit name.

M D, Louisiana

**ANSWER**—A publication emanating from the U S Public Health Service (The Health of Workers in Dusty Trades. I Health of Workers in a Portland Cement Plant, Public Health Bulletin 176, 1928) ably presents the hazards growing out of exposure to cement. A few years ago the Retail Credit Company of Atlanta, Ga, published a small pamphlet discussing the hazards connected with gypsum. These two publications fully will supply information as to the hazard connected with these substances. Silicosis is not a highly probable result of exposure to the dust of the substances mentioned. The silica content of cement is low. The limestone used in the manufacture of cement is not likely to contain more than 4 per cent of free silica, but the shale in cement manufacture may contain as high as 40 per cent of free silica. Although silicosis is a possibility, the chest condition occasionally found among cement workers is more likely to be a noncharacteristic pneumoconiosis. The same is true of gypsum. "Plaster" is a loose term that may be applied to a variety of mortars and cements. Some plasters as used, may contain a high content of free silica. In addition to the industrial disorders mentioned in the query, a few other conditions may be specified as a possible occurrence in connection with the manufacture and application of cement, plaster and gypsum. Among others are temporary deafness connected with impacted cerumen, pneumoconiosis, furunculosis and an increased incidence of pneumonia and other respiratory diseases.

#### CHRONIC NEPHRITIS AS CAUSE OF FETAL DEATHS

*To the Editor*—I have a patient aged 21 who has had three pregnancies all resulting in stillbirths at eight months duration. At the last one which I attended the fetus was macerated and the placenta was small and somewhat irregular giving the appearance of numerous old infarcts. Examination reveals no abnormalities except a moderate laceration of the cervix. Wassermann tests of both her and her husband are negative. I would appreciate information as to possible causes of this condition and suggestions as to treatment. Kindly omit name.

M D New York

**ANSWER**—The description of this case is suggestive of chronic nephritis as the cause of the habitual fetal deaths at the eighth month. The patient's urine should be examined carefully not only for albumin and sugar but also microscopically for casts and blood cells. Even if the macroscopic and microscopic examinations fail to show any abnormalities, a number of tests of renal function should be performed. Not infrequently, even

When these tests indicate that there is nothing wrong with the kidney function, evidences of nephritis appear during pregnancy hence gestation is an excellent test of kidney function in women. Usually women who have kidney trouble in pregnancy show more and more damage to the kidneys in each successive pregnancy. The blood pressure is nearly always elevated in these cases.

If this patient has outspoken nephritis at the present time, she should not conceive again, at least not until she shows signs of considerable improvement. If, however, there is no evidence of kidney trouble and she becomes pregnant, the urine and blood pressure should be carefully controlled at frequent intervals. If no evidence of nephritis appears, it may be helpful to give potassium iodide and mercury preparations by mouth on empirical grounds. It is advisable to induce labor when the child is definitely viable.

#### VACCINE THERAPY IN UNDULANT FEVER

*To the Editor*—A boy aged 13 complained of headache and a tired feeling and showed slight loss of weight. The onset occurred about March 3, 1934. A diagnosis of undulant fever was confirmed by the agglutination test for *Alcaligenes abortus* in a positive titer of 1:320. Vaccine therapy with a National Drug Company product was started March 30, the initial dose of 4 minims (0.24 cc) being repeated every three days for three doses. Then 8 minims (0.5 cc) was given every three days for three doses and 15 minims (1 cc) every three days subcutaneously. Following the vaccine the temperature would rise to between 100 and 102 F the next day and fall to between 99 and 99.5 the next two days. Occasionally the temperature would reach normal for two days but when vaccine was given would rise again and remain elevated. It has reached normal only once for two successive days. Vaccine has been given regularly every three days 1 cc until May 8 when the temperature rose to 104.5 in two hours following injection of the vaccine with chill, vomiting and diarrhea and has remained around 100 and 101 the past two days. The patient has been at rest in bed. Kindly advise whether vaccine therapy should be continued until the temperature remains at a normal level. Kindly omit name and address.

M D Pennsylvania

*ANSWER*—A febrile reaction usually follows the injection of *Alcaligenes (Brucella) melitensis (abortus)* vaccine. This reaction is usually accompanied by an increase in the intensity of symptoms. When the dosage is increased to 0.5 or 1 cc a more marked general reaction frequently occurs. In most instances the injection of a like amount of vaccine three days later will not produce so marked a reaction. If a second marked general reaction should occur the dosage should be reduced to half of the amount that produced the reaction for at least two injections, after which the dosage may usually be increased without the development of severe reactions. Following the development of a marked general reaction, the fever usually declines over a period of several days. The response to vaccine therapy has been best in those patients who have experienced a rather severe systemic reaction following one of the vaccine injections. The average course of vaccine therapy requires approximately 10 cc of the vaccine.

#### AMEBIASIS

*To the Editor*—1. Are *Ameba endolimax nana* and *Giardia intestinalis* or *lamblia* considered harmless protozoa or could infection with them be responsible for cases of mucous colitis? 2. What is the difference between *Giardia lamblia* and *Giardia intestinalis*? 3. Is *Ameba coli* considered harmless or pathologic? Kindly omit name.

M D California

*ANSWER*—1. Almost all protozoologists and many clinicians believe that *Endolimax nana* and *Giardia lamblia* are not pathogenic. No critical studies of patients infested with them has furnished evidence to support the contention that the parasites are harmful. Nevertheless, several clinicians have attempted to correlate various signs and symptoms with their presence. There is practically no evidence that *Endolimax nana* is ever responsible for symptoms, and it is fair to say that until some one demonstrates pathologic lesions due to *Giardia lamblia* and a closer correlation is made between symptoms in general and the presence of the parasite, it should also be considered nonpathogenic. There is no evidence that either form is the cause of mucous colitis.

2. *Giardia lamblia* and *Giardia intestinalis* are synonymous.

3. There is no scientific evidence to support the contention that *Endamoeba coli* is a pathogenic form. It is widespread, and the common occurrence in perfectly healthy adults and the low correlation between its presence and definite symptoms that might be ascribed to it, together with a mass of experimental evidence, clearly indicates that the species is nonpathogenic.

The whole subject of amebiasis is most recently treated in Craig C. F. *Amebiasis and Amebic Dysentery*, Springfield, Ill. Charles C. Thomas 1934.

#### DIETS FOR THOSE ALLERGIC TO WHEAT

*To the Editor*—I am allergic or sensitive to wheat foods and to apples both of which cause prolonged headaches not always but often severe, and vague indescribable gastro-intestinal discomfort—especially wheat. For a number of years I have used rye, corn and rice combinations. I have found that different lots of rye vary in quality so that frequent experimentation is required to evolve attractive breads and pastries and the result is often not at all satisfactory. Can you advise me as to recipes, procedures and a source of supply so that I and others so unfortunately handicapped may secure palatable and slightly wheat free breads? My father was such a sufferer until in advanced years. My trouble developed severely at about the age of 50 and now at 57 seems to show signs of less severity.

H S BUCKINGHAM M D, Berwick Pa

*ANSWER*—For a full discussion of recipes, procedures and sources of supply for those who cannot eat foods that contain wheat the following references should be consulted:

Rowe Albert H. Food Allergy Philadelphia Lea & Febiger, 1931.  
Balyeat R. M. Egg, Wheat or Milk Free Diets with Recipes and Food Lists Philadelphia J. B. Lippincott Company.  
Pamphlet which will be mailed on request by Ralston Purina Company.

If the correspondent is certain that wheat causes symptoms, the question of desensitization against wheat by injections of increasing doses of wheat extract may well be considered. Results in such cases are usually excellent and most patients who could not eat wheat foods can do so with little or no discomfort after they have taken a course of such injections. It is much more difficult, however, to protect a baker who inhales wheat flour while working in the bakery.

#### ABSENCE OF UVULA AFTER TONSILLECTOMY

*To the Editor*—The question signed M D New York appearing May 26, page 1784 concerning the absence of the uvula following tonsillectomy in cases in which it had not been removed at operation was of interest to me as I have observed a similar disappearance in two cases. In both instances there had been slight injury to the posterior pillars causing irregular healing with stretching of the soft palate. As healing advanced the uvula could be observed disappearing within the substance of the soft palate until no evidence of the uvula remained in one case and but a slight projection in the other. As both the pharyngopalatinus and glossopalatinus muscles forming the pillars of the tonsils have partial origin from the soft palate any injury resulting in tension of these muscles may cause a stretching of the free border of the soft palate with shortening or disappearance of the uvula. Unless observed frequently following operation this gradual change in the uvula may not be noted and its absence not discovered until some later period.

A P TIBBETS, M D Washington D C

#### SIMULTANEOUS IMMUNIZATION

*To the Editor*—I am the only active practitioner in a county of some 5,000 people in Wyoming and incidentally the county health officer. It was necessary to inoculate for diphtheria and vaccinate for smallpox those children of school and preschool age who had not availed themselves of an opportunity for immunization against these diseases in previous county programs. It was at this time that your reply appeared as to whether or not more than one immunization could be done at one time. I was doing the two at the same time. In something like 250 cases in which both the vaccination and the inoculation were done there have been no untoward results in any way. One injection of the alum precipitated toxoid and the multiple intradermal prick scheme for the vaccination against smallpox constituted the routine.

WALTER E RECKLING M D Lusk Wyo

#### POLLENS IN NEW YORK AREA

*To the Editor*—In *Queries and Minor Notes* in THE JOURNAL June 2 you discuss Pollens in New York Area. Your correspondent would be interested to know that heavily wooded sections deep in the Adirondack Mountains especially those away from farm lands give relief from hay fever. It is also true that in both Algonquin and Timagami parks in Ontario relief may be obtained. Regarding New Hampshire many sections of the White Mountains other than Bethlehem are also fairly free from hay fever. The New Hampshire Development Commission at Concord will gladly send a list of hotels and resorts in the White Mountains. Information regarding Ontario may be obtained from the Department of Interior, Ottawa, Canada. The patient should chiefly avoid resorts near farms and clearings where many weeds are to be found.

M D New York.

#### DERMATITIS FROM 'ANGEL HAIR'

*To the Editor*—I have seen a case of dermatitis from the handling of 'angel hair'. I did not realize such reactions were so uncommon till I read the note by Dr. Taussig in THE JOURNAL (June 2, p. 1874). A girl aged 10 years had been engaged in decorating the Christmas tree with 'angel hair'. Ten days later her right hand became swollen, feverish and tender with vesicles on the dorsum and between the fingers which in the course of several days became blebs. The entire process subsided in about a week under ordinary medication and to date there has been no recurrence of similar symptoms.

PAUL V MCCARTHY M D Aberdeen S Dak.

## Council on Medical Education and Hospitals

### COMING EXAMINATIONS

**ALABAMA** Montgomery, July 10-13 Sec. Dr. J. N. Baker 519 Dexter Ave. Montgomery

**AMERICAN BOARD OF OPHTHALMOLOGY** Chicago Sept 8 Application must be filed sixty days prior to date of examination Sec. Dr. William H. Wilder 122 S. Michigan Blvd. Chicago

**AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY** Written (Group B candidates) The examination will be held in various cities of the United States and Canada Nov. 3 Sec. Dr. Paul Titus 1015 Highland Bldg. Pittsburgh

**CALIFORNIA** San Francisco July 9-12 and Los Angeles July 23-26 Sec. Dr. Charles B. Pinkham 420 State Office Bldg. Sacramento

**CONNECTICUT** Regular Hartford July 10-11 Endorsement Hartford July 24 Sec. Dr. Thomas P. Murdock 147 W. Main St. Meriden

**HOMEOPATHIC** New Haven, July 10 Sec. Dr. Edwin C. M. Hall 82 Grand Ave., New Haven

**DISTRICT OF COLUMBIA** Washington July 9-10 Sec. Commission on Licensure Dr. W. C. Fowler 203 District Bldg. Washington

**MASSACHUSETTS** Boston July 10-12 Sec. Board of Regs. in Medicine Dr. Stephen Rushmore 144 State House Boston

**NATIONAL BOARD OF MEDICAL EXAMINERS** The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Sept. 12-14 Ex. Sec. Mr. Everett S. Elwood 225 S. 15th St. Philadelphia

**NEVADA** Reciprocity Carson City Aug. 6 Sec. Dr. Edward E. Harmer Carson City

**PENNSYLVANIA** Philadelphia and Pittsburgh July 10-14 Sec. Board of Medical Education and Licensure Mr. W. M. Denison 400 Education Bldg. Harrisburg

**SOUTH DAKOTA** Rapid City July 17-18 Dir. Division of Medical Licensure Dr. Park B. Jenkins Pierre

**WASHINGTON** Basic Science Seattle July 16-17 Medical Seattle, July 19-21 Dir. Department of Licenses Mr. Harry C. Huse Olympia

**WEST VIRGINIA** Wheeling July 9 State Health Commissioner Dr. Arthur E. McClue Charleston

### Oklahoma March Report

Dr. J. M. Byrum, secretary, Board of Medical Examiners, reports the written examination held in Oklahoma City, March 13-14, 1934. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. Ten physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Rush Medical College		(1932)	88
University of Louisville School of Medicine		(1931)	88
St. Louis University School of Medicine		(1932)	85
Baylor University College of Medicine		(1933)	85*
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Northwestern University Medical School		(1925)	Mississippi
Rush Medical College		(1929)	Illinois
State University of Iowa College of Medicine (1919)		(1928)	Iowa
University of Michigan Medical School		(1926)	Michigan
University of Pittsburgh School of Medicine		(1930)	Penna.
Meharry Medical College		(1931)	Tennessee
University of Tennessee College of Medicine		(1932)	Tennessee
Vanderbilt University School of Medicine		(1929)	Tennessee
University of Texas School of Medicine		(1931)	Texas

\* License withheld pending completion of internship

### California Reciprocity and Endorsement Report

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports 26 physicians licensed by reciprocity and 5 physicians licensed by endorsement from Jan. 25 to March 8, 1934. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Colorado School of Medicine		(1932)	Colorado
George Washington University School of Medicine (1927) New York		(1924)	Dist. Colum.
Chicago College of Medicine and Surgery		(1916)	Illinois
Northwestern University Medical School		(1920)	Arizona
Rush Medical College		(1924)	Penna.
University of Illinois College of Medicine		(1931)	Illinois
State University of Iowa College of Medicine		(1927)	Iowa
University of Kansas School of Medicine (1931) Kansas		(1914)	Illinois
Harvard University Medical School (1926) Minnesota (1924) North Dakota		(1922)	Mass.
University of Michigan Dept. of Medicine and Surgery		(1908)	Michigan
University of Minnesota Medical School (1932) Minnesota		(1929)	N. Dakota
Washington University School of Medicine (1932) Louisiana		(1926)	Missouri
Creighton University School of Medicine (1929)		(1930)	Montana
Syracuse University College of Medicine		(1922)	New York
Cleveland College of Physicians and Surgeons		(1900)	Ohio

Eclectic Medical College  
Jefferson Medical College of Philadelphia  
(1926) Connecticut  
University of Texas School of Medicine

(1929) O.  
(1916) Wa. Ling.  
(1932) Tex.  
Year Endor-  
Grad of  
(1931) U. S. A.  
(1927) N. B. M. E.  
(1930) N. B. M. E.  
(1923) U. S. A.

School LICENSED BY ENDORSEMENT  
College of Medical Evangelists  
Harvard University Medical School  
Univ. of Pennsylvania School of Medicine (1923)  
McGill University Faculty of Medicine

## Book Notices

**Heredity and Environment Studies in the Genesis of Psychological Characteristics** By Gladys C. Schwesinger. Edited by Frederick Osborn. Cloth. Price \$4. Pp. 484 with illustrations. New York: Macmillan Company, 1933.

The author states in the preface that "this volume was prepared as part of an attempt to appraise the present status of knowledge in the field of eugenic research." The result is a fairly complete analytic survey of the studies of personality, the influence of heredity and environment and the means whereby these factors may be evaluated. Almost a third of the book is devoted to a description of the origin and development of various tests of intelligence and personality in general use. These tests are being constantly modified to meet changing conditions in different environments. Granted, the author says, all the drawbacks of language, social position and predilections as to success, the psychologist still offers the scores of mental tests as the best single evidence obtainable on the intelligence of human beings. Of considerable interest and importance are the studies of F. N. Freeman of tests of intelligence and personality in various members of the family living together and separated, of siblings at home and in orphanages and in particular of fraternal and identical or enzygotic twins. This offers as fertile a field for the study of the respective influence of hereditary and environment as has so far been presented. Some of the results have been corroborated by recent studies of diabetes and peptic ulcer and of moral (in the broad sense) tendencies in identical twins. Prevailing notions of the effect of disease and undernutrition on intelligence advanced by overzealous public health officials will require revising. There is no question about the effect on the intelligence quotient of disease conditions affecting the brain but the author quotes sufficient opinions showing that the former have no effect on these tests. The last section reviews studies of the modern tendencies in psychology and constitution offered by Kretschmar, Spranger, Watson, Freud, Jung, Adler and many others. New light may be thrown on personality by work such as Healy is doing in child guidance and of students of behavior of infants. Here and there sober criticism is offered by the author. It is an excellent compendium and has a large bibliography.

**La sténose hypertrophique du pylore chez le nourrisson** Par J. Poulet. chirurgien des hôpitaux de Marseille. Paper. Price 20 francs. Pp. 108 with 16 illustrations. Paris: Masson & Cie, 1934.

This pocket sized volume is one of the practical medicine series being published at present in France. It is a complete well planned and well written as well as not too lengthy or verbose monograph on congenital pyloric stenosis. Not only is this condition discussed in its entirety from the medical standpoint, but the surgical aspect is considered at length. The plan of the book is similar to others of the same character. In eight chapters it discusses after a historical introduction the etiology, pathology, symptoms, methods of diagnosis (clinical, laboratory and radiologic) course, complications and treatment of the condition. The work is based on the personal experiences of the author as well as on the recent literature. A working bibliography of which is provided. Particular emphasis is placed on roentgen diagnosis as well as on its use in placing the indication for treatment. If less than 50 per cent of the barium mixture given the infant passes out of the stomach in three and a half to four hours the condition is surgical. As a matter of fact the author favors surgical treatment for congenital pyloric stenosis. Early diagnosis, early operation is the message of the book.

**The Merck Manual of Therapeutics and Materia Medica. A Source of Ready Reference for the Physician.** Sixth edition. Cloth. Price \$2 1p 13/6. Rahway, New Jersey: Merck & Company, Inc. 1934.

The fifth edition of this book appeared in 1923. The present edition has been expanded to include modern developments. New sections have been added on many subjects in which particularly therapy has advanced; moreover therapeutics has been expanded to include also prophylaxis, general treatment and psychotherapy. As the volume is now made up its pages include more than 1,200 devoted to therapeutics and the remaining 170 to laboratory techniques, dosages, materia medica, and a considerable amount of miscellaneous tabular data and similar information. In the section devoted to therapeutics, disease and disease conditions are alphabetically arranged. Under each heading there is a definition, followed by discussions of etiology, diagnosis, symptoms and treatment. There are many useful tables of differential diagnosis.

In the compilation of the work most of the leading textbooks on medicine and also leading textbooks in each of the specialties have been consulted. Dr. Bernard Fantus, professor of therapeutics in the University of Illinois College of Medicine, is responsible for the outline of therapeutics. A book of this kind obviously suffers to some extent in comparison with other textbooks on therapeutics by its emphasis on the proprietary products of the manufacturer who puts the book out. Thus, the section devoted to materia medica is largely a list of U. S. P. and Merck preparations, products of other manufacturers are merely indicated without reference to the name of the manufacturer. This occurs, for example, in relationship to such products as carbarsone and dilaudid. Perhaps, however, a distinct advance is indicated in the fact that products of other manufacturers are mentioned at all. The book is limited largely, if not almost wholly, to materials included in New and Nonofficial Remedies, with occasional exceptions, as in the case of pyridium which was however, once in N. N. R.

With minor restrictions this manual may be approved as one of the most useful guides to therapy thus far available. For a doctor who simply must treat the patient in many instances if only to hold the patient, its usefulness is apparent. Not only is the philosophy of therapeutics covered, but there are also innumerable specimen prescriptions indicating specifically the manner in which drugs are to be prescribed. The section on diphtheria taken as an example, is a fine indication of the way in which medicaments may be helpful in keeping the patient comfortable as well as in its directions for use of the specific methods that are necessary in this disease. The book is printed on thin paper in easily readable type. Altogether, it supplies a vast amount of exceedingly useful and practical data at a low price. It is a *vaude mecum* that a physician will want to keep on his desk and to carry about with him in his handbag.

**Oxidation-Reduction Potentials in Bacteriology and Biochemistry.** By L. F. Hewitt, Ph.D., B.Sc., A.I.C., Biochemist at the Belmont Laboratories, Sutton, Surrey, London County Council. Second edition. Paper. Price 2s. Pp. 81 with 26 illustrations. London: P. S. King & Son Ltd. 1933.

This small book is divided into five chapters. In chapter I the author would define life as a continuous oxidation-reduction reaction. To study such systems and to express the results in quantitative terms is the object of the book. The problem is essentially concerned with the energy necessary for the growth and existence of organisms and the search for a quantitative method to study reversible oxidation-reduction systems. Electrode potential measurements have proved exact and useful. Preliminary to the actual measurements, oxidation and reduction are discussed in the narrow meaning of the term and also in the wider electrotonic concept of atomic constitution. In the latter oxidizing properties are due to a tendency to part with electrons, reducing properties to a tendency to take up electrons. Chapter II is concerned with the practical methods of measuring potential differences. The indicator methods and direct electrometric determination are considered. The reasons for each step with the advantages, disadvantages, limitations and difficulties are discussed. Chapter III deals with systems of special biologic interest in which sulphhydryl compounds and some naturally occurring pigments have been studied. The

potentials of tissues and cells have been examined and the application of potential differences in the study of cell physiology have been explored. Chapter IV is concerned with bacteriologic applications and contains one third of the subject material of the book. The behavior of the peroxide-forming bacteria is different from the catalase-containing organisms. Some of the peroxide-forming bacteria are, however, deficient in other enzymes than catalase. The reducing conditions in bacterial cultures are regarded as a necessary result of metabolic activities rather than being due to the explosive liberation of reducing substances from the cells. Chapter V, of about two pages, is given to a general conclusion in which the author is sane, conservative and optimistic. Encouraging progress has been made by the use of the oxidation-reduction potential methods, especially in the realm of bacteriology. The book is valuable for laboratory workers with some training in physical chemistry, though it may be read with profit by the average physician. It contains a large list of references by about 150 different authors and is a reliable and stimulating presentation.

**Certain Samaritans.** By Esther Pohl Lovejoy, M.D., General Director of the American Women's Hospitals Service. Second edition. Cloth. Price \$3.50. Pp. 344 with illustrations. New York: Macmillan Company. 1933.

Against a lurid background of postwar fighting in the Near East, Dr. Lovejoy has painted a vivid picture of a great piece of medical work and a great piece of women's work. The American Women's Hospitals were organized during the World War as the challenge of America's women physicians, who found themselves without a place in the war plans of the government. Arriving in France too late to see much action before the armistice, they nevertheless rendered some fine service in the war-torn areas of France but found their greatest field later in alleviating the suffering of the innocent bystanders in that great war game, the Christian populations of Turkey and to a lesser extent the Moslem population of Greece. The story is well told, and no opportunity is lost to hold up the utter inhumanity and the cynical cruelty of war. In the old hospital at Scutari where Florence Nightingale gave the first great impetus to modern nursing, the Women's Hospitals ministered to the refugees, while below on the shining Bosphorus, within sight and hearing of these pitiful human wrecks, great liners swung at anchor, the music of their dance orchestras mocking the suffering so near yet never touching them. Not only in the Near East but in Japan as well, the American Women's Hospitals have served, and now they are beginning to render service in remote areas of the United States, with especial reference to maternity and child welfare. The story is an eloquent record of a great piece of work efficiently and gallantly done. Not least among the constructive achievements is the training given to native personnel wherever they went. Intensely earnest as the book is, the laughs that often crowded close to the tragedies have not been missed. For Americans, far removed from danger or want perhaps the most pertinent lesson in the book is that medical services can be rendered adequately without elaborately expensive surroundings. The book will be a worthwhile addition to any library.

**L'année thérapeutique. Médications et procédés nouveaux.** Par le Dr. A. Ravina. Huitième année 1933. Paper. Price 18 francs. Pp. 192. Paris: Masson & Cie. 1934.

This volume like its predecessors, is replete with interesting abstracts from the current literature, giving special prominence of course, to innovations reported in French medical periodicals. A few of the items of interest are the treatment of chronic alcoholism and delirium tremens by injections of emetine hydrochloride (0.02 Gm.), the analgesic value of intradermal injections of distilled water into tender areas, atropine in large doses (2 mg. and more) in the treatment of parkinsonism and the treatment of fistulas by sclerosing injections of quinine ethyl carbamate or sodium salicylate. It is stated that hemorrhages in the mouth can be promptly checked by application of meat from a bird such as a pigeon or a chicken slaughtered at the time of use. The antidotal value of sodium nitrite against potassium cyanide poisoning is discussed. Gelatinotherapy in the treatment of empyema, is the injection of 2 per cent of gelatin in physiologic solution of

sodium chloride to which 1 2,000 of an antiseptic such as acriflavine hydrochloride, is added. A resuscitation by intracardiac injection of 0.3 mg of atropine sulphate is reported. In vitiligo, ultraviolet irradiation is combined with rubbing a 10 per cent solution of oil of bergamot in alcohol into the white spots, the plaques turn a bright red, which color persists for some time. Intravenous injections of acriflavine hydrochloride as well as of methylthionine chloride are employed in connection with irradiation in the treatment of this condition. In the pernicious vomiting of infants, intramuscular injections of maternal blood have given good results. It may be of interest to note that 33 per cent alcohol has been injected intravenously in doses ranging from 6 to 45 cc, with alleged benefit to patients suffering from pneumonia, bronchopneumonia and pulmonary abscess. It is stated that sodium amytal lessens reactions following lumbar puncture. In leukemia and Hodgkin's diseases general teleroentgenotherapy is recommended. The mentioning of these few items, picked at random, may serve to suggest that American physicians who can read French would profit by the perusal of this therapeutic annual.

## Medicolegal

**Malpractice Volkmann's Contracture Attributed to Improper Bandaging**—The plaintiff, a 7 year old boy, sustained a supracondylar Y-shaped fracture of his right humerus. The defendant physician set the fracture and "used adhesive tape at the wrist and on the outside of the arm to hold it in position, no tape going clear around at either place, but just to give support for a piece of tape to go over the shoulder and hold the hand up to the chest." By observing the radial pulse in the injured arm, the physician found it was not as strong as that in the other arm, so he cut the tape and lowered the arm a little until the radial pulse in both arms was the same. The arm was then supported in a loose sling. The next day the patient was taken to a hospital and, with the aid of a fluoroscope, the fracture was reset. The arm was then taped up as before. After three days the swelling began to recede and a 99 per cent reduction of the fracture was obtained. Later a Volkmann's contracture developed and the plaintiff, by his father as next friend, brought suit against the defendant-physician. It was alleged that the defendant negligently bandaged the arm and elbow so tightly that it stopped all circulation in the arm, causing ischemic paralysis, followed by Volkmann's contracture. There was a judgment for the physician and the plaintiff appealed to the Supreme Court of Nebraska.

The burden of proof, said the Supreme Court, in a malpractice case is on the plaintiff to prove negligent treatment and that such negligence was the proximate cause of the injury complained of. When a case demands the employment of scientific technic of which a layman can have no knowledge, then such negligence must be proved by expert witnesses. The medical experts called by the plaintiff did not point out any particular wherein the technic used by the defendant-physician was wrong. One witness stated that while it was thought in the profession that tight bandaging might cause Volkmann's contracture, yet it sometimes occurred when there was no bandaging at all. Medical experts called by the defendant testified positively that the Volkmann's contracture was caused by the fracture itself and that the bandaging had nothing to do with it. In the trial court, medical books were used in the examination of experts, and quotations from them were embodied in the questions put to the experts. While medical books, said the court, are not admissible as independent evidence of the opinions expressed therein if an expert has based his opinion on a particular authority, then a paragraph from such authority can be read in evidence to contradict the witness.

The Supreme Court concluded that the trial court had committed no reversible error in the admission of evidence and that the verdict of the jury was fully warranted. It accordingly affirmed the judgment in favor of the defendant-physician.—*11 Inters - Rance (Neb) 251 N W 167*

**Medical Practice Acts Board's Denial of Reciprocity License Upheld**—Maximilian L. Herzog applied to the California board of medical examiners for a reciprocity license to practice medicine, based on a license issued to him after examination, by the board of medical examiners of Nevada. The application being denied, Herzog petitioned the superior court, Los Angeles County, for a writ of mandate to compel the board to issue the license. From a judgment denying the petition, he appealed to the district court of appeal, second district, division 1, California.

In his application for a reciprocity license, filed Oct 2, 1929, Herzog stated that he had spent six years in the study of medicine and surgery, to wit, from September 1909 to and including July 1913 at the National Medical University of Chicago, from October 1916 to Feb 3, 1919, at the St Louis College of Physicians and Surgeons, and from the fall of 1924 to the fall of 1925 at the Royal University of Naples, Italy, that he had received the degree of doctor of medicine from each school, that his application for a reciprocity license in California was based on a license to practice medicine in Nevada, dated Nov 10, 1925, issued after written examination, and that he was also licensed to practice medicine in the states of Washington and Texas.

The record in this case shows, said the district court of appeal, that on Feb 18, 1924, the California state board of medical examiners refused to recognize credentials of any nature from the National Medical University of Chicago and from the St Louis College of Physicians and Surgeons. Petitioner Herzog was, therefore, unable to comply with the provisions of the medical practice act of California, which require an applicant to file "a diploma or diplomas issued by some legally chartered school or schools approved by the board, the requirements of which school or schools shall have been at the time of granting such diploma or diplomas in no degree less than those required under this act." Under these circumstances, concluded the court, there was no abuse of discretion either on the part of the board of medical examiners in refusing to issue the certificate or on the part of the trial judge in refusing to grant the petition for writ of mandate. The judgment of the superior court was therefore affirmed.—*Herzog v Board of Medical Examiners of State of California (Calif), 26 P (2d) 513*

**Malpractice Liability for Physician's Neglect in Treating Compensation Case**—If a physician, who is employed by a subscriber to the workmen's compensation fund of West Virginia to render medical and surgical aid and treatment to its employees, is so unskillful and negligent in his treatment of an employee, injured in the course of employment, that the injury is thereby aggravated, such aggravation constitutes a part of the original injury for which the employer is liable under the workmen's compensation act. No independent action is maintainable against the physician. The services rendered by the physician were in furtherance of the employer's business, under express authority of employment, and the acts of the physician are the employer's acts.—*Hunkelman v Wheeling Steel Corporation (W Va), 171 S E 538*

## Society Proceedings

### COMING MEETINGS

American Association of Railway Surgeons Chicago August 20-22  
Dr Louis J Mitchell 21 East Van Buren Street Chicago Secretary  
American Ophthalmological Society Lucerne in Quebec Canada July 9-11  
Dr J Milton Griscom 2213 Walnut Street Philadelphia Secretary  
Minnesota State Medical Association Duluth July 16-18 Dr E A Meyerding 11 West Summit Avenue St Paul Secretary  
Montana Medical Association of Helena July 11-12 Dr E G Balsam Box 88 Billings Secretary  
National Medical Association Nashville Tenn August 13-18 Dr C A Lanon 431 Green Street South Brownsville Pennsylvania General Secretary  
New Mexico Medical Society Las Vegas July 19-21 Dr L B Cohenour 219 West Central Avenue Albuquerque Secretary  
Pacific Coast Oto Ophthalmological Society Butte Mont July 16-18  
Dr F C Cordes Fitzhugh Building San Francisco Secretary  
Pacific Northwest Orthopedic Association Seattle Sept 1 Dr J C Brugman 1245 Fourth Avenue Seattle Secretary  
Wyoming State Medical Society Casper July 16-17 Dr Earl Whedon 50 North Main Street Sheridan Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk ( \* ) are abstracted below.

#### Alabama Medical Association Journal, Montgomery

3 361 392 (May) 1934

The Jerome Cochran Lecture. Present Trends in the Study of Rheumatic Fever and Rheumatoid Arthritis. R. I. Cecil. New York—p. 361.

The Physician as Scholar and Statesman. J. R. Carber. Birmingham—p. 370.

Allergy as Direct Etiologic Factor in Malignant Granulopenia. Clinical Study Based on One Fulminant Case. E. C. Fonde and G. H. Fonde. Mobile—p. 375.

Successful Repair of Stenson's Duct. Report. R. C. Hill. York—p. 381.

#### American Journal of Diseases of Children, Chicago

47 945 1178 (May) 1934

Spreading in a Monomolecular Film. Method for Studying Biologic Problems. E. Gorter. Leyden, The Netherlands—p. 945.

\*Incidental Hyperguanidinemia as a Cause of Clinical Tetany. Katharine Dodd and A. S. Minot. Nashville, Tenn.—p. 958.

Growth and Basal Metabolism. I. Basal Metabolism of Preschool Children. I. Nakagawa. Tokyo, Japan—p. 963.

Obstructive Laryngitis. Critical Analysis of Three Hundred and Fifty Two Cases. E. S. Platou and H. Hilleboe. Minneapolis—p. 970.

Effect of Varying Sugar Intake on Nitrogen, Calcium and Phosphorus Retention of Children. Rebecca B. Hubbell and Martha Koehne, assisted by Elise Morrill and Bo Prytz. Ann Arbor, Mich.—p. 988.

Blood Cells in Healthy Young Infants. I. Leukocytic Picture During the First Three Months with Especial Reference to Hourly and Daily Variations. A. H. Washburn. Denver—p. 993.

Atelectasis and Bronchiectasis in Children. Study of Fifty Cases Presenting a Triangular Shadow at the Base of the Lung. W. E. Anspach. Chicago—p. 1011.

Composition of Private Pediatric Practice. Method for Keeping Adequate Clinical Records. C. A. Aldrich. Winnetka, Ill.—p. 1051.

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are frequently seen at necropsy, persistent consolidation or collapse of a supernumerary lobe in the region of the cardio-hepatic angle is rare. The smallest shadows were found to represent a regular lower lobe. 3 Necropsies of infants in whom the triangular shadow was present during life did not show dilated bronchi, but in children who continued to live changes in the triangular shadow appeared later, and bronchiectasis developed. 4 If air entered the collapsed lobe early, the triangular shadow fluctuated in size and was larger and less dense in proportion to the amount of inflation. If postural drainage was instituted early, these fluctuating triangular densities, even though present for years, did not always bring about bronchial dilatations. The triangular shadow is not "pathognomonic of bronchiectasis." 5 If the triangular shadow fails to fluctuate, bronchial dilatations may develop within a few months, but frequently the process covers a period of years. 6 These triangular patterns, when outlined by opaque oils, are frequently seen in adults with bronchiectasis and appear to be acquired rather than congenital. 7 The prognosis can be more accurately determined by observing the behavior of these shadows at successive roentgen examinations. 8 Atelectasis precedes and plays a prominent and most constant part in the development of a common form of bronchiectasis of the lower lobe. 9 The most common form of bronchiectasis in children is an acquired process. 10 Early and frequent drainage of the bronchi is essential if the development of bronchiectasis is to be avoided.

#### American Journal of Hygiene, Baltimore

19 540 768 (May) 1934

Routine Postmortem Removal of Liver Tissue from Rapidly Fatal Fever Cases for Discovery of Silent Yellow Fever Foci. F. L. Soper, E. R. Rickard and P. J. Crawford. Bahia, Brazil—p. 549.

Microscopic Examination of Twenty Nine Thousand Five Hundred and Ninety Three Human Livers from Central and Northern Brazil with Especial Reference to Occurrence of Malaria and Schistosomiasis. N. C. Davis. Bahia, Brazil—p. 567.

Hookworm Disease in Coastal Plain of Palestine. A. J. Scott. G. E. Ayoub and R. Reutler. Jaffa, Jerusalem—p. 601.

Investigation of Incidence and Intensity of Infestation of Hookworm in Mississippi. A. E. Keller. W. S. Leathers and H. C. Ricks. Nashville, Tenn.—p. 629.

Distribution and Epidemiology of Human Ascariasis in the United States. G. F. Otto and W. W. Cort. Baltimore—p. 657.

Incidence of Intestinal Protozoa with Especial Reference to Epidemiology of Amebiasis in Population of Fresno, California. J. Andrews. Fresno, Calif.—p. 713.

Comparative Study of Susceptibility to Diptheria in White and Negro Races. J. B. Black. Baltimore—p. 734.

The Dick Test in White and Negro Children Resident in a Congested Section of Cleveland. H. H. Pevaroff and Sarah M. Hindman. Cleveland—p. 749.

Preliminary Study of Correlations on Measurements on Men and Women Students at Claremont Colleges. M. L. Hsley. Claremont, Calif.—p. 753.

Influence of Epidemic of 1918 on Deafness. Study of Birth Dates of Pupils Registered in Schools for the Deaf. F. Heider. Northampton, Mass.—p. 756.

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- The Impermeability of the Placenta to Prolan B S D Soule St Louis—p 723
- Racial Geographic Annual and Seasonal Variations in Birth Weights L Bivings Atlanta Ga—p 725
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- Hypertension Six Weeks Post Partum in Apparently Normal Patients M L Stout Baltimore—p 730
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#### Serum Calcium and Phosphorus During Pregnancy—

In order to determine the extent of the changes occurring during the course of pregnancy, Mull and his associates made oral examinations at intervals of six weeks on 358 pregnant patients 215 of whom returned for the final postpartum check-up. Only fifty-four, or 15 per cent, of the prenatal cases showed any evidence of dental change during the period of observation. Of the 215 examined post partum only thirteen, or 6 per cent, showed evidence of change with a total of sixteen incidences. A study of the serum calcium and phosphorus was made during this same period on forty-nine of the fifty-four patients who showed some evidence of dental change. Only fourteen of the calcium determinations failed to fall within the range for that interval of pregnancy in which they were made. Seven of these fell above the range and seven below. The twenty phosphorus determinations that fell outside the range were also equally distributed, ten above and ten below. Vomiting has been considered a possible cause of tooth destruction. Of the fifty-four patients who showed active tooth decay, exactly half experienced vomiting in various degrees, while the others were free from it. On the other hand, 60 per cent of all the patients observed had vomiting, although only 15 per cent of the total showed active tooth decay. Vomiting cannot, therefore, be considered a primary cause of caries. The possibility of an acid mouth was also considered, but since there was no demonstrable increase in the titrable acidity of the mouth during pregnancy acidity was ruled out. The authors' conclusion is that there is no direct relation between the teeth and the serum calcium and inorganic phosphorus levels during pregnancy.

**Method for Measurement of Engaged Head—Hanson,** in determining the size of the engaged head limits the measurements to the vertex, since the shadow of the occipitofrontal diameter is subject to distortion due to the inclination of the head along the pelvic axis and to the variable anterior or posterior rotation of the occiput. The diameter of the vertex to be measured on the roentgen film is represented by the greatest transverse dimension nearest to the occiput or lower pole of the head. Owing to the inclined and oblique position of the engaged head this is neither the commonly known biparietal nor the suboccipitobregmatic diameter but an inter-

mediate diameter which passes diagonally from a point in the postero-inferior quadrant of one parietal bone to a diametrically opposite point in the anterosuperior quadrant of the other parietal bone. Both its anteroposterior and its lateral obliquity may vary considerably, depending on the degree of rotation, flexion or inclination of the head along the pelvic axis. The dimension of the shadow cast by the diameter under consideration must not be subject to change with ordinary variations in rotation, flexion or inclination of the head. The diameter must be at a measurable distance from the sensitive film, so that a correct reduction may be made for its magnification. This requirement can be satisfied, provided the diameter in question is at a measurable distance above a definite landmark, such as the ischial spines, and provided also this landmark is in turn at a measurable distance above the sensitive film.

**Use of Dilaudid-Scopolamine in Obstetrics—Ruch** used dilaudid in 101 cases, of which fifty-nine were primiparas and forty-two multiparas. Dilaudid was used in the  $\frac{1}{32}$  gram (0.002 Gm) ampule form combined with  $\frac{1}{170}$  grain (0.0005 Gm) ampule of scopolamine hydrobromide and administered subcutaneously. Narcosis was begun in primiparas when the cervix was dilated from 3.5 to 4 cm and in multiparas when the cervix was dilated 2.5 cm. If the quality of the uterine contractions was good. Forty-five minutes after the original dilaudid-scopolamine injection,  $\frac{1}{320}$  grain of scopolamine was repeated, forty-five minutes later,  $\frac{1}{260}$  grain (0.00025 Gm) of scopolamine forty-five minutes later,  $\frac{1}{260}$  grain of scopolamine, and every hour or so thereafter as needed.  $\frac{1}{260}$  grain of scopolamine. Practically 80 per cent of the patients felt the effect of the dilaudid-scopolamine after ten minutes. In only one patient was the effect delayed thirty minutes and in none as long as forty-five minutes. There was no appreciable diminution of the uterine contractions in any of the patients and several seemed to have a better quality of contractions after being relaxed by the drug. In comparing the synergistic action of dilaudid-scopolamine with that of morphine-scopolamine there was no appreciable difference. There were two cases of asphyxiated babies, one within one hour after dilaudid and scopolamine was given and another two hours and forty-five minutes after the administration of dilaudid scopolamine. There were no cases of asphyxia in private patients. Dilaudid was given rectally by suppository, in doses of  $\frac{1}{24}$  grain (0.003 Gm) to relieve afterpains. The suppositories were used on a series of twenty multipara patients and gave relief within twenty to thirty minutes. In twelve cases one suppository was sufficient to relieve the patient the entire night. Seven patients received a second suppository after five or six hours, and one patient obtained no particular relief.

**Sterilization by Transplanting Uterine End of Tubes—Slemmons** method of sterilization consists of excision of the proximal end of both tubes and their implantation in the uterine muscle. The tube is grasped with forceps near the uterus and the translucent mesosalpinx is exposed in a favorable light to demonstrate clearly the position of the blood vessels. A small round needle carrying from 6 to 8 inches of chromic catgut is passed through the mesosalpinx within the uterotubal angle and as near both structures as vascularization permits. The tube is firmly tied leaving the ligature-ends approximately equal. Moderate traction is made on the ligature and the tube is severed by an incision tangential to the uterus. A suture already at hand should be placed promptly to compress the vessels and approximate the edges of the peritoneal surface of the uterus where the tube was severed. A stab 1 cm deep is made at a convenient point, generally on the anterior aspect of the uterus. Before the stab is made, a suitable spot is selected for it by trial of one location or another where the mobilized end of the tube will reach without undue traction. One of the ends of the catgut ligating the tube is threaded on a small, round needle, passed from the bottom of the stab and brought out on one side. Similarly, the other end of the ligature is passed through the opposite side of the stab from within outward. And finally while an assistant pushes the amputated end of the tube into position the suture is tied, approximating the edges of the wound and burying the ligated tissue securely in the wall of the uterus.

# Annals of Internal Medicine, Lancaster, Pa

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- Periarthritis Nodosa** Brief Review of the Literature and Report of One Case A C Curtis and R M Coffey Ann Arbor Mich—p 1345
- Clinical Aspects of Pericardial Metastasis** B R Heninger New Orleans—p 1359
- Situs Inversus Viscerum Totalis in Siblings** Case Reports E A Gill and A I Wolff New York—p 1370
- Diverticulosis of the Small Intestine with Critical Review of Recent Literature** Report of Case J Chapman Sweetwater Texas—p 1376
- Electropexy** Resume of Therapeutic Applications and Techniques S Osborne and D L Markson Chicago—p 1391
- Hematologic Response of Addisonian Pernicious Anemia to Brewers Yeast** H K Russell Valhalla N Y—p 1398
- External Trauma in Relation to Ulcer of Stomach and Duodenum** Report of Five Cases I Gray Brooklyn—p 1403
- Studies of Hypersensitiveness to the Fertilizations of the Caddis Fly (Trichoptera)** V Report of Its Distribution S J Parlatto P J LaDuer Buffalo and O C Durham Chicago—p 1420
- Persistent Lymphedema Involving Left Arm Left Face and Left Thorax** Case R Gurney and F Huber Buffalo—p 1431
- Syngne Impura in Mora** Study of Syphilis and Certain Other Diseases in Population of Mora County New Mexico W Clarke New York—p 1436

## Response in Pernicious Anemia to Brewers' Yeast—

After the diagnosis of addisonian pernicious anemia was established Russell placed four patients on the regular ward diet without liver for a control period varying from three to five days in order to establish the level of the reticulocytes prior to treatment with brewers yeast (extrinsic factor of Castle), beginning with 1 drachm (4 Gm) three times a day and increasing the dose in three days to 2 drachms (7.8 Gm) three times a day. During the time of the administration of the yeast the patients received the regular ward diet without liver. After the response obtained by feeding yeast began to recede (except in one case), 3 cc of parenteral liver extract was given for three successive days and the reticulocytes were observed daily in order to determine the type of hemtologic response. Red corpuscle counts and hemoglobin estimations were made at intervals of from forty-eight to seventy-two hours during the course of the experiment. A slight but definite reticulocyte response occurred after brewers yeast was added to the diet. This increase in reticulocytes occurred in from five to seven days, and the intensity of the response varied between 32 and 6 per cent. Following the administration of parenteral liver extract a second response occurred which varied between 12 (in one case in which the red corpuscle level was 2.9 million) and 26 per cent. Prior to adding brewers yeast to the diet the reticulocytes in all four cases averaged 0.8 per cent and were never above 1.7 per cent. From these results the author believes that one of the following conclusions seems justified: 1 That the gastric secretions of the four patients contained some intrinsic factor, but insufficient to prevent symptoms of the disease. 2 That small amounts of the specific product of extrinsic and intrinsic factors were present and administered in the brewers yeast or were present in the patients (possibly stored in the body owing to previous treatment) in amounts insufficient to prevent symptoms and were activated by the large amounts of yeast that the patients received. 3 That Castle's explanation is not correct and that small amounts of extrinsic factor (brewers yeast) alone are capable of stimulating hematopoiesis.

**Trauma in Relation to Gastric Ulcer**—Gray reports five cases in which trauma played an important part in the production or aggravation of preexisting ulcer disease. Three cases were diagnosed as acute traumatic peptic ulcer on the basis of epigastric injury and of the presence of blood in the vomitus or stool or both with roentgen observations strongly suggestive of the presence of ulcer. All three made a complete recovery. One patient who came under observation four months after injury presented a definite duodenal ulcer. Roentgen examination done six weeks after injury revealed the presence of a duodenal ulcer. During an observation period of eighteen months there was a continuance of subjective complaints typical of duodenal ulcer associated with constant epigastric tenderness. Repeated roentgen study showed a characteristic deformity of the duodenal bulb but at no time was there any evidence of stenosis. In the other patient severe epigastric injury aggravated a preexisting duodenal ulcer which had been dormant for seventeen years. In this patient some of

the symptoms may have been due to disturbance in function of an existing gastroenterostomy. The predominant disturbances, however, were associated with duodenal ulcer activity. The author concludes that acute traumatic peptic ulcer may follow the application of a strong blunt force to the epigastrium. The tendency in these cases is toward complete healing. External trauma as a factor in the pathogenesis of chronic peptic ulcer is still a debatable question. If the absence of gastric symptoms prior to the trauma is assumed to indicate a normal gastroduodenal tract, then it may be stated that chronic peptic ulcer may be caused by external injury. In view of accumulated experience however, the absence of gastric symptoms does not necessarily mean absence of gastric disease. Gastroduodenal ulcer may exist for years and produce no symptoms. It seems reasonable and logical to state that trauma does not produce chronic peptic ulcer but rather reveals preexisting ulcer disease. Preexisting ulcer disease may be aggravated by external trauma. The resulting disability depends on the severity of the trauma and the pathologic changes initiated by the accident. In order to prove that trauma can produce a chronic peptic ulcer there must be roentgen evidence of a normal gastroduodenal tract within a comparatively short time prior to the accident. Otherwise, the assumption that a chronic peptic ulcer was produced by trauma is entirely speculative.

## Archives of Otolaryngology, Chicago

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- \***Function of the Utriculo-Endolymphatic Valve** Two Cases of Ruptured Sacculi in Children T H Bast Madison Wis—p 537
- Myoblastoma of the Larynx** Report of Case L Kleinfeld New York—p 551
- Anatomy and Pathology of the Petrous Bone Based on a Study of Fifty Temporal Bones** E W Hagens Chicago—p 556
- Geniculate Ganglionitis (Hunt's Syndrome)** Clinical Features and Histopathology J L Maybaum and J G Druss New York—p 574
- \***Argyria Nasalis** Report of Case L P Monson San Francisco—p 582
- Plastic Closure of Laryngostomic Fistulas and Enlargement of the Lumen of the Trachea or Larynx by Implantation of a Chondrocutaneous Flap** W W Balcock Philadelphia—p 585
- Laryngeal Cysts in the New Born** L Kleinfeld New York—p 590
- Inguinal Thyroid Gland** H B Perlman Chicago—p 594
- Pathologic Changes in the Human Palatine Tonsil Their Correlation with the Clinical Findings** R S Jason Washington D C—p 600
- Effect of Temperature on Nasal Cilia** A W Proetz St Louis—p 607
- Rupture of Suppurative Cervical Glands into the External Auditory Canal** H Rosenwasser New York—p 610

**Function of the Utriculo-Endolymphatic Valve**—Bast presents two cases which show that the auditory division (cochlear duct and sacculi) of the endolymphatic system may be disturbed to the extent of collapse without damage or collapse of the vestibular division (utricle and semicircular canals). These cases further indicate that the 'utriculo-endolymphatic valve' is responsible for the maintenance of apparently normal pressure in the utricle and semicircular canals when the pressure in the sacculi and cochlear duct is suddenly reduced.

**Argyria Nasalis**—Monson cites a case of localized argyria of the nasal mucous membranes in a man aged 40, who was referred for a routine nasal examination, following an examination in the department for ocular diseases. He had had a nasal operation in 1923 and was instructed to use drops of a 1 per cent solution of strong silver protein twice a day. He continued the nasal drops as prescribed without interruption until 1932 when another physician advised him to discontinue them. He had no nasal examination or treatment after that. Examination showed a bluish green and slate gray pigmentation of the nasal interior, involving all of the nasal mucosa from the mucocutaneous junction back to, and slightly beyond the choanal rim posteriorly. Both middle turbinates had been removed, and two moderate-sized bluish gray polyps were visible in the upper and posterior part of the left nostril. The mucous membranes were hypertrophic and there was considerable mucous discharge. A postnasal examination revealed that the polyps in the left nostril were growing from the region of the left sphenoid ethmoid recess. The roentgen examination showed grayness of the right ethmoid cells. Because of the ocular symptoms, a diseased right ethmoid sinus and evidence of disease in the left ethmoid sinus a double intranasal ethmoidectomy was performed. Recovery was unevent-

ful The diagnosis was a subacute inflammatory reaction with marked edema of the mucous membrane of the nostrils, pigmentation of the superficial subepithelial tissues according to the clinical history, argyria

### Archives of Pathology, Chicago

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- Chemotropism of Leukocytes in Vitro Attraction by Dried Leukocytes Paraffin Glass and Staphylococcus Albus M McCutcheon W B Wartman and H M Dixon Philadelphia—p 607
- Effects of Oxyacids and Hydroxyacids on Protein Swelling M H Fischer and W J Suer Cincinnati—p 615
- \*Amyloidosis of the Bone Marrow I E Gerber New York—p 620
- A Principle Accelerating Growth and Maturation Demonstrated in Metastases of a Tumor of the Thyroid Gland G Miles Chicago—p 631
- Inheritance of Focal Melanosis in Drosophila J W Gowen Princeton N J—p 638
- \*The Age of Pregnancy Histologic Diagnosis from Percentage of Erythroblasts in Chorionic Capillaries C S Ryerson and S Sanes Buffalo—p 648
- Subcutaneous Nodules Induced by the Injection of Streptococcus Viridans Specificity of the Lesion and Origin of Polyblasts Lydia Lux Minneapolis—p 652

**Amyloidosis of the Bone Marrow**—To the three described forms of amyloid deposits in the bone or bone marrow—isolated instances of vascular infiltration in generalized amyloidosis, primary amyloid tumors of the bone and secondary amyloid deposits within blastomas or other diseases of the bone—Gerber adds a fourth type, that of diffuse amyloidosis of the bone marrow associated with generalized amyloidosis. The diagnosis made during the life of the patient was amyloid nephrosis, hypercholesteremia, hepatomegaly and lipid histiocytosis. The subsequent postmortem observations of generalized amyloidosis, with marked involvement of the kidneys and liver, serve to explain the hypercholesteremia and hepatomegaly. Despite a careful search at necropsy no explanation could be offered for the cause of the amyloidosis. The amyloid deposits in the internal organs, aside from those in the pancreas and kidneys, showed nothing of unusual significance. There was infiltration of the pancreas. The microscopic appearance conformed to that seen in similar reported cases. The clinical course of the patient presented a complete picture of amyloid disease of the kidneys beginning with the nephrotic syndrome and terminating with renal insufficiency. The signs and symptoms of nephrosis persisted for a period of more than two years, during which time the renal function and the blood pressure were normal. The gradual onset of renal insufficiency and the sudden appearance of hypertension were ascribed to incipient contraction of the amyloid kidneys, this was confirmed by the anatomic observations. In the author's case, the amyloid deposits were seen not only in the vessels but also in the reticulum and in the walls of the sinusoids. He believes that the diffuse distribution of the amyloid in the marrow in his case readily distinguishes it from the other forms of amyloidosis of the bone marrow. Contrary to the observations in amyloid tumors of the bone, no inflammatory reaction was present despite the extensive destruction of the bones and the marked atrophy of the marrow. The involvement of the marrow was undoubtedly responsible for the secondary anemia observed in the later stages of the patient's illness. The collapse of the vertebrae is comparable to that described in the case of amyloid tumor of the bone of the third thoracic vertebra reported by Mandl in which pressure on the spinal cord had led to compression myelitis. It is not unlikely that in this patient the pressure of the collapsed vertebrae on the nerves as they emerged from the intervertebral foramina was responsible for the muscular pains in the lower part of the abdomen. A study of the case indicates that the amyloid deposits were not secondary to an underlying blastoma. If the mass of amyloid, the surviving marrow cells showed a normal ratio of myeloid and erythropoietic cells. The diffuse involvement of the marrow speaks against the presence of an underlying blastoma. The presence of normal hematopoietic tissue throughout the marrow militates against the concept of diffuse myeloma with secondary amyloid deposits.

**Histologic Diagnosis of the Age of Pregnancy**—Ryerson and Sanes examined seventy placental fragments and made differential counts of the number of nucleated and non-nucleated red cells in the chorionic capillaries at different periods of gestation. Each specimen was fixed for sixteen hours

in a 10 per cent solution of formaldehyde. After being dehydrated in alcohol and chloroform, the tissue was embedded in paraffin. Sections were cut 8 microns in thickness and stained with hematoxylin-eosin. With low power magnification, villi containing capillaries were located. Then from 100 to 200 red cells were counted while the specimens were immersed in oil. The proportion of nucleated and non nucleated cells was calculated in percentages. In several cases differentiation of megaloblasts from normoblasts was attempted. The age of pregnancy was deduced from the patient's history, conception being postulated as having occurred seven days following the last menstrual period. Replacement of nucleated by non nucleated forms took place rapidly and almost completely during the second and third months. Therefore, if all the chorionic corpuscles are nucleated, the pregnancy is probably not older than two months. If more than 1 per cent are nucleated, the age is less than three months. If fewer than 1 per cent of the red cells are immature, pregnancy has passed beyond three months.

### Archives of Surgery, Chicago

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- Lymphosarcoma in Bone L F Craver New York and M M Cope-land Baltimore—p 809
- \*Effects of Diverting the Gastric Contents to the Lower Intestinal Levels P E McMaster Los Angeles—p 825
- Selection of Drainage Material A E Spelman Halstead, Kan—p 837
- Osteodystrophia Fibrosa Unilateralis Report of Case E Freund Iowa City—p 849
- Examination of Tubular Organs and Arterial Systems of Rabbits by Filtered Ultraviolet Radiation C J Sutro and M S Burman New York—p 867
- Spina Bifida and Cranium Bifidum Study of One Hundred and Three Cases S W Gross and E Sachs St Louis—p 874
- \*Histologic Studies of Autogenous and Homogenous Transplants of the Kidney P P T Wu and F C Mann Rochester Minn—p 889
- Medial Torsion of the Leg I W Nachlas Baltimore—p 909
- Sympathetic Ganglions Removed Surgically Histopathologic Study A Kuntz St Louis—p 920
- Local Atrophy of Bone I Effect of Immobilization and of Operative Procedures J A Key St Louis F Fischer Detroit and E Elzinga Flint Mich—p 936
- Id II Effect of Local Heat Massage and Therapeutic Exercise J A Key St Louis E Elzinga Flint Mich and F Fischer, Detroit—p 943
- Distention of the Urinary Bladder I Hematuria and Sudden Emptying Experimental and Clinical Study C D Creevy Minneapolis—p 948
- Review of Urologic Surgery A J Scholl Los Angeles E S Judd Rochester Minn J Verbrugge Antwerp Belgium A B Hepler Seattle R Gutierrez New York and V J O'Connor Chicago—p 974

**Effects of Diverting Gastric Contents to Lower Intestinal Levels**—McMaster performed end-to-side anastomoses between the open pyloric end of the stomach and the progressively lower levels of the intestine from the duodenum to the colon, inclusive, in thirty-five dogs. The intestinal mucosa was increasingly more sensitive to gastric content from the duodenum to the colon. No duodenal ulceration followed gastroduodenostomy. Jejunal ulceration was noted in five of eleven dogs (45 per cent). Ileal ulceration developed in eight of ten animals (80 per cent) after gastro ileostomy. Each of ten dogs had marked hemorrhagic colitis subsequent to gastrocolostomy, and usually this led to secondary anemia. The mucosa of the distal half of the colon was much more sensitive to the acid gastric content than was that of the proximal half. Following anastomosis of the stomach to the lower portion of the ileum or colon, the blood chlorides and the weight fell rapidly and often there was a marked bloody diarrhea. The acid gastric content appeared to be the most important factor in the production of ulceration of the intestinal mucosa near the outlet of the stomach. As a number of intestinal ulcers occurred directly opposite the anastomotic stoma, the element of mechanical trauma from expulsion of the contents of the stomach cannot be entirely ruled out. The loss in weight in the animals with the anastomosis in the lower portion of the ileum or colon was due largely to failure of digestion and of absorption of food. This failure of digestion and of absorption in the intestinal surface by exclusion of the proximal small intestine in which digestion normally occurs and (2) to the rapid elimination of food occasioned by the increased irritability and peristalsis in the lower portion of the ileum and colon resulting from the acid gastric content.

**Histologic Studies of Transplants of Kidney**—Wu and Mann performed six autotransplantations and eighteen homotransplantations of the kidney on dogs, of which five autotransplants and thirteen homotransplants were suitable for study. Sixty biopsies were made. A total of 180 histologic sections were examined. All of the autogenous and six of the homogenous transplants functioned alike until the transplant was removed at operation, the animal died or thrombosis in one or both vessels or pyelonephritis occurred. One homotransplant excreted urine only part of the time, and six others failed to do so at any time during the period of observation. Thrombosis was not the cause of the failure to function, because in such cases exploratory operations revealed the vessels to be patent, and the biopsy wounds bled and healed as usual. The autogenous and the homogenous transplants did not show distinctive changes in structure. In one as in the other, the glomeruli appeared normal, the tubules contained a varying amount of albuminoid material, dilatation or degeneration, and the capsule of the kidney had undergone organization and fibrosis. Quantitatively, in the case of the nonfunctioning homotransplants the tubules seemed to contain a greater amount of albuminoid material than usual. Both varieties of transplants may show a few small collections of mononuclear cells on the first one or two days following transplantation. In the homotransplant, however, the infiltration is soon present in excess of the amount of degeneration and is followed by necrosis and destruction of the parenchyma. On the other hand, in the autotransplant, the number of those cells appears to be somewhat proportional to the severity and extent of the degenerative changes, and it tends either to remain the same or to diminish. Although the course of changes that accrued from day to day was progressive in both cases, it seemed that in the autotransplant it was reparative, whereas in the homotransplant it was degenerative. No evidence was found to suggest the type of biologic factors which elicit the reaction between the host and the transplant after homotransplantation.

### California and Western Medicine, San Francisco

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- Diabetes and Pregnancy. Report of Five Cases. J W Sherrill La Jolla—p 321  
Cervical Cancer. Relation of Its Curability and Duration of Symptoms. D G Morton San Francisco—p 327  
Magnesium Sulphate. Its Intravenous Use in Hypertension and Allied Eye Conditions. H H Lissner Los Angeles—p 330  
Cholecystic Disease in Pigs. Sheep and Cattle. S H Mentzer San Francisco—p 333  
Pneumonoconiosis. Occupational Disease. Study of Fifty Eight Pottery Workers. P A Quaintance and F J Morris Los Angeles—p 337  
Traumatic Rupture of the Kidney. G F Schenck Los Angeles—p 341  
Venereal Diseases in San Francisco. Survey. T Clark and Lida J Usilton Washington D C—p 346  
Challenge of Allergy in Medical Practice. A H Rowe Oakland—p 352  
Ultraviolet Component of Central California Sunlight. J M Frawley Fresno and Florence A Brown Santa Ana—p 358  
Compulsory Health Insurance. F L Hoffman Philadelphia—p 361

**Magnesium Sulphate in Hypertension**—Lissner presents clinical studies from which he concludes that intravenous injection of magnesium sulphate exerts a palliative effect on the reduction of hypertension and its secondary symptoms. It reduces intra-ocular tension. It exerts a marked influence on the course of the eye changes and aids absorption of exudate of retinal hemorrhages, with the hope of prevention of threatened blindness. There are no untoward symptoms from frequent injections of controlled amounts of magnesium sulphate intravenously.

### Iowa State Medical Society Journal, Des Moines

24 229 268 (May) 1934

- An Overlooked Factor in Susceptibility to the Common Cold. A E Ewens Atlantic City N J—p 229  
The Diagnostic Significance of Cerebrospinal Fluid Examination. W Malamud Iowa City—p 232  
The Early Diagnosis and Disposition of Pneumonia in CCC Camps. T J Greteman Herrold—p 237  
Acute Gonorrhea in the Male. G D Jenkins Burlington—p 239  
Fracture of the Spinous Process of the Sixth Cervical Vertebra. Case Report. A A Eggleston and J C McKitterick Burlington—p 242  
Calcium Therapy in Preeclamptic Toxemia. E C Sage Eagle Grove—p 243  
Autotransfusion Following Rupture of the Spleen. Case Report. W Downing and W Larsen Le Mars—p 246

### Journal of Clinical Investigation, New York

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- Observations on Chemical and Physical Relation Between Blood Serum and Body Fluids. I Nature of Edema Fluids and Evidence Regarding the Mechanism of Edema Formation. D R Gilligan, Marie C Volk and H L Blumgart, Boston—p 365  
Measurement of Elasticity and Viscosity of Skeletal Muscle in Normal and Pathologic Cases. Study of So Called Muscle Tonus. W O Fenn and P H Garvey, Rochester N Y—p 383  
Immediate Response of the Plasma Cholesterol to Injection of Insulin and of Epinephrine in Human Subjects. M Bruger and H O Mosenthal New York—p 399  
Studies of Phosphorus of Blood. II Partition of Phosphorus in Blood in Relation to Corpuscle Volume. Edna Warweg and Genevieve Stearns Iowa City—p 411  
Antibody Responses in Infectious Mononucleosis. A Bernstein, Baltimore—p 419  
\*Report of Failure to Produce Granulocytopenia with Bacterial Toxins. O O Meyer and Ethel W Thewlis Madison, Wis—p 437  
Effect of Posture (Standing) on Serum Protein Concentration and Colloid Osmotic Pressure of Blood from the Foot in Relation to the Formation of Edema. J B Youmans, H S Wells, Dorothy Donley and D G Miller with technical assistance of Helen Frank—p 447  
Epinephrine Hyperglycemia with Particular Reference to Arteriovenous Blood Sugar Difference in Hepatic Disease. A Cantarow and G Ruchman, Philadelphia—p 461  
Incidence and Biologic Characteristics of Hemolytic *Bacillus Coli* in the Stools of Healthy Individuals. Edith E Nicholls New York—p 479  
\*Relation of Cerebrospinal and Venous Pressures in Heart Failure. L Friedfeld and A M Fishberg New York—p 495  
Relation of Rheumatic Fever to Postscarlatinal Arthritis and Postscarlatinal Heart Disease. Familial Study. J R Paul, R Salinger and B Zuger New Haven Conn—p 503

**Response of Plasma Cholesterol to Injection of Insulin and of Epinephrine**—Bruger and Mosenthal state that the plasma cholesterol may occasionally rise or fall but usually remains unchanged following the administration of a single dose of insulin to diabetic and nondiabetic subjects. A rapid diminution of the blood sugar from a distinctly hyperglycemic level to one of hypoglycemia is, as a rule, associated with no significant change of the plasma cholesterol, the ingestion of orange juice or dextrose during profound hypoglycemia usually results in a marked fall of the plasma cholesterol. The administration of epinephrine in doses large enough to increase appreciably the sugar content of the blood is usually accompanied by no significant change in the plasma cholesterol. Insulin and epinephrine, separately, often produce a transient diminution in the corpuscle volume percentage, but the fluctuations in the percental corpuscle volume of the blood bear no uniform relation to the plasma cholesterol content.

**Failure to Produce Granulocytopenia with Bacterial Toxins**—Meyer and Thewlis performed twenty-six experiments similar to those of Dennis on nineteen rabbits in an attempt to confirm his results. Two of these were control experiments, as the rabbits received encapsulated sterile beef broth infusion rather than cultures of bacteria. The results do not confirm the conclusion of Dennis that encapsulated pyogenic bacteria, acting as a focus, produce granulopenia. Because of the authors' negative observations, they subjected the results of Dennis to close analysis. Examination of the results clearly shows a failure to produce distinct leukopenia of significant degree or duration except in two animals with *Bacillus pyocyaneus*. Though the total neutrophil count in the peripheral blood decreased in the two instances in which leukopenia occurred, there was failure to produce distinct relative granulopenia in a single instance. In one case a culture was made from outside of the capsule as soon as the abdomen was opened after death and this showed *B. pyocyaneus*, indicating that the capsule was not completely sealed. Subsequent injections of pure cultures of *B. pyocyaneus* in varying doses, directly into the peritoneal cavity, were not efficacious in producing leukopenia. Postmortem examination and careful examination of the capsule was done in every rabbit that died. In three instances the capsule was definitely not intact, in the others the capsule was intact and usually deeply embedded in thick white pus. Many of the neutrophils, in the two cases in which leukopenia and prompt death (within forty hours) resulted after *B. pyocyaneus* implantation, were large and degenerated at the time the leukocyte count was falling. These cells closely resembled the cells shown by Dennis. The bone marrow of these cases was however, normal in appearance or hyperplastic. There was no sign of degeneration of the cells as noted by Dennis. The experiments using *Staphylococcus aureus*, *Streptococcus hemoly-*

ticus and *Streptococcus viridans* usually resulted in leukocytosis and a higher level of neutrophil cells for several days with a gradual return to the preoperative level, or else a persistent, or sometimes progressive, leukocytosis. In a few experiments, slight temporary decrease in the number of leukocytes occurred, associated, except in two instances, with an increase in percentage of neutrophils.

**Cerebrospinal and Venous Pressures in Heart Failure**—According to Friedfeld and Fishberg, elevated venous pressure due to failure of the right heart is accompanied by increase in the tension of the cerebrospinal fluid. The cerebrospinal pressure is almost always if not always, higher than the venous pressure. When the venous pressure falls as a result of improvement of the heart, the cerebrospinal pressure also falls, although often there is a lag behind the drop in venous pressure. The cerebrospinal pressure is not elevated in left heart failure with normal venous pressure. The increased cerebrospinal pressure in right heart failure is due principally to engorgement of the intracranial and intraspinal vessels, but edematous swelling of the nervous tissues and meninges also participates. No evidence was obtained that the volume of cerebrospinal fluid is increased. Symptoms due to increased intracranial tension were not observed although the spinal fluid pressure rose as high as 45 cm of water.

### Journal of General Physiology, New York

17 629 726 (May 20) 1934

- Potassium Equilibrium in Muscle W O Fenn and Doris M Cobb Rochester N Y—p 629  
Diffusion of Carbon Dioxide in Tissues C I Wright Rochester N Y—p 657  
Fertilization and Temperature Coefficients of Oxygen Consumption in Eggs of *Arbacia punctulata* B B Rubenstein and R W Gerard Woods Hole Mass—p 677  
Growth of *Cucumis Melo* Seedlings at Different Temperatures R Pearl T I Edwards and J R Miner Baltimore—p 687  
The Influence of Environmental Temperature on the Utilization of Food Energy in Baby Chicks M Kleiber and J E Dougherty Davis Calif—p 701

### Journal of Urology, Baltimore

31 607 790 (May) 1934

- \*Spinal Anesthesia in Urology G S Foulds and H S Douglas Toronto—p 607  
Epidural Anesthesia in Urologic Surgery E Hess Erie Pa—p 621  
Anesthesia for Transurethral Prostatic Resection Comparative Study of Transsacral and Spinal Blocks E A Rovenstine Madison Wis—p 633  
Restoration of Renal Function W Walters and V S Counsellor Rochester Minn—p 649  
Renal Function During Fasting F C Hamm Rochester Minn—p 661  
*Bacillus Alkalescens* Pyelonephritis with Blood Infection Review of Literature and Report of Case with Recovery D W Mackenzie and M Ratner Montreal—p 671  
Medical Kidney as a Genito-Urinary Problem G Kolischer Chicago—p 677  
Pathogenesis of Nephritis Due to Exposure to Cold A J Nedzel Chicago—p 685  
\*Improved Pyelo-Ureterography H W Howard Portland Ore—p 693  
Lipomatosis of the Kidney Report of Case E W White and H S Cambridge Chicago—p 699  
Supernumerary Kidney Report of Case and Review of Literature A Saccone and H B Hendler New York—p 711  
Indications for Irradiation for Various Malignant Neoplasms of the Kidney U V Portmann Cleveland—p 721  
Referred Pain from the Female Urethra A I Folsom and J C Alexander Dallas Texas—p 731  
Accidental Operative Injuries of the Female Ureter W E Stevens San Francisco—p 741  
Bone Metastases from Carcinoma of the Urinary Bladder R C Graves and R E Miltzer Boston—p 769

**Spinal Anesthesia in Urology**—Foulds and Douglas found that the field of usefulness of spinal anesthesia has increased with their greater familiarity with the method. The contraindications have become fewer as they have gained experience. Since epinephrine has been used as a routine the number of cases with an alarming fall in blood pressure has been reduced to a minimum and the contraindications to spinal anesthesia in hypotension have been removed. By selecting cases suitable for each drug the results have improved. Though procaine hydrochloride in doses up to 150 mg is quite suitable for operations on the lower urinary tract untoward symptoms frequently followed the administration of larger doses for higher and longer anesthesia. Such anesthesia for renal surgery can be more perfectly obtained with fewer unpleasant symptoms by

the use of nupercaine in doses up to 20 cc of a 1,500 solution. The postanesthetic sequelae have been negligible and the postoperative complications fewer than with general anesthesia. The authors consider spinal anesthesia the anesthetic of choice in the majority of urologic operations.

**Improved Pyelo-Ureterography**—Howard emphasizes the fact that, in order to comply with the physical requirements of adequately filling the ureter and renal pelvis, escape of fluid at the ureteral opening must be prevented and physiologic intra-ureteral pressure obtained. The latter should not stretch but be sufficient to quiet peristalsis, about 20 mm of mercury. His method consists in the use of Garceau catheters of varying sizes to suit the opening of the ureter in hand, introduced from 4 to 10 cm through a large tube such as McCarthy's panendo-scope has. After sufficient time has elapsed to expel the air by the returning urine a buret containing the opaque medium is attached. The amount allowed to run in is determined by intra-ureteral pressure measured on a mercury manometer, which should reach about 20 mm. This amount of pressure apparently stops the secretion of urine for the time as well as the peristaltic waves. The method is not so successful when the ureter is very spastic, as in acute inflammatory states, or in the presence of a small stone as in acute renal colic.

### Nebraska State Medical Journal, Lincoln

19 121 160 (April) 1934

- Pathology and Treatment of Gallbladder Lesions A P Condon Omaha—p 121  
Congenital Syphilis Is Preventable W Clarke New York—p 125  
Laryngeal Papillomatosis P I Romonek Omaha—p 130  
Rats Satisfactory Technique for Early Pregnancy Tests Ruth Warner and Grace Loveland Lincoln—p 134  
Radium and Rectal Carcinoma D T Quigley, Omaha—p 138  
Uterine Cancer and Pregnancy Report of Two Cases E C Sage Omaha—p 140  
Extramural Psychiatry M M Campbell Ingleside—p 143  
Management of Prostatic Obstruction C A Owens Omaha—p 146

### New York State Journal of Medicine, New York

34 385 428 (May 1) 1934

- Study of Diabetic Deaths Based on Autopsies I Hekman and S A Vogel Buffalo—p 385  
Mortality of Acute Appendicitis as Related to Clinical Types and Treatment J J Westermann Jr New York—p 388  
Coronary Disease and Its Relation to the Increase of Cardiac Morbidity L F Bishop and L I Bishop Jr New York—p 393  
Acrodynamic L de Vello and J R Wilson Syracuse—p 400  
Greenland Health Conditions W L Duffield Brooklyn—p 403  
Physical Therapy in the Chronic Invalid I M Levy New York—p 405  
Study of Secondary Cases of Scarlet Fever W H Best New York—p 411  
Hypertension and Nephritis M L Holmes Syracuse—p 414

### Pennsylvania Medical Journal, Harrisburg

37 635 714 (May) 1934

- \*Diathermic Treatment of Retinal Detachments M J Schoenberg New York—p 635  
Endocrine Dysfunction in Male Sexual Disorders W H Kinney Philadelphia—p 639  
Functional Disorders of Colon H L Bockus and J H Willard Philadelphia—p 645  
Epigastric Pain Analysis of Three Hundred and Eleven Cases J T Eads Philadelphia—p 652  
Ewing's Sarcoma of Mastoid Report of Case J I Zimmerman Harrisburg—p 654  
Congenital Cyst of Lung with Unusual Complications Report of Case R Tyson Philadelphia—p 656  
Surgery in the Diabetic Patient Medical Management of the Surgical Diabetic J T Beardwood Jr Philadelphia—p 658  
Id Surgery in Diabetes F A Bothe Philadelphia—p 661  
Disease of the Uveal Tract J A Weierbach Quakertown—p 660

**Diathermic Treatment of Retinal Detachments**—In the diathermic treatment of retinal detachment Schoenberg has the patient prepared as for any major operation on the eyeball. The eye is washed, the pupil is dilated and a fundus examination is made while the patient is on the operating table. Anesthesia is obtained by instillations of a 1 per cent solution of holocaine or butyn, a subconjunctival injection of a 2 per cent solution of procaine hydrochloride in the region to be operated on and, if the operative field is large an orbital injection of 1 cc of a 2 per cent solution of procaine hydrochloride is made. The conjunctiva is incised at a distance of about 10 to 12 mm behind and parallel with the limbus. The conjunctiva and tenon capsule are carefully undermined the episcleral tissue is

removed and the sclera is exposed and freed of any loose tissue that may cover it. Any bleeding is stopped by applying an epinephrine-cocaine swab for a few minutes. If the bleeding originates from a larger blood vessel, the application of the tip of a hot probe will stop it. Glass retractors are introduced in such a way as to keep the tenon capsule away from the eyeball. A hook underneath one of the recti or a forceps holding fast the episcleral tissue near the limbus is used to pull the eyeball in the proper position so as to make the area to be operated on accessible. Needles designed by Sifir are driven in by the aid of the diathermic current. The intensity used is just enough to drive the electrodes through the sclera. The distance between the needle points is 2 mm. When the current reaches the choroid it produces a small area of coagulation. The distance between the applications should not be greater than 2 mm and the applications should surround the torn area. If the tear is at the ora serrata, the applications should be made in a semicircle surrounding the part of the tear facing the optic disk, the extremities of this barrage ending at the ora serrata. These applications are to be made on the scleral surface of the eyeball.

### Radiology, Syracuse, N Y

22 521 650 (May) 1934

- Roentgen Ray as an Aid in the Diagnosis of Disease of the Nasal Accessory Sinuses J C Bell Louisville Ky—p 521  
Luckenschadel of the New Born H P Doub and J T Danzer Detroit—p 532  
Automatic Temperature Regulation for the X Ray Dark Room Solutions W E Chamberlain and G C Henny Philadelphia—p 539  
Clinical and Roentgenographic Interpretation of Lumbosacral Anomalies A B Ferguson New York—p 548  
Depth Doses of Roentgen Radiation Striking at Angles Other Than Ninety Degrees Measured in a Water Phantom E A May East Orange N J—p 559  
Composite X Ray Filters A Mutscheller New York—p 569  
Spectrophotometric Analysis of Color of Skin Following Irradiation by Ultraviolet Rays J R Rogin and C Sheard Rochester Minn—p 577  
May Physicians Medical Writers and Publishers Give Publicity to Recognizable Photographs of Patients Without Incurring Liability? I S Frostler Chicago—p 589  
Parathyroidism Its Late Results M Ballin and A R Bloom Detroit—p 595  
The Posed Gallbladder Roentgenologic Study M Feldman Baltimore—p 603  
Roentgenologic Observations of the Colon in Amebic Dysentery Report of Seven Cases Originating in Chicago K Ikeda St Paul—p 610  
Viscerocardiac Reflexes L Levyn and W J Rose Buffalo—p 622

**Color of Skin Following Irradiation by Ultraviolet Rays**—Rogin and Sheard state that the use of the spectrophotometer affords an accurate method of recording the changes of color in the skin after ultraviolet irradiation. The initial erythema reaction of the skin following such irradiation is generally crisis-like but may also be plateau like or double crisis like. The course of the erythema is rhythmic or wave-like, persisting for weeks. In the same subject, the amount of pigment formed after ultraviolet irradiation is directly proportional to the degree of the preceding erythema. This statement cannot be made, in the light of the data at hand when comparing the erythema and the pigmentation following ultraviolet irradiation among different patients. The pigment follows a rhythmic course apparently independent of the course of the erythema. There are marked individual variations in the chronology of the waves which appear during the course of erythema and pigmentation. The fundamental hue or dominant wavelength of the skin following ultraviolet irradiation remains constant. The changes in the redness of the skin following ultraviolet irradiation are due to changes in the purity (saturation) of the hue.

**Roentgenologic Observations of Colon in Amebic Dysentery**—Ikeda observed that the roentgen appearance of the colon in amebic dysentery may vary considerably depending on the stage of infection, the extent and degree of involvement and the type of the lesion produced. On the whole, no appreciable changes are probably noted roentgenologically in the early stage of infection. Later fine, saw-tooth projections may develop along the wall, which probably represent small superficial ulcers and which may soon become obliterated by inflammatory edema and exudation. Fine feathery or thorny filling defects on the indurated wall probably signify a later stage of the same lesion in which the submucosa and muscularis are involved in an extensive inflammatory granulation

process. A somewhat characteristic deformity of the cecum and ascending colon is observed, roentgenologically, during the subacute or early chronic stage of the disease when there may be an apparent shortening or contraction of the wall, with induration and filling defects in varying degrees. These changes are rapidly eradicated by the institution of emetine treatment. An advanced amebic lesion, when diffuse and extensive, is not likely to be confused with cancer. When localized and obstructive, it may be mistaken for cancer, from which there is no roentgenologic means of differentiation. The roentgen appearance of the colon in amebic dysentery may be presumptive or suggestive of the disease but not positive or diagnostic without collaborating clinical and laboratory evidences. On the whole, it does not resemble the usual picture of nonspecific ulcerative or tuberculous colitis, nor does it simulate the typical appearance of a cancer of the colon. The roentgen examination of the colon is a positive means of determining the location, extent and degree of involvement in amebic dysentery and of observing the progress of the disease under specific treatment. A small area of fresh involvement or the reactivation of old lesions may thus be demonstrated, roentgenologically, during a period of continued clinical improvement and negative or inconstant routine laboratory evidence. Thus, the roentgen examination of the colon may prove superior and more accurate than other means of demonstrating the presence of active lesions in the treated or proved cases of intestinal amebiasis. The value of the roentgen examination of the colon in this disease, therefore, lies more in its use as a guide in the general management of the patient than as a means of positive diagnosis.

### Yale Journal of Biology and Medicine, New Haven

G 487 570 (May) 1934

- Graham Iush A E Light New Haven Conn—p 487  
Tuberculous Choroiditis in an Infant of Thirteen Months E F Gordon New Haven Conn—p 507  
Etiology and Pathogenesis of Rectal Stricture J B Loonsbury New Haven Conn—p 513  
Properties and Significance of Reticulocyte J M Orten New Haven Conn—p 519  
Topographic Distribution of Metastases in the Liver from Carcinomas Primary in the Gastrointestinal Tract F I Marting and B Halpert New Haven Conn—p 541  
Physical Status of Underprivileged Boys of New Haven H Henstell R Kaufman and J Mignone New York—p 545

**Distribution of Liver Metastases from Primary Gastro-Intestinal Carcinomas**—Marting and Halpert state that of 127 primary carcinomas in the gastro-intestinal tract, metastases in the liver were encountered in forty-five. Twenty were primary in the stomach four in the bile ducts, four in the gallbladder seven in the pancreas, two in the cecum, three in the sigmoid colon and five in the rectum. Of the twenty gastric carcinomas four were located in the cardiac portion, seven in the body and nine in the pyloric portion of the stomach. Metastases in the liver from the carcinomas primary in the cardiac portion and the body of the stomach occurred in the right lobe predominantly in two, in the left lobe predominantly in three and in both lobes in six. From the carcinomas primary in the pyloric portion metastases occurred in the right lobe only in one and in both lobes in five. The exact location of the metastases in the liver was not recorded in two instances and metastasis occurred by direct extension in one. In the pancreatic carcinomas two were located in the tail, two in the head and three involved the entire organ. Metastases in the liver from the carcinomas of the head and the entire organ occurred in both lobes, from the tail predominantly in the right lobe. Of the four carcinomas primary in the gallbladder, metastases in the liver occurred predominantly in the right lobe in one and in both lobes in three. Of the carcinomas primary in the extrahepatic biliary ducts metastases occurred in the right lobe only in one and in both lobes in the other. In the two carcinomas primary in the intrahepatic biliary ducts, extension occurred throughout the liver. In the carcinomas primary in the cecum, metastases in the liver occurred in the right lobe in one and in both lobes in the other. Of the three carcinomas primary in the sigmoid colon metastases in the liver occurred in the left lobe in one and in both lobes in two. In the five rectal carcinomas metastases occurred in the left lobe in one in the right lobe in one, and in the right lobe predominantly in one and in both lobes in two.



## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Bristol Medico-Chirurgical Journal

51 188 (Spring) 1934

- Looking Back H E Harris—p 1  
Vaginal Discharge R S S Statham—p 27  
Congenital Word Blindness E R Chambers—p 41  
Nervous Disorders in General Practice F Bodman—p 47

## British Journal of Experimental Pathology, London

15 71 142 (April) 1934

- Some Effects of Cancer Producing Agents on Chromosomes J C Motttram—p 71  
\*Influence of Ischemia on Development of Tumors J W Orr—p 73  
Accuracy of the Skin Test in Chinchilla Rabbits in Determination of Strengths of Streptococcus Toxins and Antitoxins Helen Plummer—p 80  
Attempt to Produce Immunity to Induced Tumors in Mice F C Pybus—p 89  
The Fixed Virus of Rabies Antigenic Value of the Virus Inactivated by the Photodynamic Action of Methylene Blue and Proflavine I A Galloway—p 97  
Propagation of Virus of Vesicular Stomatitis in the Chorio Allantoic Membrane of the Developing Hens Egg F M Burnet and I A Galloway—p 105  
Immunizing Fractions Isolated from Bacteria Aertrycke H Raistrick and W W C Topley—p 113  
Blood Sugar Changes and Toxic Effects Produced in Rabbits by Certain Fractions Derived from Bacteria Aertrycke M E Delafield—p 130  
Toxicity for Mice of Certain Fractions Isolated from Bacteria Aertrycke A R Martin—p 137

**Influence of Ischemia on Development of Tumors—**  
Orr produced fibrous scar tissue in the subcutaneous tissues of mice by the insertion of linen thread sutures, which were subsequently removed, after which healing was allowed to take place. Care was taken to avoid direct injury to the epithelium. Tar applications induced tumors more rapidly in these mice than in controls, and histologic examination showed that the percentage of carcinoma at the twenty-first week was twice that in the controls. Local injection of vasoconstrictor drugs produced an acceleration in tumor induction, more marked with epinephrine hydrochloride than with ephedrine sulphate. Carcinoma was increased with epinephrine, but not significantly with ephedrine, as compared with sodium chloride injected and noninjected controls, at the twenty-first week of tarring. Tumors appeared more rapidly than is usual when tar was applied after discontinuation of a series of ephedrine sulphate injections. The author discusses the results in relation to other work and certain concomitant conditions in cases of human cancer. He expresses the opinion that carcinogenic agents act on cells that have been deprived of a fully adequate vascular supply.

## British Journal of Physical Medicine, London

8 169 188 (March) 1934

- \*Skin Reaction to Ultraviolet Radiation P R Peacock—p 173  
General Principles of the Practical Application of Light Treatment A Eidinow—p 176  
Selection of Cases for Ultraviolet Ray Treatment E J MacIntyre—p 178  
Work of an Ultraviolet Department in a London Hospital Mary E Ormsby—p 180  
The Cold Quartz Lamp Origin and Properties B D H Watters—p 182  
S 189 204 (April) 1934  
Minor Displacements of the Sacro Iliac Joints E Cyriaux—p 191  
Treatment of Facial Paralysis by Diathermic Massage E D Ruthford—p 193  
Pneumonia Treated by Colonic Lavage H W Hales—p 194  
Ultra Short Wave Therapy Lecture Delivered in London E Schliephake—p 196

**Skin Reaction to Ultraviolet Radiation—**Peacock observed that the normal protection of the skin against the destructive action of ultraviolet rays is partly due to fluorescence of the horny layer, the retina is similarly protected by the fluorescence of the cornea and lens. The erythema reaction is an indirect effect of the action of the ultraviolet rays on the epidermis. Pigmentation is a natural sequel of prolonged erythema of the skin and is not a specific response to the rays. Pigmentation of the basal layer protects the dermis from the action of the rays. Skin that is pigmented following exposure to ultraviolet rays is also proliferating, with a consequent increase in the thickness of the horny layer, which affords

additional protection to the epidermis against further exposures to the rays. If it is desired to obtain the maximal absorption of the rays by the skin, it seems advisable to avoid marked reactions with consequent pigmentation and thickening of the horny layer. The increasing tolerance of patients to repeated doses of ultraviolet rays is apparent and not real, and is explicable as an increasing resistance to the penetration of the rays on the part of the skin.

## British Journal of Surgery, Bristol

21 557 740 (April) 1934

- Contribution to Study of Pulmonary Lobectomy A G Bryce—p 560  
Multiple Carcinoma of the Colon Four Original Cases A J Cokkins—p 570  
Some Experimental Observations Bearing on Etiology of Megacolon H Burrows—p 577  
Pathology of Acute Strangulation of Intestine R L Holt—p 587  
Neurosurgery in Treatment of Diseases of Peripheral Blood Vessel. D J MacMyn—p 604  
Solemn Treatment of Cancer A T Todd—p 619  
Bilharzia Disease in England Cystoscopic Appearance of Bilharzia Bladder Before and After Intravenous Injections of Sodium Antimony Tartrate J B Christopherson and R O Ward—p 632  
Spindle Celled Mesenteric Tumors Remarks on Similar Retroperitoneal Tumors H A Phillips—p 637  
Observations on Pleural Absorption R C Brock—p 650  
Plan of Visceral Nerves in Lumbar and Sacral Outflows of Autonomic Nervous System H C Trumble—p 664  
\*Malignant Adenoma of Prostate with Secondary Growths in Vertebral Column Simulating Pott's Disease W E C Dickson and T R Hill—p 677  
Primary Carcinoma of the Liver Report of Case Successfully Treated by Partial Hepatectomy A L Abel—p 684

**Malignant Adenoma of Prostate—**Dickson and Hill present a case of primary prostatic adenocarcinoma in a man of 30. Metastases were found in the pelvic, prevertebral, abdominal and thoracic and deep cervical lymph nodes and in the bone of the vertebral column. The latter involved especially the bodies of the seventh cervical and first dorsal vertebrae and adjacent portions of the spinal column and ribs, producing collapse of the vertebral bodies and a condition simulating Pott's "angular curvature," with compression and softening of the spinal cord, From's syndrome with xanthochromia and the sudden death of the patient. The changes in the spinal column were an indication of the tendency of a prostatic neoplasm to metastasize in bone, and were localized. The case differs from the unusual case described by Roberts, in which there was a continuous direct spread of the growth on the intraspinal surface of the dorsal wall of the spinal canal from the sacral to the cervical region, though his theory that there is an intraspinal pathway for the dissemination of prostatic carcinomas consisting of the spinal laminae with their ligaments and the lymph spaces connected with these structures might be considered in this case. In the present case the bony metastases were completely osteoclastic and showed no evidence of the osteoplastic process which is generally described as characteristic of prostatic skeletal metastases.

## British Medical Journal, London

1 699 740 (April 21) 1934

- The Control of Obesity A H Douthwaite—p 699  
Cutaneous Sensitivity to Acid Fast Bacilli in Suspension S L Cummins and Enid M Williams—p 702  
Cause of Hyperpiesia Presentation of a Hypothesis C P Donnison—p 704  
Certain Injuries of the Knee Joint T P McMurray—p 709  
Type IV Pneumococcal Septicemia Case E A Hoare—p 713

1 741 786 (April 28) 1934

- Aural Discharges Their Significance and Treatment J F O Malley—p 741  
\*Ray Treatment of Exophthalmic Goiter C S D Don—p 746  
\*Treatment of Acute Gonorrhea by Means of a New Gonococcal Vaccine of Low Toxicity I N O Price and A J King—p 748  
Small Outbreak of Glandular Fever Notes E J Bradley—p 752  
Diagnostic Significance of a Positive Sputum Report (Direct Examination for Tubercle Bacilli) G G Kayne—p 754

**Treatment of Gonorrhea with Gonococcal Vaccine of Low Toxicity—**Price and King prepare a vaccine of low toxicity for the acute stage of gonorrhea in the following manner. Gonococci grown on hydrocele agar (pH 7.5) in a triangular Roux bottle at 37.5 C for forty-eight hours, are washed off into a cylinder with 100 cc of physiologic solution of sodium chloride, this yields a suspension of about 180 millions of organisms per cubic centimeter. 1 cc. of tenth

normal sodium hydroxide is added and the cylinder is placed in the 37.5 C water-bath for two hours, after which most of the organisms are found to be in solution. The fluid is filtered through sterile lint, 1.5 cc of tenth normal hydrochloric acid is added and the cylinder is returned to the bath. After from fifteen to twenty minutes white floccules appear and these are centrifuged out of solution (3,000 revolutions per minute) and then suspended in 9 cc of sterile solution of sodium chloride. Tenth normal sodium hydroxide is added to the suspension drop by drop until a pH of 7.5 is reached when the precipitate appears to go into solution. To this 1 cc of formaldehyde sodium chloride (1 per cent) is added. This colloidal suspension of gonococcus protein constitutes the vaccine 1 cc of which contains the protein content of approximately 1,800 million gonococci. This preparation was employed in the treatment of forty-six men who were suffering from acute gonococcal urethritis. All injections were given (daily) subcutaneously over the gluteal muscles, the right and left sides being injected alternately. The initial dose in each case was 0.25 cc (450 million organisms), and this was increased to a maximal dose of 1.5 cc if no untoward manifestations occurred. Thirty-eight of the patients (82.6 per cent) showed a marked increase in the strength of their serum tests and a definite decrease in the severity of the clinical symptoms within ten days. In those patients who responded serologically to the vaccine a definite clinical improvement almost invariably followed within a short time, but the proportion of cases that subsequently presented symptoms of chronic infection was not lessened. Serologic results were disappointing in all but two cases. No acute complications occurred as a result of the vaccine, although it was administered during the acute stage of the disease. The number of acute complications—six (13.1 per cent)—occurring later in the course of the disease in patients treated by this method is definitely lower when compared with patients treated by ordinary routine methods alone (24 per cent). The type of gonococcal infection most likely to be benefited by treatment with this vaccine is that in which the patient is suffering from a chronic gonococcal complication, such as arthritis, and the blood, when tested by the complement fixation reaction reveals a low ( $\pm$ ) specific gonococcus antibody content. The author concludes that specific gonococcus antibodies tend to prevent the occurrence of severe acute complications and to shorten the acute stage of the disease but seem to have little effect in eradicating the infection from its localized sites in the genital system. This would account for the disappointing results from the use of gonococcus vaccines, prepared in all manner of ways, in the routine treatment of gonorrhea.

### East African Medical Journal, Nairobi

10 349-380 (March) 1934

- Anesthesia Demonstration of the Ivor Lewis Apparatus J R Gregory—p 350  
Some Considerations for Training of African Medical Students R M Gibbons and Mary J Gibbons—p 355  
Experiment in Midwifery S D Karve—p 358  
Chronic Duodenal Ulcer in an African Native Case C V Braimbridge and H C Trowell—p 365  
Unusual Case of Intestinal Obstruction Note C V Braimbridge and W G S Hopkirk—p 366  
Malignant Disease of Esophagus Case A Ram—p 368

11 1-38 (April) 1934

- Some Aspects of Native Tuberculosis C Wilcocks—p 3  
Bovine Tuberculosis in Tropical Africa H E Hornby—p 9  
Pemphigus Cured Case A R Esler—p 16

### Journal of Tropical Medicine and Hygiene, London

37 65-80 (March 1) 1934

- Influence of Rabic Virus on the Agglutination of Proteus V19 Organisms R D Aunoy and A Fine—p 65  
Protective Inoculation Against Cholera M A Gohar—p 66  
Studies in Dermal Leishmanoid Part I Rare Type of Dermal Leishmanoid P Brahmachari—p 68  
Immunization Against Trypanosomiasis C Schilling assisted by the late H Schreck H Neumann and H Kunert—p 70

Studies in Dermal Leishmanoid—Brahmachari presents two cases of a rare form of dermal leishmanoid showing well marked hyperpigmentation in certain parts of the body with extensive areas of depigmentation in other parts. The pigment cells of the epidermis over the hyperpigmented areas contain much more pigment than the healthy portions of the skin.

There is a slight round-cell infiltration of the skin in the hyperpigmented areas. Both the patients (brothers) present more or less the same type of dermal lesions, e.g., (1) well marked areas of hyperpigmentation, (2) extensive areas of depigmentation, (3) presence of a small number of papules on the body, (4) localized erythema and (5) absence of nodule formation in the skin. A frequent feature in the blood of cases of dermal leishmanoid is the presence of eosinophilia.

### Lancet, London

1 879-930 (April 28) 1934

- International Cooperation in Public Health Its Achievements and Prospects G S Buchanan—p 879  
Radiographic Diagnosis of Gastric and Duodenal Ulceration G R M Cordner and G T Callthrop—p 885  
The Detection of Dangerous Dusts E H Kettle—p 889  
Failures of Gastric Surgery J A Ryle—p 890  
Id A J Walton—p 893

### Tubercle, London

15 337-384 (May) 1934

- Results of Rehousing Tuberculous Patients J A G Keddie—p 337  
Pulmonary Consolidations in Cases of Tuberculosis S S Jaikaran—p 350

**Pulmonary Consolidations in Cases of Tuberculosis**—Jaikaran believes that epituberculous infiltrations are truly tuberculous processes. Caseation and necrosis are the more destructive effects of tubercle bacilli and their products, while epituberculous infiltrations show the more successful reaction of the tissues. He describes six cases of extensive pulmonary consolidation in adults. Resolution, partial or complete, occurred in all. They bore a striking resemblance to cases of epituberculosis. The peripheral consolidation in all active tuberculous foci is of the same nature as an epituberculous consolidation. He has made an attempt to demonstrate the unity of all tuberculous lesions. Destruction of tubercle bacilli and the destruction of fixation of tuberculin by the tissue have been regarded as two separate processes. The tuberculous lesion produced in secondary disease is determined by the degree to which one or both of the powers is developed. Pulmonary consolidations in tuberculosis may resolve at any stage of the disease, even after caseation and cavitation have occurred. When considerable fibrosis has taken place, however, complete absorption of all inflammatory products may be hindered.

### Journal of Oriental Medicine, South Manchuria

20 33-40 (March) 1934

- Research on Reflexes Originating in the Trigeminal Axis Reflex Influences of Trigeminal Stimulation on Movements of Small Intestines G Nakamura—p 33  
Hydrogen Ion Concentration of Histocyte by Vital Staining with Indicator Dyes Part III Indicator Dyes S Hatano and S Iwata—p 35  
Scarlet Fever Toxin I Testing of the Toxicity of Scarlet Fever Toxin by Means of Rabbit Ear Skin Method S Nagata—p 36  
Clinical Observations on Addison's Disease Case M Hashimoto—p 37  
Food of Japanese Farmers in Manchuria IV Experiment on Digestion and Absorption of Principle Mixed Foods Among the Products of Manchuria III A Abe U Takei O Ueno M Ebihara and A Yokota—p 38  
Grape Sugar and Morphine Hyperglycemia K Maeda—p 40

**Toxicity of Scarlet Fever Toxin**—Nagata used the method of Veldee for the testing of scarlet fever toxin and toxin and observed that adult rabbits (more than 2 Kg in weight) usually react to from one half to one human skin test dose. The reaction of the rabbit ear test to scarlet fever toxin usually reaches its maximum in from twenty to twenty-four hours, though there are a few cases in which this maximum is reached in forty-eight hours. The susceptibility of the skin of the ear of the rabbit to scarlet fever toxin showed a local variation, the basal part and the thick part of the inner side being more sensitive than the point and the outer part of the ear. The skin reacts not only to essential scarlet fever toxin but also to a concentrated solution of bacterial protein. The degree of detoxification of scarlet fever toxin can be determined easily. The toxicity of scarlet fever toxin determined by trial with white pigs generally agrees with that determined by this method.

**Grape Sugar and Morphine Hyperglycemia**—Maeda demonstrated that the intravenous injection of hypertonic grape sugar in rabbits dissipated hyperglycemia in acute morphinism.

By studying the relation of morphine and grape sugar to glycogen of the liver, he has observed that 1 Morphine injection diminishes the glycogen of the liver 2 Intravenous injection of grape sugar causes an increase in the glycogen of the liver 3 The effect of morphine in diminishing the glycogen of the liver is destroyed by the intravenous administration of grape sugar 4 Intravenous injection of grape sugar has no effect on epinephrine secretion 5 Glycogen of the liver plays an important part in counteracting morphine

### Archives des Maladies du Cœur, Paris

27 189 268 (April) 1934

- \*Precordial Leads in Electrocardiography I. Technique and Auricular Precordial Leads C Lian F P Merklen and J Odinet—p 189
- P Wave of Initial Ventricular Complex on Electrical Tracings with Disorders of Rhythm C Perzi—p 201
- Adventitious Noise of First Sound of Heart in Auriculoventricular Dissociation P Duchosal and J Bourdillon—p 232
- \*Treatment of Endocarditis Lenta by Vaccinotherapy C Dimitracoff—p 246

**Precordial Leads in Electrocardiography**—Lian and his collaborators chose a series of points on the thorax for placing the electrodes in developing a new lead for electrocardiography. The technic was simple. They used electrodes of impolarizable metal made of a strip of tin either rectangular or circular and on which is attached a stem of the same metal to which the filaments of the electrocardiograph are attached. This electrode is surrounded by a band of flannel saturated with a solution of sodium chloride. The entire structure may be attached to the thorax with rubber bands. The leads found most satisfactory were with one electrode connected to the internal extremity of the third or fifth right intercostal space and the other to the manubrium of the sternum. This lead was then tried on hearts with sinus rhythm auricular fibrillation and auricular flutter. Some errors of interpretation which are possible with the usual leads are no longer possible when this lead is used. This is especially true in bradycardia without visible adventitious P waves. With this new lead, however, auricular fibrillation may be easily seen if present. In certain cases of complete arrhythmia, in which it is difficult to differentiate with the ordinary leads between auricular flutter and fibrillation, this lead also serves to clarify the true condition.

**Vaccinotherapy of Endocarditis Lenta**—Dimitracoff reports the results of treatment of four patients with endocarditis lenta by autogenous vaccines. The technic of preparation of the vaccines is as follows. Once isolated, the streptococci are inoculated in 100 cc of broth prepared by adding 1 liter of water to 500 Gm of dried calf meat and allowing to stand from eighteen to twenty-four hours in the icebox. This is boiled and filtered through linen and Chardin filter paper. The volume is adjusted to 1 liter. Two parts per hundred of Witte's peptone, 0.5 parts per hundred of sodium chloride and 1 10,000 of dextrose are added and boiled for one minute. The pH is adjusted to 7.5. The bouillon is placed in separate containers and autoclaved at 120 C for ten minutes. *Streptococcus viridans* grows readily in this broth in twenty-four hours, but the maximum toxin production does not occur for forty-eight hours. After incubation for forty-eight hours at 37 C the inoculated bouillon is acidified by ten drops of glacial acetic acid to precipitate the toxin. Two hours later, 2 cc of solution of formaldehyde is added. The next day the culture is sterile. The flask is centrifuged at from three to four thousand revolutions a minute for at least ten minutes. The supernatant fluid may be poured off the adherent sediment. The sediment is emulsified with physiologic serum to obtain a concentration of 500 million organisms per cubic centimeter. The pH is adjusted to 7.8. Two parts per hundred of compound solution of cresol is added and the sterility verified. With the vaccine thus prepared three patients having endocarditis lenta due to *Streptococcus viridans* were successfully treated by intramuscular injection of the vaccine. In one patient aged 62, the recovery has continued for two years after the discontinuance of the vaccine treatment. In the second three years has passed since recovery. The third patient, a girl aged 14 was affected by an old rheumatic double mitral lesion and developed a febrile state following the grip. This lasted six months and the patient presented signs of cardiac insufficiency, fever and other clinical manifestations. The blood culture was twice positive for *Streptococcus viridans*. The autogenous vaccine

prepared and given for three months resulted in return of the temperature to normal and improvement of the endocarditis infectious process, which has endured for one and a half years. The fourth case reported was due to a hemolytic streptococcus and the patient died. In view of these experiences the author feels that in spite of many reported failures this method of treatment should be given further trial, especially in endocarditis lenta due to *Streptococcus viridans*.

### Schweizerische medizinische Wochenschrift, Basel

61 481 500 (May 26) 1934

- Campaign Against Cancer of Uterus H Guggisberg—p 481
- Multiple Sclerosis in Rumania A Kreindler—p 496
- Neuroses and Their Treatment in Light of Physiology S Fleischmann—p 487
- \*Histamine Iontophoresis A Kuppeli—p 489

**Histamine Iontophoresis**—Induced by favorable reports in the literature, Kuppeli resorted to histamine iontophoresis in various muscular and articular disorders as well as in localized circulatory disturbances. He applied the histamine in the form of an ointment or of a solution. For the practitioner he recommends the use of a histamine ointment consisting of one part each of histamine dichlorhydrate and distilled water and of sufficient glycerin ointment to make 100 parts. After the skin has been defatted the ointment is applied in a thin layer a gauze compress saturated with the sodium chloride solution is placed over it and then the metal electrode is connected with the positive pole. The negative electrode is applied over a gauze compress that has been saturated with sodium chloride solution. For clinical use the author recommends a histamine solution applied by means of a gauze compress saturated with it. A current of from 5 to 10 milliamperes is sent through for about ten minutes, until an itchy feeling of warmth is felt at the node. The skin becomes hyperemic and papules develop. The author asserts that the application by means of iontophoresis is much more effective than mereunction with histamine ointment. He employed histamine iontophoresis in approximately fifty patients and obtained favorable results in acute and chronic muscular rheumatism, in rheumatic peri-arthritis, in arthritis deformans, in refractory ulcers of the leg and in chronic edemas. The treatment failed in spondylarthritis, in periosteal neuralgias and in neuritides. Iontophoresis with histamine and potassium iodide counteracted the pain in a case of tuberculosis of the wrist and a stiffening of the elbow was likewise improved. The literature reports results also in Raynaud's gangrene and in thromboangitis obliterans. Histamine iontophoresis is contraindicated in patients with fever and caution is necessary in vasolabile neurasthenic patients and in allergic persons.

### Minerva Medica, Turin

1 681 720 (May 19) 1934

- Tumors of Acoustic Nerve Two Cases O Uffreduzzi—p 681
- Chemico-physical Research on Antigen Antibody System V Gaudio—p 693
- \*Late Hypotensive Action of Epinephrine Injected Intravenously L Herlitzka—p 698
- Local Heteroprotein Treatment of Arthritis U Rondelli—p 704

**Late Hypotensive Action of Epinephrine Used Intravenously**—Herlitzka administered 1 cc of a 1 100,000 solution of epinephrine to eleven normal persons and to twenty-seven patients having idiopathic hypotension hypotension due to Addison's disease essential hypertension diabetes with hypertonia hypertension secondary to renal lesions and arteriosclerotic hypertension. He found that in all cases the epinephrine had a rapid and constant primary hypertensive action which exhausted itself in from two to three minutes. This hypertensive action was followed by a more gradual and prolonged hypotensive stage lasting from twenty to fifty minutes. The hypotensive stage which may serve as a test of the vascular tonicity is greatest in hypertensive patients slight in normal persons and nonexistent in persons having hypotension or an arterial system of slight tonicity. The secondary fall of arterial tension takes place at the systolic as well as at the diastolic pressure although it is less marked at the latter. The author did not find appreciable differences in the hypotensive curve of the various forms of hypertension. The intravenous injection of epinephrine does not seem to alter the frequency of the pulse, at least in the late period.

## Polichnico, Rome

11 213 288 (May 15) 1934 Surgical Section

- Fracture of Neck of Radius C Becchi—p 213  
\*Hyperglycemia and Ketonuria in Operations Under Local Anesthesia  
T Calzolari—p 224  
Bilateral Surgical Excision of Ureteral Orifices Local Process of  
Repair and Functional Repercussions on the Reno Ureteral Appa-  
ratus N Cirillo and I Dettori—p 248

**Hyperglycemia and Ketonuria Following Local Anesthesia**—Calzolari studied the glycaemic variations and the behavior of the ketonuria in thirty patients operated on under local anesthesia. In all the operations variations of the glycaemic rate were found in accordance with the type of operation. The behavior of the hyperglycemia was not identical in all cases. In some it became manifest a few hours after operation and in others it appeared late. In every case the resolution of the glycaemic curve was obtained by 1935 and never lasted more than four days. Clinically demonstrable symptoms were not always due to hyperglycemia. A marked increase in the glycaemic curve was often well tolerated without producing any disturbances. Simple administration of anesthetics such as procaine hydrochloride, scopolamine and morphine may produce a mild hyperglycemia, which terminates within twenty-four hours. In operations of short duration the hyperglycemia is erroneously considered to be the result of the anesthetic. The explicit action of the nervous system on the endocrine-sympathetic glycoregulation complex is an accepted theory. The oscillations appearing in the glycaemic curve are always limited and it is difficult to distinguish those caused by the local anesthetic. Of the cases examined 63 per cent showed ketonuria. The action of the anesthetic and of the nervous system is insufficient to explain the pathogenesis of the post-operative hyperglycemia observed in operations of a certain duration. The increase of reducing substances observed in patients finds its principal factor in the postoperative acidosis accompanied or not by ketosis. The author states in conclusion that postoperative hyperglycemia is only partially influenced by the anesthetic and by the action of the nervous system on the endocrine sympathetic glycoregulation complex. He attributes the hyperglycemia to physiochemical modification found in the blood of patients who have been operated on and determined by the extent of operative shock on the acid base equilibrium.

## Actas Dermo-Sifiliograficas, Madrid

26 535 629 (April) 1934

- Cheilitis Glandularis Considered as Occasional Cancerogenous Disease  
J Bejarano—p 535  
Nonspecific Positives in Nonsyphilitic Venereal Diseases E Alvarez  
Sainz de Aja M Torns Contera and P Gomez Martinez—p 543  
Syphilis and Accidents During Work J M Tome Bona—p 553  
Gonococcus Vaccine Therapy in Gonorrheal Complications and Its In-  
fluence on Sedimentation Speed of Erythrocytes E de Gregorio and  
J Murua—p 570  
\*Alkali Reserve in Lepers M Herrera—p 582  
Jaundice in Early Period of Syphilis Case J Maneru—p 587  
Gonococcal Intradermal and Serologic Reactions L de la Cuesta  
Almonacid—p 591

**Alkali Reserve in Lepers**—Herrera studied the alkali reserve in seventy-four lepers all adults of both sexes. The average figures of the actual acid base reaction are diminished in lepers. This confirms the advisability of administering an alkaline treatment to them. Acidosis is more intense in female lepers in patients under the age of 35 in patients suffering from nerve leprosy or having other forms complicated by nervous symptoms in patients presenting the leprosy reaction and in untreated cases. Acidosis becomes more intense in lepers who are placed under the influence of an albumin diet such as is generally the case in undernourished patients suffering from other diseases but not having leprosy when placed on the diet.

## Archivos de Medicina Cirugia y Espec, Madrid

37 389 416 (April 14) 1934

- \*Intradermal Reaction with Mycobacterium Lepae P Montanes—  
p 389  
Heredity in Tuberculosis V L Montero—p 402  
Folds in Roentgen Image of Diaphragm A Freudenthal Portas and  
P Barcelo—p 411

**Intradermal Reaction with Mycobacterium Lepae**—Montañes says that it is possible to obtain pure sediments of Mycobacterium leprae by homogenization of lepromas triturated

and treated with 10 per cent Koch's solution. By means of the intradermal reaction with emulsions of leprosy bacilli the author obtained 100 per cent of positive results in cured lepers and in patients with various diseases but without leprosy. In a group of 116 lepers the intradermal reaction, performed with the same emulsion, gave 14 per cent of positive results. The older the leprosy the greater the number of positive results. The percentage of positive results among lepers is greater in cases of the pure form of nervous leprosy, and also in cases of mixed forms in which the degree of nervous invasion is intense, than in other forms of leprosy. The intradermal reaction was followed by positive results in 80 per cent of the cases in which the disease was inactive and the presence of bacilli in the nasal mucus cannot be demonstrated. The author considers the positivity of the intradermal reaction of great value, especially in the diagnosis of cases in which the patients are going to be discharged as cured.

## Medicina Ibero, Madrid

1 451 488 (April 14) 1934

- Diabetes and Exercise J A Collazo and J Barbudo—p 453  
Role of Wolffian Body and Muller's Ducts in Formation of Uterus and  
Vagina Maria Luisa Quadras Bordes and B Pla Mayo—p 458

**Diabetes and Exercise**—Collazo and Barbudo state that the literature shows the clinical fact that muscular exercise (manual work, sports, gymnastics, massage, etc.) produces the following effect in diabetes. The tolerance to carbohydrates increases in patients with the florid form, the acidotic complications grow worse in patients with grave forms of diabetes complicated by acidosis and the action of insulin is activated in cases of diabetes compensated by insulin therapy so that it is possible to reduce the dose of insulin. The authors determined the lactic acidemia and the glycemia before and after muscular exercise in twenty-one patients with diabetes (including patients with the forms of florid diabetes compensated diabetes and grave diabetes complicated by acidosis) and found that muscular exercise produces a slight increase (about 4 mg) of lactic acid of the blood in almost all patients, and a decrease of the glycemia in all of them. The authors interpreted the aforementioned results as meaning that exercise makes the muscles develop a greater capacity to assimilate and use dextrose from the circulating blood and makes the liver develop a greater avidity for the lactic acid of the blood which, once drawn to the liver, is used by it to form glycogen.

## Chirurg, Berlin

6 361 400 (May 15) 1934

- \*Thick Abdomen Rost—p 361  
Traumatic and Nontraumatic Thickening of Dura with Microscopic  
Hematomas Simulating Brain Tumors A Jentzer—p 364  
Determination of Level of Blind End of Congenital Atresia of End of  
Intestine R Zenker—p 370  
Surgery of Nervous System Review G Jorns—p 372

**Thick Abdomen**—Rost states that there exist three types of thick abdomen: (1) that due to deposition of fat in the abdominal wall; (2) that due to deposition of fat within the abdominal cavity so-called intestinal fat; and (3) that in which without any actual increase in fat there is an enlargement of the circumference of the abdomen often associated with an increase in the size of the abdominal organs, notably of the intestine. Obesity in human beings is principally nutritional in character that due to endocrine disturbance being quite rare. Fat distribution is influenced by the glands of internal secretion and by the character of the tissue. This accounts for the difference in the male and female types of fat distribution and in eunuchoids. Obesity of thyrogenous origin is characterized by thick joints whereas in obesity of hypophyseal origin the joints may be slender but the face is fat. In obesity of nutritional origin the fat is deposited in the neck and the abdomen. The author performed feeding experiments on 165 rats in order to investigate the role of diet in distribution of fat. One group of animals was fed bacon in addition to the basic diet of noodles, gruel and milk; another group received lean meat in addition to the basic diet while a third group was allowed liberal amounts of the basic diet. To hasten fattening in several of the animals the author resorted to the method of P E Smith of puncturing the base of the brain through

the ear or through the occipital foramen. This method speeds up the fattening process to a remarkable degree. The feeding of young animals on a diet rich in meat, but restricted as to fat and carbohydrates, resulted in the enlargement of the abdomen without, however, an increase in the amount of fat either in the abdominal wall or in the intestine. The enlargement was due to an increase in the size of the stomach and of the intestine. Animals fed on a diet rich in fat and carbohydrates developed pronounced fat deposits in the abdominal wall and in the intestine. This, however, occurred only after the normal weight of the animal had been reached, that is, when the animal had arrived at the adult stage. The author's surgical experience in human beings coincided with his animal experiments. Young persons, as a rule, do not store up fat. In the obese young person the fat is deposited in the abdominal wall and not in the intestine. In the adult the tendency is first to store up fat within the abdominal cavity rather than in the abdominal wall.

### Medizinische Klinik, Berlin

30 661 692 (May 18) 1934 Partial Index

- Typical Accidents in Sports R Sommer—p 663
- \*Etiology of Urticaria E Uhlmann—p 667
- Permanent Cardiac Impairment and Disturbances in Cardiac Conduction System After Diphtheria H Mautner—p 669
- Problem of Hysteria in Practice C Fervers—p 670
- \*Investigations on Behavior of Reaction of Urine Following Resection of Stomach K Lion—p 671
- Role of Anomalies of Position of Teeth in Pathogenesis of Sigmatisms D Weiss—p 673

**Etiology of Urticaria**—Uhlmann calls attention to the concurrence of urticaria with disorders of other organs, gastrointestinal disturbances, hepatic and renal diseases, menstrual disorders and infectious processes. Then there are certain foods and physical factors, particularly thermic influences, that may cause urticaria. A study according to uniform points of view is made difficult by this multiplicity of eliciting factors. Urticaria may be caused by exogenous and endogenous factors, but the point of attack in the skin is perhaps the same in both cases. Exogenous causes are, for instance, the galvanic current and toxic substances produced by certain plants or animals. The wheal formation is of especial significance in the study of the pathogenesis of urticaria. Microscopic examination reveals that, with rare exceptions, the wheals are located in the papillary layer and in the succeeding layers of the cutis. Signs of inflammation exist, the capillaries are dilated, there is serous exudation and frequently an emigration of leukocytes. In sections of wheals that exist for longer periods, it is often possible to demonstrate perivascular infiltrates, which evidently exerted pressure on the capillaries. The author calls attention to the theory that the capacity of tissues to absorb water is responsible for the development of the wheal. The experimental production of wheals is retarded or entirely inhibited if the blood supply is cut off. He shows that nerve conduction has no influence on wheal formation because wheals can be produced even if the sympathetic innervation is completely interrupted, and he concludes that wheal formation is due exclusively to local factors that exert a direct influence on the vascular wall. This fact explains the possibility of an urticarial eruption following external or internal application of the wheal producing substances. If these substances reach the surface of the skin, they penetrate to the superficial blood vessels and exert their action, if, however, the urticaria is due to endogenous factors, the wheal producing substance reaches the cutaneous vessels by way of the blood stream and attacks their walls directly from the lumen. In addition to this there is of course the possibility that under the influence of the substances the tissues of the skin liberate substances that are capable of producing inflammatory hyperemia and serous exudation. The hyperemic area which sometimes surrounds the wheal for a while, has an entirely different pathogenesis, for it is caused by a reflex mechanism. The author shows that fluctuations in the acid-base equilibrium may play a part in the development of urticaria.

**Reaction of Urine Following Resection of Stomach**—Lion discusses the reaction of the urine in connection with the problem of the formation of urinary calculi. Since phosphaturia is a preliminary stage in the formation of phosphate

calculi, he calls attention to the so called physiologic phosphaturia, also termed postdigestive alkaluria. Bence Jones, who first observed this phenomenon, assumed that the acid required for digestion was withdrawn from the blood so that an excess of alkali was the result. This excess could be removed only through the kidneys and thus the urine became alkaline. Many investigators accepted this explanation, but others gave different ones. The author reasons that if postdigestive alkaluria is caused by the excretion of the acid gastric juice, it must be concluded that in the absence of this acid excretion the alkalinity must likewise remain absent. Some observations seem to corroborate this, but others contradict it. The author examined the urines of thirty patients who had undergone gastric resection. In some the tests had been made also before the resection. The results of these studies are a complete corroboration of the assumption that digestive alkaluria is connected with the hydrochloric acid secretion of the stomach. Whereas before the gastric resection a digestive alkaluria was present, this was not the case after the resection, that is, after a hydrochloric acid elimination was no longer possible.

### Munchener medizinische Wochenschrift, Munich

81 777 816 (May 25) 1934

- Vitamin A in Treatment of Nurslings Presenting Avitaminosis A (Keratomalacia) E Wieland—p 777
- General Acute Miliary Tuberculosis R Staehelin—p 780
- \*Children as Carriers of Typhoid and of Paratyphoid Bacilli F Laessing—p 783
- Sympathetic Ophthalmia in Light of Recent Results of Research A Jess—p 786
- Testing of Hearing and of Equilibrium by General Practitioner H Richter—p 789
- \*Vitamin C and Propagation E Vogt—p 791
- \*New Method of Application of Bee Venom in Rheumatic Disorders R Schwab—p 793
- Organotherapy of Infectious Processes of Skin W Milbradt—p 794

**Children as Carriers of Typhoid Bacilli**—Laessing shows that typhoid cases among children amount to at least one third of the total number of cases. Even nurslings may contract typhoid or paratyphoid. Children remain, just like adults, carriers of the bacilli, but the chronic cases are less frequent than the temporary ones, and they are less often carriers of typhoid than of paratyphoid bacilli. After paratyphoid the proportion of temporary carriers amounts to 30 per cent of all cases. The predominance of the prolonged elimination of bacilli after paratyphoid may perhaps be the result of the technic of the examination. Children occasionally pass through abortive attacks of typhoid or paratyphoid, which are not diagnosed, and thus they may become the cause of many other typhoid or paratyphoid infections.

**Vitamin C and Propagation**—Vogt cites experiments on guinea-pigs, which prove that only 50 per cent of the animals receiving a diet deficient in vitamin C become pregnant. Moreover, the symptoms of scurvy resulting from a diet deficient in vitamin C are much more pronounced in pregnant animals than in nonpregnant ones, which proves that larger amounts of vitamin C are required for the intra-uterine development of the fetus. It was found that deficiency of vitamin C results in a high percentage (50) of abortions and that the extra-uterine development of the young animals is possible only if they are born with a certain supply of vitamin C. The author admits that guinea-pigs are especially susceptible to vitamin C deficiency and that consequently a certain reserve is necessary in comparing them with conditions in human subjects. Nevertheless these studies indicate that vitamin C should be given consideration in the etiology and therapy of various disorders concerning human propagation. He suggests that deficiency of vitamin C may eventually play a part in female sterility and also in some instances of habitual abortion or premature delivery. Moreover, the postnatal development is connected with the supply of vitamin C and there is some evidence that hydrops foetus universalis and icterus gravis neonatorum are caused by a deficiency of vitamin C in the diet of the mother. The author also touches on the relationship between vitamins and hormones. He points out that habitual abortion is often successfully counteracted by corpus luteum preparations and since a greater supply of vitamin C in the food seems to have the same effect, he assumes a biologic

relationship between them. This appears the more understandable since, besides the suprarenals, the corpus luteum is the only organ of the human organism that contains greater amounts of vitamin C.

**Bee Venom in Rheumatic Disorders**—Schwab found that the intracutaneous administration of bee venom was effective, but because of certain disadvantages of this method, such as headaches, vertigo and nausea, the resistance of the patients to the numerous injections was often difficult to overcome. For this reason he was gratified when Forster succeeded in preparing an ointment that contains the effective constituents of bee venom. Since application of the native venom to the intact skin was proved to be ineffective the ointment could be efficacious only if resorption could be insured. The resorption of the ointment, which has been proved experimentally and clinically, is facilitated by various factors. The ointment base is readily resorbable. The epidermis is softened by means of salicylic acid and the skin becomes scarified by the minute crystals contained in the ointment but this scarification is so fine that it is not visible. The author employed the bee venom ointment in more than forty cases of acute and chronic articular rheumatism, muscular rheumatism, sciatica and neuralgia. The preparation was always well tolerated. The ointment is applied daily for eight successive days with increasing doses. After this, the injections are suspended for about four days, and, if the result is not yet satisfactory, they may be repeated. In chronic articular rheumatism the treatment had to be continued longest. In discussing the mode of action of this bee venom preparation the author expresses the opinion that increasing immunization against the bee venom and against the rheumatism is the main factor. This is proved by the fact that the preparation was effective not only when applied to the diseased region but also when applied to indifferent portions of the body. It is probable that the action of the bee venom is promoted by the simultaneously existing hyperemia. The ointment differs from the bee venom preparations employed for injection in that it contains the native venom and thus comes closest to the original application in the form of the sting. Moreover the use of the ointment makes it possible to administer larger quantities without causing noticeable disturbances.

# Zentralblatt für Gynäkologie, Leipzig

58 1153 1200 (May 19) 1934

- \*Vaginal Ligation of Uterine Arteries in Gynecologic Hemorrhages M Henkel—p 1153
- \*Histologic Changes in Anterior Lobe of Human Hypophysis Following Irradiation with Roentgen Rays E Stockl—p 1160
- Spontaneous Rupture of Uterus W Wlassow—p 1165
- Early Eclampsia H Offergeld—p 1174
- Mechanical Rupture of Papillary Psammocystoma in Girl Aged 22 G Sachs—p 1185

**Vaginal Ligation of Uterine Arteries**—Henkel emphasizes that the complete destruction of the genital function should be avoided in the treatment of uterine hemorrhages. He considers a radical intervention particularly inadvisable in women with myoma, for it is well known that in these patients the menopause as a rule develops much later than in other women, a fact which indicates a functional origin of the hemorrhages. It may be assumed that they have an increased secretory genital function, and its interruption on the basis of the average menopausal age would therefore mean a premature destruction of the genital function in these women. The author relates the clinical history of a woman, aged 34, who had had profuse and painful menstruation for about three years. Laparotomy revealed a submucous myoma involving the largest portion of the anterior wall of the uterus. An illustration of the operation shows that an oval section was removed from the anterior wall of the uterus. In the course of this intervention the uterine vessels had to be ligated. Since in numerous conservative operations for myoma the author had never experienced an impairment of the nutrition of the uterus following the unilateral ligation of the vessels, he decided to try to verify in this case whether the anastomoses with the ovarian artery would be sufficient to take care of the nutrition of the uterus. The result of this operation was that the woman had a regular, painless menstruation of two days duration. The author decided to resort to ligation of the uterine arteries

from the vagina in severe hemorrhages during the menopausal age, in the presence of small myomas and in their absence, and in cases of prolapse or retroflexion. He did it successfully in eight cases. The hemorrhages are thus reduced, but there is no sudden exclusion of the genital function. The technique of the vaginal ligation is comparatively simple. After the bladder has been pushed back, the two uterine arteries can readily be reached from the vagina and be ligated. A curettage of the uterus may be combined with this intervention. Examination of the material removed by curettage is helpful in excluding the presence of carcinoma. The author directs attention to experiences of Gottschalk and Küstner with the ligation of the uterine arteries. The latter recommended ligation of the uterine arteries not only on account of myoma but also in chronic metritis.

**Changes in Anterior Lobe of Hypophysis Following Irradiation**—The fact that roentgen irradiation of the anterior hypophysis is employed more and more in the treatment of menopausal disturbances and after surgical and roentgenologic castration induced Stockl to study the histologic changes produced by the roentgen rays. Studies on the hypophyses of rabbits convinced him that the anterior lobe of the hypophysis has a high resistance to roentgen rays and that, in view of the rather small doses that are generally employed in the irradiation of the hypophysis, it is not very probable that marked morphologic changes develop. However, it is impossible to draw conclusions as to conditions in human subjects merely from observations on animals, especially when the organ under consideration shows considerable differences in animals and man. The death of a patient thirty-eight days after roentgen irradiation of the hypophysis gave him the opportunity to study the changes produced by the treatment. The rays had been applied to two temporal fields, and 610 roentgens was the approximate total dosage. The author observed extensive necroses partly involving two thirds of the tissues of the anterior lobe. This proves that an irradiation with such a dose produces anatomic changes. The biologic changes produced with approximately the same dose have been described before. The author states that in Vienna it is customary to employ a dose that is about one half smaller, so that the total dose is only about two thirds of that applied in the reported case. Anatomic studies have not been made as yet in cases in which this dose was given, but the author assumes that even these doses cause histologically demonstrable, regressive changes.

# Sovetskaya Vrachebnaya Gazeta, Leningrad

Jan 31 1934 (No 2) pp 81 160 Partial Index

- Newer Trends in Physical Therapy of Nervous and Internal Diseases E T Zalkindson—p 85
- Simplified Method of Immunization Against Diphtheria N I Lunin and M R Gandelman—p 89
- Technic of Radical Operation for Cancer of Uterine Cervix N I Kushtalov—p 109
- \*Blood Pressure and Temporal Reflex S S Vermet—p 120

**Blood Pressure and Temporal Reflex**—Vermet examined the blood pressure in 100 persons suffering from headaches of neurasthenic type and exhibiting the temporal reflex previously described by him. The reflex consists of a prominent pulsation of the temporal artery on the involved side. The apparently hard vessel, tense pulse and loud heart tones suggested a state of arteriosclerosis. The investigation of the blood pressure, however, showed that instead of hypertension this condition was characterized by marked hypotension. In most of the cases the pressure was between 105 and 115, in many below 100 and in a few as low as 85. The author concludes that in the temporal reflex the artery is dilated, weakened and tortuous and that the dilatation is the result of an active process of vasodilators rather than of a paralysis of vasoconstrictors, because it is not preceded by an initial constriction. The temporal reflex is an expression of hyperirritability of the vasodilators. This hyperfunction of one part of the vasomotor system at the expense of the other, the vasoconstrictor, affects the blood supply of various organs and their functions. Patients who have the temporal reflex exhibit a general disturbance of the central nervous system, such as dermatographia, tremor, headaches, insomnia, irritability, poor memory and other manifestations diagnosed as neurasthenia.



**Nederlandsch Tijdschrift voor Geneeskunde, Haarlem**

78 1929 2052 (May 5) 1934

- Spectacles or Contact Glass H J M Weve—p 1930  
 \*Concerning Security of Periodic Abstinence G van E Boas—p 1938  
 Heterophile Antibodies in Glandular Fever L Meijler and R J Siemelink—p 1952  
 \*Infra-Red Ray Treatment in Gynecology H Heymans van Amstel—p 1960  
 Primary Sarcoma of Portio Vaginalis in Uterus Bilocularis Case W J Oosterveld—p 1967  
 Incipient Pneumonia with Violent Pains in Region of Appendix J H Ziesel—p 1970  
 History of Diabetes J Koopman—p 1973

**Security of Periodic Abstinence**—Boas describes twelve cases of pregnancy following coitus on an exactly known day. He found that nine of these conformed to the recent point of view of periodic sterility, because conception occurred within the so-called vulnerable days. The remaining three cases seem to contradict this theory. One followed coitus on the last day of the postmenstrual sterile period and another on the eighth day before the expected menstruation, while in the last case three conceptions took place under extraordinary circumstances: the first and third pregnancy were conceived within and the second one without the fertile period calculated according to Ogino and Smulders.

**Infra-Red Ray Treatment in Gynecology**—Van Amstel states that infra-red rays have a stimulating influence on the growth and sex hormones. The author treated four menorrhagic patients aged from 16 to 19 with infra-red rays and obtained good results in all. Four patients aged approximately 30, presented menorrhagic and metrorrhagic changes after the treatment; the interval between menstruations of three patients was longer and the duration of the menstruation less, but the pain of menstruation had not subsided. The general condition of all patients showed marked improvement. The period of irradiation was from eight to thirty hours. The patients were always placed at a distance of from 40 to 50 cm from the lamp. Four patients presenting dysmenorrhea did not respond well to treatment. One patient, aged 33 had slight hypoplasia of the genitalia and severe menstrual pains of five years duration and showed complete disappearance of pain and a general improvement after twenty hours of irradiation. Three patients presenting amenorrhea menstruated regularly after treatment. The author treated successfully kraurosis of the vulva, vulvitis, colpitis, pruritus with eczema of the vulva and epithelial defects resulting from roentgen irradiation. He concludes that infra-red irradiation has a beneficial effect on abnormal uterine hemorrhages, especially in young women, and a stimulating effect on the general condition of the patient.

**Acta Medica Scandinavica, Stockholm**

82 1 192 (April 27) 1934 Partial Index

- Secondary Fusospirochetal Infection in Perforation and Development of Peritonitis in Tuberculous and Typhoid Intestinal Ulcers M B Ariel—p 29  
 \*Treatment of Adiposogenital Dystrophy W I Rachmann—p 43  
 Acidity of Gastric Juice and Contents of Fasting Stomach W N Boldyreff—p 111  
 \*Iodine Content of Blood and of Urine and Basal Metabolic Rate Their Value in Diagnosis of Function of Thyroid A W Elmer and M Scheps—p 126  
 Treatment of Simple Achylous Anemia with Large Doses of Metallic Iron H Hallander—p 137  
 Rhythm of Metabolism Daily Variations in Temperature of Body and Excretion of Water Nitrogen Urea and Urobilin in Urine E Forsgren and R Schnell—p 155  
 Determination of Hemoglobin Percentage from Sedimentation Rate M C Lottrup and H Lebel—p 170  
 Local Immunity in Subarachnoid Space D A Shambourov A E Kulikov and M E Tarnopolska—p 173

**Treatment of Adiposogenital Dystrophy**—Rachmann relates the history of a woman, aged 22 who has been under his observation for five years. She had the typical symptoms of adiposogenital dystrophy: infantilism, hypogenitalism, obesity, reduced basal metabolism, increased tolerance for carbohydrates and enlargement of the sella turcica. The tests of the function of the hypophysis indicated a hypofunction. Since it was evident that a pluriglandular disturbance existed the patient received periodically pluriglandular treatment. Hypophyseal, ovarian and thyroid preparations were given. The basal metabolism was constantly controlled in the course of this treatment. The amenorrhea disappeared. At first the men-

struation was irregular, but later it became regular and there was no further increase in weight. The patient also grew a few inches. The author emphasizes that the organotherapy can never be a complete substitute, and it should aim to stimulate the function of the hypophysis. He advises against roentgen irradiation of the hypophysis in patients with adiposogenital dystrophy. He admits that roentgen treatment of the hypophysis has produced favorable effects in acromegaly, but this condition is the result of tumor and hyperfunction of the hypophysis, and the roentgen treatment is effective in counteracting the symptoms of compression. In adiposogenital dystrophy he considers roentgen therapy permissible only in cases in which there are signs of cerebral compression.

**Diagnostic Value of Iodine Content of Blood and Urine and Basal Metabolic Rate**—Elmer and Scheps found that in cases of euthyroidism with normal or increased basal metabolism the iodine content of the blood and of the urine is normal. The conditions are similar in nontoxic goiter. In cases of hyperthyroidism not undergoing treatment the increased basal metabolic rates are accompanied by an increased iodine content of the blood, but increased elimination of iodine in the urine is noticeable only in the more severe cases. In hypothyroidism the reduction in the iodine content of the blood rarely of the urine, corresponds to the lowered rates of the basal metabolism. In atypical forms of hypothyroidism, the iodine content of the blood is either near the lower limits of the normal or slightly below normal although the basal metabolism is decreased. When present alone, neither the increased iodine content of the blood nor the heightened basal metabolism indicates a hyperfunction of the thyroid, only the simultaneous increase of the two values proves it indisputably. The normal iodine content of the blood (in cases not undergoing treatment) excludes hyperthyroidism. In the detection of hypothyroidism and of its atypical forms, the determination of the iodine content of the blood and of the basal metabolism is only of limited value, for the iodine content of the blood is only slightly decreased or normal and its variations may be explained by faulty technique and the decrease in the basal metabolism may result from causes other than the insufficiency of the thyroid gland. The normal iodine content of the blood in cases with a low basal metabolic rate does not exclude an insufficiency of thyroid.

**Ugeskrift for Læger, Copenhagen**

96 447 472 (April 26) 1934

- Tuberculin Tests in Schools A Larsen and K Halberg—p 44  
 \*Acidosis Treatment of Pyuria P Plum—p 453

**Acidosis Treatment of Pyuria**—In three out of Plum's twelve cases of pyuria acidosis, treatment resulted in sterile urine. The  $pH$  of the urine was brought down to 5.5, 5.1 and 5.1, respectively.

96 473 494 (May 3) 1934

- \*Cholecystography J Foged—p 473  
 Quantitative Photometric Determination of Bilirubin Content of Serum K Brächner Mortensen—p 482

**Cholecystography**—Foged reports on 401 cases of cholecystography in 388 patients. Normal cholecystograms were seen in ninety-one of ninety-seven patients without symptoms from the hepatobiliary tract. In 214 cases of cholelithiasis and cholecystitis 191 showed pathologic cholecystograms. Cholecystography verified the diagnosis in 30 per cent of the case, and supported the diagnosis in 90 per cent. The cholecystogram gave diagnostic information in nine out of ten cases of pericholecystitis. In some cases of cancer of the gallbladder and the biliary ducts of hepatitis and of cancer of the liver and in patients under observation for cholelithiasis the result of cholecystography as a rule agreed with the clinical picture. A normal cholecystogram does not definitely exclude a pathologic condition in the biliary tract. In more than 90 per cent a pathologic cholecystogram means a disturbance of the liver or of the biliary tract. Sandstrom's oral fractionated administration of the contrast substance is recommended as the normal method. Suspected disorder of the biliary tract is an indication for cholecystography. There is no absolute contraindication. On the basis of comparison between cholecystography and direct roentgen examination in 158 patients, the latter is regarded as usually superfluous when cholecystography is done.

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## CLINICAL TYPES OF THERAPEUTIC PNEUMOTHORAX AND THEIR SIGNIFICANCE

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PHILADELPHIA

Of all forms of treatment in pulmonary tuberculosis, therapeutic or artificial pneumothorax occupies an increasingly important position and today it is practiced in approximately 50 per cent of all cases of tuberculosis. Rist considers it the most remarkable advance made thus far in the treatment of pulmonary tuberculosis. It has undoubtedly considerably improved the prognosis of certain very common forms of this disease that formerly were regarded as invariably hopeless.

From the clinical point of view, one may consider several types of artificial pneumothorax: total collapse (complete collapse, compression pneumothorax), incomplete collapse, selective collapse (hypotensive pneumothorax, partial pneumothorax, expansile pneumothorax), simultaneous bilateral pneumothorax, and alternating pneumothorax. It is my purpose in this paper to describe in brief these various forms and to emphasize the clinical significance of each as well as some of the more important indications.

### TOTAL COLLAPSE

When Carlo Forlanini first practiced pneumothorax in 1884, he assumed that for the pneumothorax to lead to cure it should be complete—that is, both the healthy and the diseased part should be collapsed—and that the intrapleural pressure should be such as to assure absolute and uninterrupted immobilization of the entire lung. Only in this way could there be any healing of the tuberculous process. Consequently when pneumothorax was indicated the lung was shrunk to a more or less elongated hemispherical or sausage-shaped mass (figs 1 and 2). Under such circumstances, treatment could be instituted only when the contralateral lung was free of disease. Dyspnea, general discomfort, pleural effusions and reactions and displacement of the mediastinum were frequent and troublesome complications, and pneumothorax gained little headway.

As time went on, clinical experience forced the conclusion that absolute immobilization of the entire lung was not essential to healing. It was observed time and again that, even with an imperfect or incomplete collapse, because of adhesions (fig 3) notable results were attained. Furthermore, the marked beneficial effects of the pneumothorax that were so frequently observed at the very beginning of treatment occurred at a time when total collapse had not yet been established.

Pondering over these clinical facts, Ascoli in 1912 made the next most important contribution to collapse therapy when he urged the abandonment of complete collapse in favor of partial collapse, or, as he termed it, hypotensive pneumothorax, that is, pneumothorax accompanied by low manometric readings or negative pressure. It was not long before this teaching took root and operators in different parts of the world soon applied this newer conception of pneumothorax therapy in their practice. With inevitable refinements and developments in technique the hypotensive pneumothorax of Ascoli became the selective collapse of today, a term first used by Barlow and Thompson in 1921.

### SELECTIVE PNEUMOTHORAX

The primary object of selective collapse as it is understood today is to maintain uniformly and continuously complete collapse of the diseased part of the treated lung and at the same time permit full function of the healthy part (figs 4, 5, 6 and 7).

The mechanics of selective collapse is relatively easy to understand. When air is introduced into the pleural space under negative pressure and the patient subsequently studied under the fluoroscope, it will be observed that the air has a tendency to localize itself around the diseased area of the lung regardless of whether the disease is located in an upper or a lower lobe. This is a natural phenomenon and takes place of its own accord, provided the factors necessary for its production are not too violently disturbed. The explanation for this phenomenon is usually given as follows:

The tuberculous tissue having lost its elasticity is less able to resist the pressure of the induced pneumothorax and with each breath expands less and less. On the other hand, the healthy part of the treated lung with its elasticity unimpaired can and does resist the pressure of the induced pneumothorax. With each inspiration it expands freely to the chest wall and recedes on expiration. On inspiration, in order to make room for itself, the healthy part drives the air in front of it and forces it into the path of least resistance, which is toward the diseased area. This expansile action of the healthy part by repeatedly compressing and forcing the imprisoned air in the pleural cavity toward the diseased area little by little completely collapses the diseased part and then keeps it collapsed indefinitely. Given enough time, the constant hammering of this expansile force will cause satisfactory collapse of a diseased area in spite of apparently obstructing adhesions, and unyielding cavities will slowly give way and become completely obliterated without subjecting the patient to the dangers and disadvantages of complete collapse of the entire lung.

The phenomenon of selective collapse is thus viewed as an automatic mechanism, the resultant action of the

simultaneous tendency of the diseased part to collapse and of the healthy part to expand

Selective collapse has greatly widened the indications for pneumothorax therapy and has made it possible for patients with extensive bilateral disease to participate in its benefits. It minimizes respiratory disturbance, prevents circulatory distress and throws the least amount of work on the contralateral lung. It has reduced the incidence and seriousness of pleural effusions and is undoubtedly the procedure of choice.

The technic necessary for its production and maintenance is much more exacting than for complete collapse and depends for its success on close attention to the refill interval, the quantity of air administered, manometric readings, and routine fluoroscopic studies before each refill. Even under skilful guidance the healthy part of the lung may become adherent to the chest wall and the pleural space subsequently lost.

#### SIMULTANEOUS BILATERAL PNEUMOTHORAX

With the principle of selective collapse established, the next logical development in pneumothorax therapy was simultaneous collapse of parts of the two lungs. Ascoli is credited as the first to practice simultaneous collapse. It is undoubtedly the most difficult type of pneumothorax therapy to carry on successfully and requires the closest attention to detail. It is applicable only in a limited number of cases, and when applied judiciously the results are satisfactory. The best type of case is one in which the lesions are not too far advanced and are definitely limited to the upper lobes or when there has been a recent spread of the disease in the contralateral lung,

The following is an interesting example

CASE 1—S. S., a man, aged 23, came under observation, Dec. 19, 1929, with acute pulmonary tuberculosis involving the right upper lobe and complicated by severe hemoptysis. Therapeutic pneumothorax was instituted, December 21, and the patient responded well. Bleeding ceased almost instantly and within a month the temperature was normal. His recovery continued uneventful and by September of the following year he resumed

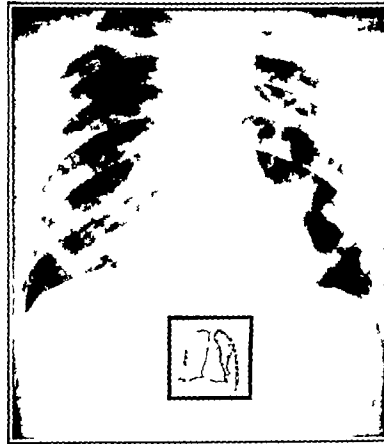


Fig. 3—Incomplete collapse of left lung. In some cases an ideal collapse is not possible because of numerous adhesions, yet the collapse established is sufficient from the clinical standpoint to close cavities and permit healing. Such a pneumothorax should not be interfered with. The patient has had his collapse maintained for over six years during which time he has been self supporting and leading a normal active life. The shrunken area in the diagram represents collapsed lung.

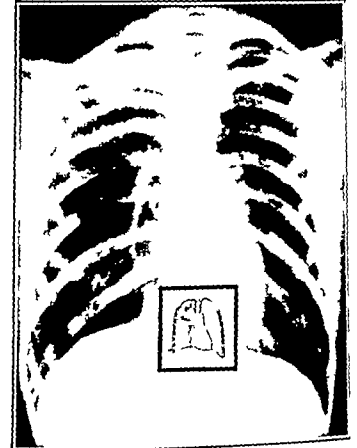


Fig. 4—Advanced tuberculosis of the right upper lobe.

full duties as a practicing attorney. Everything continued well with the patient self supporting until January 1933, practically three years after his first breakdown, when a bad cold developed, with resultant spread of the tuberculosis in the "good" or left lung and the sudden appearance of two small cavities in the mid-lung field. Because of the unusually good result obtained with pneumothorax on the right side and the prospect of a complete anatomic cure and the natural apprehension of the patient, it was not deemed desirable to discontinue the first pneumothorax. Accordingly a second pneumothorax was established on the left side, Jan. 23, 1933.

Within two weeks the patient was back on his job with no symptoms of tuberculosis and no discomfort from the double-sided pneumothorax. Fifteen months has now gone by and the disease in the left lung is undergoing slow absorption. The collapse is continued on both sides and the patient is happy and hopeful. No other form of therapy could have solved the patient's problem so effectively and so pleasantly. The only inconvenience is the frequency of refill. Figure 8 depicts the state of collapse of the lungs shortly after the bilateral pneumothorax was established.

The chief disadvantages of simultaneous collapse are the difficulty of management and the frequency with which refills must be given. Before deciding on such therapy one should consider carefully the advantages of alternating successive pneumothorax and of pneumothorax on one side and phrenic evulsion combined with scalenotomy on the other. A decision is often difficult to reach and involves considerable judgment based on past experience. Unfortunately, the results of phrenic evulsion and scalenotomy are not so certain as is that of successful collapse by pneumothorax and in times of emergency or when there is doubt, and time is an important element, the



Fig. 1—Advanced tuberculosis of right upper lobe.

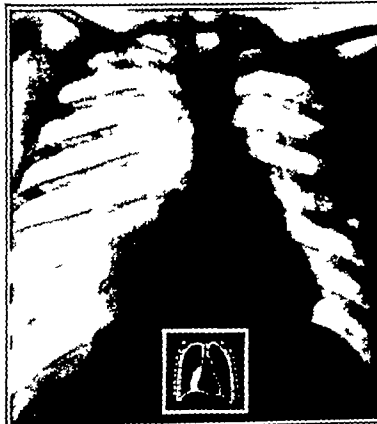


Fig. 2—Complete collapse of right lung (same case as in figure 1). The diseased and healthy areas are equally collapsed and the lung is shrunken to a sausage shaped mass lying close to the heart (shaded area in diagram). This type of therapy often results in a reactivation of a quiescent lesion in the contralateral lung and is happily becoming obsolete.

necessitating prompt intervention. Such patients can be helped materially by simultaneous bilateral pneumothorax. There need be no dyspnea or other signs of discomfort. In some instances the patients can be self supporting while under treatment and within reasonable limits be permitted to lead normal active lives.

decision is often forced in favor of simultaneous bilateral pneumothorax in spite of its disadvantages. However, this treatment has a definite place in collapse therapy and greatly widens its usefulness.

ALTERNATING PNEUMOTHORAX

Alternating or successive pneumothorax, as its name implies, is the successive collapse of first one lung and then the other by artificial pneumothorax. Usually the first lung is not permitted to expand until it has been collapsed for a year or more. This type of therapy is especially indicated in patients who develop contralateral disease during pneumothorax treatment or who have bilateral disease equally distributed when first seen.

Alternating pneumothorax, introduced by Forlanini in 1911, is on the increase largely because therapeutic pneumothorax is now much more widely employed and because the majority of patients subjected to collapse therapy have considerable disease in both lungs. Some operators prefer alternating pneumothorax to simultaneous bilateral collapse as a safer and simpler procedure, and there is much to support such a view.

When alternating pneumothorax is indicated, the most involved side is collapsed first and a careful watch kept on the contralateral lung. Very often the untreated lung will improve with improvement in the collapsed lung, especially if the patient is kept in bed. Progression of disease in the untreated lung, however, may be a very serious complication and at times may require heroic measures, especially when the disease in the "good" lung is spreading rapidly and is accompanied by severe hemoptysis and high fever. In such

CASE 2—II S. A. M., aged 22, came under observation in February 1931, at which time he was acutely ill with tuberculosis of the right lung complicated by severe hemoptysis. Therapeutic pneumothorax was promptly instituted and a dramatic result obtained. The hemoptysis ceased, the cough and fever disappeared, and within two weeks the patient was well on the road to recovery. He gained rapidly in weight and within three months returned to active life. In January 1932, thirteen months after he first took ill, a series of colds

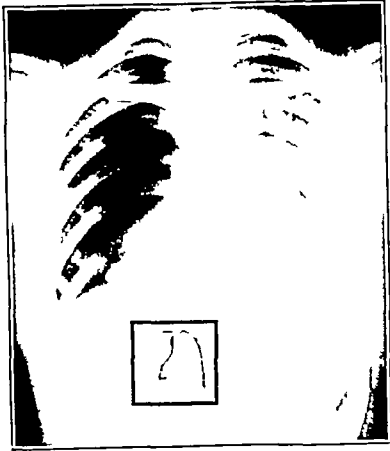


Fig 7—Selective collapse (same case as in figures 4, 5 and 6). On deep expiration the healthy lower lobe undergoes marked collapse and gives a striking illustration of the freedom of movement of the healthy part of the treated lung under selective collapse therapy.



Fig 8—Bilateral artificial pneumothorax. This patient is self supporting and leads a normal active life in a large city. The shaded area in the diagram represents the collapsed lung.



Fig 5—Selective collapse of right lung (same case as in figure 4). The diseased upper lobe is completely collapsed while the remainder of the lung which is healthy is permitted to function freely. (See figures 6 and 7.) This type of therapy greatly widens the indications for collapse therapy so that from 50 to 75 per cent of all tuberculous patients may enjoy its benefits. The shaded area in the diagram represents the collapsed lung.

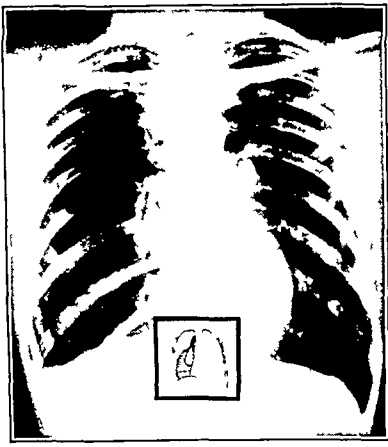


Fig 6—Selective collapse (same case as in figures 4 and 5). On deep inspiration the healthy lower lobe expands almost to the chest wall while the diseased upper lobe remains collapsed as before.

developed, with the sudden appearance of considerable disease in the "good" lung. This soon subsided under bed rest and the patient again was apparently on the road to recovery when severe hemoptysis developed, complicated by high temperature, August 2, 1932. This necessitated immediate intervention by pneumothorax. The hemoptysis ceased and the temperature returned to normal, and once more the patient's outlook on life brightened. For a short time simultaneous bilateral pneumothorax was maintained, but it was too severe as treatment for this patient. There was considerable dyspnea. Accordingly, the pneumothorax in the old or right side was discontinued and replaced by a phrenic evulsion, August 26. Twenty months has now passed and the patient's condition has steadily improved. He has no symptoms of tuberculosis, the sputum is negative and there has been no recurrence of the bleeding. Both lungs continue to clear, and there is no dyspnea. The patient has received a refill to the left lung every two weeks.

2104 Pine Street

**Eyestrain**—The connection of headache with eyestrain was first noted by medical writers in the latter part of the eighteenth century, but the morbid condition responsible for the majority of headaches was described by Donders (1818-1889) of Utrecht, who in 1850 was first to point out that inaccurate optical adjustment of the eyes causes not only diseases of the eye but many other conditions, including headache, nervousness, indigestion,

etc. Donders however, like all persons engaged in pioneer work, did not realize the full clinical importance of his discovery. It was left to S. Weir Mitchell and William Thompson to place the anomalies of refraction on a firm scientific basis—perhaps one of the most important accomplishments in the realm of medicine and surgery—Gordon, B. L. Importance of Cephalalgia in Ocular Diagnosis, *Arch Ophth* 11 769 (May) 1934.

cases the operator may be forced against his will to discontinue the

first pneumothorax and institute collapse in the "good" side. Case 2 is illustrative.

SUPERIOR PULMONARY SULCUS  
TUMORFURTHER OBSERVATIONS, WITH REPORT OF TWO  
ADDITIONAL CASES

HAROLD W. JACOX, M.D.

ANN ARBOR, MICH.

In his most recent article dealing with the clinical entity of tumor characterized by pain, Horner's syndrome, destruction of bone, and atrophy of hand muscles, Pancoast<sup>1</sup> has said, "The name of 'superior pulmonary sulcus tumor' has been given it because this term implies its approximate location and a lack of origin from lung, pleura, ribs or mediastinum. It is possible that this new designation may be changed again with a better knowledge of the histopathology of the growth." Opportunity to examine autopsy material from a case of this sort has convinced me that, at least in this instance, the tumor arose from the mucosa of the terminal bronchioles in the apex of the lung, and that the name "primary carcinoma of the pulmonary apex" might be appropriate. In another case presenting the same clinical manifestations I have been studying the effects of prolonged, fractionated short wavelength roentgen therapy.

## REPORT OF CASES

**CASE 1—Clinical History**—W. C., a white man, aged 55 American, a bottler, referred to the medical department of the University Hospital by Dr. F. S. Bard of Bay City,



Fig. 1 (case 1)—Shoulder showing destruction of the posterior half of the right first rib.

Mich., July 25, 1933, complained chiefly of pain in the right arm and shoulder. The present illness dated from the previous October, approximately ten months before, when he first noticed a dull aching in the muscles on the inner aspect of the right elbow. The pain had become progressively worse since its

onset, was more or less constant and was more severe at night. It was aggravated by motion and gradually involved the muscles of the shoulder girdle, accompanied by weakness and areas of numbness. The usual methods of treatment failed to give relief, except that hot applications occasionally produced some benefit. Five months before entrance the patient had all his teeth extracted in an effort to remove the cause of the pain, without avail. At times when the pain was very severe as much as 2 grains (0.13 Gm.) of morphine would not relieve him. Since the onset of the present illness he lost 15 pounds (6.8 Kg.), which represented about 8 per cent of his total body weight. General weakness and malaise also developed during this time. The past history was unimportant except for an illness that had been diagnosed as "pleural pneumonia" fifteen years before, for many years he had had a morning cough productive of whitish phlegm. For an indefinite period he had slight dyspnea and palpitation on exertion and a sense of constriction at the base of the neck.



Fig. 2 (case 1)—Chest demonstrating definite growth in the right apex.

Seven years before admission he had an attack of what was diagnosed angina pectoris, but there had been no similar symptoms since that time. There had never been any hemoptysis. The family history was entirely irrelevant.

**Physical Examination**—The following relevant data were obtained on admission. The skin over the right lateral thorax showed areas of hyperpigmentation due to applications of a hot water bottle. There were no other skin changes. There was a typical Claude Bernard-Horner's syndrome on the right with ptosis, contracted pupil and anhidrosis. All the muscles of the right shoulder girdle, arm and forearm showed considerable atrophy, and fibrillary tremors. Tenderness in the right axilla could be elicited by deep pressure. The biceps, triceps, radial and ulnar periosteal reflexes were hyperactive, and there was definite weakness of the muscles of the right arm. There were no definite objective sensory disturbances except hyperesthesia of the inner aspect of the right arm. The possibilities suggested by the neurologic examination were, first, progressive spinal muscular atrophy, second, amyotrophic lateral sclerosis, and, third, a cervical rib. The opinions of the orthopedic surgeon and neurosurgeon were that the pain was radiculitis and that there was a definite tumor mass that was probably a neurofibroma and did not arise from bone. The systolic blood pressure was 130, the diastolic 80, with only slight variations on several readings. There was slight clubbing of the fingers. Urinalysis was repeatedly negative. The hemoglobin was 75 per cent (Sahli), the red blood cell count was 3,650,000 and the white blood cell count was 11,300 per cubic millimeter, with a normal differential formula. Routine Kahn tests of the blood and spinal fluid were negative. No sputum could be obtained for examination.

**Röntgen Examination**—On admission, a study of the right shoulder and the cervical and dorsal portions of the spine demonstrated a dense infiltrative process throughout the apex of the right lung. The vertebral portion of the right first rib was almost completely destroyed (fig. 1). All other structures appeared normal. The possibilities of a primary bone tumor of the rib, a sarcomatous lesion of the pleura at the apex and pulmonary tuberculosis with rib involvement were considered. Examination of the chest the next day (fig. 2) seemed to indicate the last of these. From an additional chest examination four days later a provisional diagnosis of right superior pulmonary sulcus tumor was made.

Read before the Detroit Roentgen Ray and Radium Society April 5, 1934.

From the Department of Roentgenology, University of Michigan Medical School.  
1. Pancoast, H. K., Superior Pulmonary Sulcus Tumor. *Chairman's Address*, J. A. M. A. 99: 1391 (Oct. 22) 1932.

**Clinical Course**—A biopsy of a hard, immovable tumor mass behind the lower lateral border of the right sternocleidomastoid muscle was taken, August 2. The pathologic diagnosis was as follows: Blood vessel, fascia and small nerve showing diffuse infiltration with carcinoma. Carcinoma spreads diffusely. Shows no evidence of glandular architecture." Dr C V Weller gave the verbal opinion at this time that the neoplasm might be of bronchial cleft origin.

At consultation I expressed the belief that the only possible benefit in the light of present knowledge was by a combination of high voltage roentgen therapy followed by radium needle implantation after surgical exposure, which would constitute a thorough test of irradiation.

The patient stated that the pain was so severe that he did not care what risk was taken to relieve him. He readily consented to operation and August 11, was transferred to the department of thoracic surgery for this. His vital capacity was found to be 3,400 cc. Under local and secondary nitrous oxide anesthesia the right first rib was removed with the idea of implanting radium needles in the tumor. A stony hard tumor surrounded the articular portion of this rib, grossly invading it and infiltrating into the posterior triangle of the neck. There was a tongue-like extension of the tumor downward, separating it from the lateral surfaces of the bodies of the upper thoracic vertebrae. It was found that the roots of the brachial plexus were deeply embedded within the tumor mass and that the bony destruction was considerably greater than that revealed by the roentgen examination. At this point the patient's pulse became weak and rapid and the blood pressure, normal at the beginning of the operation, dropped to zero. Hemorrhage, developing in the surgical field, could not be completely controlled, and in spite of all efforts to revive the patient he died shortly from shock. The main mass of the tumor had been removed and the pathologic diagnosis was as follows: "Carcinoma, largely scirrhous in type, invading connective tissue, fascia, nerves, sheaths of blood vessels and voluntary muscle. The adherent lung was also infiltrated with the same carcinoma and to the same degree, as far as could be determined. The bone marrow of the first rib was largely replaced by carcinoma." Permission for a necropsy was obtained.



Fig 3 (case 1)—Section of autopsy material with predominantly squamous but some glandular characteristics in the same high power field from the right apex.

**Necropsy—Gross Anatomy** The surgical incision was 19 cm long, curving from the posterior cervical triangle backward and around the superior angle of the scapula, and downward to approximately the level of the fifth thoracic spine. The upper third of the upper lobe of the right lung had been resected. There was extensive neoplastic invasion of the soft tissues on the right side of the neck extending to the level of the fifth cervical vertebra. This neoplasm was firm white and glistening in character. It was situated entirely lateral to the internal carotid on the right side and medial to the skin of

the neck. It was patchy in appearance, showing scattered nodules. The left lung and the remainder of the right were perfectly normal. The bronchi were thoroughly explored and showed no evidence of neoplasm arising in them. The greater portion of the right subclavian artery was surrounded by a neoplasm, and all the large nerve trunks were surrounded and compressed by neoplastic tissue. There was hemorrhage into the tissues in the region of the junction of the subclavian and vertebral arteries.

The left suprarenal proper was approximately of normal size. A portion was replaced by glistening, white tissue and



Fig 4 (case 1)—Section of autopsy material with predominantly squamous but some glandular characteristics in the same high power field from suprarenal metastases.

was completely surrounded by characteristic neoplastic tissue. This mass measured 4 cm in diameter. The right suprarenal showed a mass of tissue exactly similar to that on the left side. On section there was exposed only a thin layer of suprarenal tissue about the periphery of this mass of neoplasm. The kidneys were entirely normal and showed no malignant changes.

**Microscopic Anatomy** There was no evidence of metastases to the central nervous system. The remaining portion of the right upper lobe of the lung showed a well advanced carcinoma. This developed as an adenocarcinoma, capable of forming mucin, but tended to become rapidly undifferentiated and medullary (fig 3). The first thoracic vertebra showed extensive infiltration of the surrounding tissues, periosteum and bone itself (after decalcification) by scirrhous adenocarcinoma. The suprarenals showed bilateral metastatic medullary adenocarcinoma (fig 4). The regional and distant lymph nodes showed no metastases.

Dr C V Weller made the following comment: "Clinically this tumor falls in the group designated by Pancoast as 'superior pulmonary sulcus tumor'. In any clinical compilation it can be included in that group. At present, however, this term does not denote a pathologic entity. Since this carcinoma is an adenocarcinoma, it could not have arisen, so far as we know, in bronchial cleft remains. Since it is mucin forming, the primary cannot be referred to the suprarenals. Both by direct evidence and by exclusion one is forced to the conclusion that this is of bronchogenic origin."

**CASE 2—Clinical History**—S P, a man, aged 44, American, a chauffeur, referred to the Department of Neurosurgery of the University Hospital by Dr F G Maurer of Lima, Ohio, Nov 26, 1933, complained chiefly of severe pain in the left arm, shoulder and upper posterior portion of the chest of three or four weeks' duration. The pain radiated down the left arm generally to the inner aspect of the elbow. He had also noticed increased warmth of the entire left upper extremity and the left side of the face with absence of sweating over this area. The pain was accentuated by cold but had been relieved somewhat by heat and narcotics. Five or six years before admission after he had been driving in the wind, a left facial



palsy developed, which had improved. There had been an injury over the left eye a few years before, following which there was a drooping of the left upper eyelid. This had increased, however, since the patient had noticed the pain in the arm. Three or four years before admission he had had antisyphilitic therapy for a penile sore. He had been told that on no occasion was his blood or spinal fluid positive. He had had a hacking nonproductive cough for many years but never any hemoptysis. Since the onset of the present illness he had lost 10 pounds

(45 Kg.), or approximately 5 per cent of his total body weight. The family history was not relevant.

**Physical Examination**—The following pertinent data were obtained. There was a typical Horner's syndrome on the left side. The left side of the face, left hand, shoulder and axilla showed anhidrosis, and these areas were warmer than the corresponding areas on the right. This was confirmed by skin temperature readings which showed a difference of 3 degrees



Fig 5 (case 2)—Chest showing similarity to figure 1 but in opposite apex

C between the hands. Neurologic examination showed, in addition, a well sustained nystagmus on lateral deviation to either side, and there was some diminution of convergence on the right. The left angle of the mouth was less well retracted than the right. Biceps and triceps reflexes were present, slightly diminished, but about equal. The abdominal reflexes were diminished, and the achilles jerks were diminished bilaterally. Vibratory sense was diminished on the left and almost absent on the right. There was some ataxia on the heel to knee to toe test, and some swaying in the Romberg position with the eyes closed. Sensory examination showed glove and stocking hypalgesia bilaterally but no other neurologic changes. The impression obtained from the neurologic examination was, first that of early tabes dorsalis, second, questionable thoracic neoplasm or, an unlikely possibility, spinal cord tumor. There was a palm-shaped area of definite blanching of the skin overlying the left scapula, measuring 8 by 10 cm., with sharply demarcated borders. There was definite clubbing of the fingers. The blood pressure was 130 systolic and 85 diastolic and varied but little on repeated determinations. Urinalysis on entrance and on repeated examinations was negative. Blood studies were entirely normal. Routine Kahn tests of the blood and spinal fluid proved to be negative. A dextrose tolerance test was not abnormal. No sputum could be obtained for examination.

**Roentgen Examination**—Routine studies of the chest and spine demonstrated a soft tissue mass with fairly sharply defined outer margins completely filling the arc of the first rib in the left apex (fig 5). The mass seemed to be more posterior than anterior and there was some stripping of the pleura. A neoplasm of the posterior left thoracic apex was reported. Films of the abdomen showed no abnormal calcifications. Special stereoscopic detail studies of both apices showed definite loss of bone substance in the neck and head of the left second rib and the diagnosis of left superior pulmonary sulcus tumor was made.

**Clinical Course**—The patient was referred to Dr. F. A. Collier of the surgery department for his opinion regarding therapy, and his reply was as follows: "I feel that the diagnosis is fairly clear. As surgical excision is impossible and as x-ray is the only treatment I do not see that a biopsy is worth while." Consequently the patient received daily treatments with 200 roentgens (measured in air), effective wavelength 0.15 angstrom unit (200 kilovolt peak, 0.5 mm. or

copper plus 1 mm. of aluminum), cross-firing the left supraclavicular region from front and back through each of two portals measuring 15 by 15 cm. (fig 6). Each portal received 4,200 roentgens within a period of twenty-five days from December 5 to 30 inclusive, or a grand total of 8,400 roentgens. During this time the pain was controlled by sedatives or narcotics when needed. The pain became less intense during the course of treatments and on completion it was practically gone, there being merely superficial pain present. The skin temperature changes were disappearing at the time of his discharge, and chest films showed a definite decrease in infiltration in the left apex. The patient was discharged with the advice that if at any time there was exacerbation of the pain chordotomy would be performed.

The patient returned for check-up examination three and one-half months from his previous admission, on March 13, 1934. He had completely recovered from the effects of treatment such as loss of voice and appetite, and the skin which had been denuded had healed. He showed improvement roentgenographically (fig 7) and clinically, but there was no change in the appearance of the rib destruction. Neurologic examination revealed persistent sympathetic paralysis, but all symptoms and signs including the severe pain were less noticeable. The neurosurgeon's opinion was that high cervical chordotomy should not be performed because the patient was getting along so well. No treatment was given and he was discharged with the same advice as before. Ten days later he returned, stating that for the past several days he had attacks of pain in the left arm and upper left side of the chest exactly similar to those which he first experienced. There was some relief with large doses of narcotics.

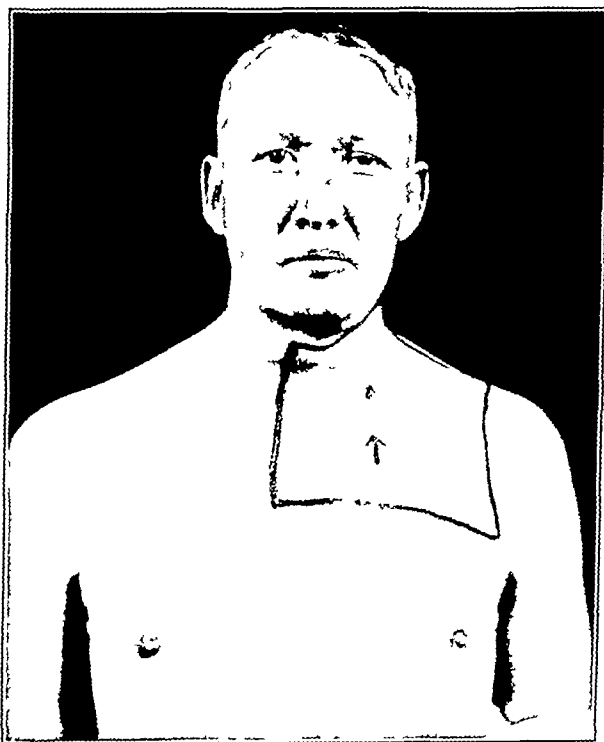


Fig 6 (case 2)—Appearance before treatment showing Horner's syndrome with size and location of roentgen portals or entry (arrow represents angulation of central ray)

March 24, a high cervical (third) chordotomy was done with good immediate postoperative condition, and the pain was entirely relieved. On the second postoperative day while smoking he received a small burn of the left middle finger, owing to the loss of temperature sense. On the twelfth postoperative day the patient was entirely free from pain and was discharged. The wound half of which was in the field of irradiation was well healed throughout. The relatives were

told that no further radiation therapy would be given and that the prognosis was grave. The possibility that the pain might return (because about 10 per cent of the pain fibers travel up the homolateral side) was also mentioned.

## COMMENT

The similarity of the two cases here reported is readily apparent. Even when the symptoms were of less than one month's duration, as in the second case, I believe that they fulfill all the criteria of the clinical entity previously described as superior pulmonary sulcus tumor. The clinical features of this condition represent a definite and striking syndrome quite different from that of the usual primary malignant growths of the lung.<sup>2</sup> The apical chest tumors reported by Henderson<sup>3</sup> do not fall into this particular category. Neither do large lesions of the upper lobe, which may also produce Horner's syndrome.

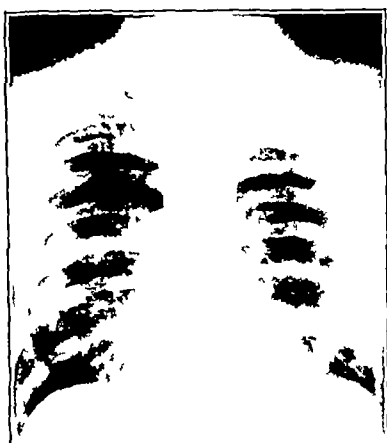


Fig 7 (case 2)—Follow up examination three and one half months later demonstrating reduction in infiltration coincident with clinical improvement.

To demonstrate the protean clinical aspect of a carcinoma originating primarily in the lung, Fried<sup>4</sup> describes the case in a man, aged 41, a freight agent, which probably belongs in this group. The onset was with sharp stabbing pain in the right shoulder radiating down the arm with atrophy of muscles, clubbed fingers and Horner's syndrome. The first impression was that the patient had syringomyelia. On subsequent visits the symptoms increased and the diagnosis of a malignant neoplasm was evident. Death occurred three years and eight months from the onset of the first symptoms. At necropsy a primary carcinoma of the apex of the right lung with involvement of the sixth and seventh cervical and first and second thoracic vertebrae was found, the first, second and third ribs were also invaded, and there were metastases to the liver, kidneys, suprarenals, heart, lymph nodes, sigmoid colon, stomach, pancreas, mediastinal lymph nodes, subcutaneous tissue and skull. This case may represent the natural course and duration of the disease, although Pancoast's patients did not live much more than a year.

Tobias<sup>5</sup> has described an "apicocostovertebral doloroso" syndrome with clinical and radiographic evidence of a tumor of the apex associated with intense radicular pain and sympathetic paralysis. He found this syndrome in one case of primary carcinoma of the apex of the lung without biopsy or autopsy and also observed it three times in metastatic or extensive lesions in this

region. Pancoast grants the possibility that the lesions in cases 6 and 7 of his group may be metastases from carcinoma of the cervix uteri. I have seen similar cases with metastases in the apex but without the complete clinical and radiologic manifestations.

Robertson<sup>6</sup> feels that the majority of so-called primary malignant tumors of the pleura are in reality metastases or extensions from primary lung carcinomas. Surely his belief is substantiated by the observations in my first case. Not until autopsy material became available were the glandular and mucin-producing qualities of this tumor recognized. Judged on the basis of the biopsy alone, the diagnosis must have been squamous cell carcinoma. Metastases to the suprarenals only are occasionally found in primary bronchogenic carcinoma. This may account for the peculiar type of death which Pancoast described in his patients.

## CONCLUSIONS

1 Evidence is presented supporting the view that superior pulmonary sulcus tumor is an atypical form of primary bronchogenic carcinoma.

2 A modification of Coutard's method of intensive deep roentgen therapy failed to control the symptoms of this disease.

3 Chordotomy should be considered as a valuable palliative procedure.

4 Incidentally, wound healing was not retarded by intensive roentgen therapy.

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THE DIFFERENTIAL DIAGNOSIS OF  
HYPERPARATHYROIDISM

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Excessive parathyroid secretion, such as occurs with parathyroid adenomas, causes a drain of lime salts from the body resulting in skeletal changes classified as Recklinghausen's disease or generalized osteitis fibrosa cystica. The negative calcium and phosphorus balance is commonly associated with hypercalcuria, hypercalcemia and hypophosphatemia and with skeletal, renal and gastro-intestinal symptoms that together constitute the classic form of hyperparathyroidism. The differentiation of this disease from others involving the bones is important because surgical removal of parathyroid adenomas is usually followed by extraordinary improvement if carried out before advanced skeletal deformities or renal impairment preclude complete restitution of the patient. The differential diagnosis of hyperparathyroidism may be difficult, however. The onset of the disease is usually insidious, the early manifestations are extremely varied, aberrations from the classic picture are common and the most characteristic features may be closely simulated by other diseases involving the bones.

In this study, the problems relating to early recognition of hyperparathyroidism are particularly

<sup>2</sup> Weller, C. V. The Pathology of Certain Signs and Symptoms in Primary Carcinoma of the Lung. Illustrative Cases. *Ann Int Med* 2: 725 (Feb.) 1929.

<sup>3</sup> Henderson, W. F. Roentgen Study of Apical Chest Tumors. *Am J Surg* 8: 414 (Feb.) 1930.

<sup>4</sup> Fried, B. M. Primary Carcinoma of the Lung. Baltimore: Williams & Wilkins, 1932, p. 226.

<sup>5</sup> Tobias, J. W. Síndrome Apico-costovertebral doloroso por tumor apical. Su valor diagnóstico en el cáncer primitivo pulmonar. *Rev med latino-am* 17: 1522 (Aug.) 1932; 18: 304 (Dec.) 1932.

<sup>6</sup> Robertson, H. E. Endothelioma of the Pleura. *J Cancer Research* 8: 317 (Oct.) 1924.

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emphasized<sup>1</sup> Four new proved cases are presented The data in 115 proved cases in the literature<sup>2</sup> have been analyzed to indicate the incidence of initial presenting symptoms and their relative diagnostic significance The usefulness and limitations of laboratory procedures in the diagnosis of suspected cases are considered

#### PRESENTATION OF CASES

Our first case conforms to the classic picture of the disease Our second case, in which skeletal deformities and renal damage were more marked, exhibited an interesting fall in the initially high serum calcium coincident with the onset of acute uremia Both patients did very well after removal of a parathyroid adenoma We are indebted to Dr Allen O Whipple for permission to add a third case, under observation for sixteen years A parathyroid adenoma was removed else-

his past history were irrelevant to the present illness, which began in 1931 with "rheumatism" in both arms In January 1932, while throwing a ball, he fractured the right humerus, in which a roentgenogram disclosed a cyst The fracture healed in eight weeks, but the pain in the arms persisted Loss of 30 pounds (13.6 Kg) and weakness developed, with slow response to cod liver oil and calcium lactate Dry mouth, polydipsia and polyuria were first noted about this time In July 1932, dull pain in the lower part of the back, the right hip and leg, with a limp, developed Roentgenograms disclosed cysts in the pelvic bones Six months later, after a slight trauma, he noted a painless bony swelling just below the right knee About this time he found that for the first time in fourteen years he needed a larger hat size In May 1933 he complained of nervousness, exertional dyspnea and transitory sticking pain in the chest Episodes of nausea and vomiting set in, and constipation became more pronounced After spending the better part of two months in bed, he sought admission

When first seen, he appeared chronically ill, anxious and somewhat confused mentally There were no skeletal deformities except shortening and limitation of flexion of the right arm due to malunion of the old fracture A nontender bony swelling could be palpated along the anterior surface of the right tibia 6 cm below the knee The teeth were missing except for markedly carious lower incisors A questionable resistance could be felt near the lower pole of the thyroid gland on the right side No other abnormalities were noted Laboratory examination on admission showed erythrocytes, 3,760,000, leukocytes, 15,200, with 76 per cent neutrophils, hemoglobin, 72 per cent (Sahl), blood Wassermann test, negative, a faint trace of albumin but no sugar or Bence-Jones protein in the urine The phenolsulphonphthalein excretion was normal The basal metabolism rate was +3 per cent The QT interval in the electrocardiogram was 0.36 second with a heart rate of 80 The results of chemical examination of the blood are recorded in table 1 Roentgenograms of the skeleton revealed a generalized osteitis fibrosa cystica, with moderate decalcification and cysts in the pelvis, both tibias, the left femur, five ribs and several metatarsal bones (fig 1) The skull showed characteristic fine mottling There was a shadow of calcium density in the abdomen suggesting calcification in a horseshoe kidney (fig 2) Balance studies showed increased excretion of both calcium and phosphorus in the urine The patient required an intake of about 1 Gm of calcium a day to maintain calcium equilibrium (fig 3)

Exploratory operation, August 17 (W B P), disclosed a parathyroid tumor partially embedded in the posterior aspect of the lower part of the right thyroid lobe, which was removed Further inspection revealed no other masses August 20, tingling developed in the toes, fingers and tip of the nose with occasional irritability, relieved by administration of calcium chloride and parathyroid extract (table 1) The Chvostek and Trousseau signs were always negative August 28, the patient felt so well that he was discharged Four months after operation he was working hard, had gained 30 pounds and felt very well Slight pain in the right hip was still present after walking Roentgenograms showed definite signs of recalcification, most pronounced in the skull, where the grainy appearance of the vault was definitely less marked Eight months after operation his condition was excellent Results of postoperative blood analyses are shown in table 1

The tumor was an encapsulated, soft, lobulated, yellowish gray mass measuring 27 by 16 by 10 cm and weighing 35 Gm Microscopic examination (Dr F M Smith) revealed a parathyroid adenoma composed chiefly of syncytium-like groups of large cells containing large oval darkly stained nuclei with abundant pale granular cytoplasm, closely packed or arranged in small alveoli enclosing pink-staining colloid-like material A few small nests of water-clear and rose-red cells were seen, but no oxyphile cells of Welch

CASE 2—M W an Irish housewife aged 53 was referred by Dr F R Bailey June 28, 1932 for admission as a probable case of hyperparathyroidism There was no history of familial or childhood bone disease In 1913 during her third pregnancy, and again in 1917 renal colic developed, relieved by



Fig 1 (case 1)—Right tibia (A) before and (B) eight months after operation showing cystic areas filled in

where, but the patient subsequently died We are indebted to Dr Dana W Atchley for permission to report a fourth case, interesting because of polycystic kidneys and recurrent attacks of renal colic for twenty-three years, terminating in uremia associated with hyperphosphatemia and normal serum calcium Two parathyroid adenomas were found at autopsy

CASE 1—C G, an American salesman, aged 34, admitted, July 10, 1933, complained of constant aching in the right hip, loss of 20 pounds (9.1 Kg) and weakness His familial and

<sup>1</sup> Historical and general considerations are omitted here They are discussed fully in the following excellent monographs (a) Mandl Felix *Klinisches und Experimentelles zur Frage der lokalisierten und generalisierten Osteitis fibrosa* Arch f klin Chir 143 245 1926 (b) Barr D P and Bulger H A The Clinical Syndrome of Hyperparathyroidism Am J M Sc 179 449 (April) 1930 (c) Hunter Donald and Turnbull H M Hyperparathyroidism Generalized Osteitis Fibrosa Brit J Surg 19 205 (Oct) 1931 (d) Lièvre J A *Osteose parathyroïdienne et les ostéopathies chroniques* Paris Masson et cie 1932 (e) Taffe H L Hyperparathyroidism (Recklinghausen's Disease of Bone) Arch Path 16 63 (July) 1933 (f) See also an important recent paper by Albright Fuller Aub J C and Bauer Walter Hyperparathyroidism J A M A 102 1276 (April 21) 1934

<sup>2</sup> This series includes only cases of parathyroid overactivity in which one or more parathyroid adenomas were found at operation or autopsy A bibliography is included in the reprints of this article

removal of a calculus from the right kidney. But for three months thereafter she suffered headache, anorexia, nausea and vomiting, with loss of weight. In 1922 these symptoms recurred, together with nocturia and flaky sediment in the urine. Repeated cystoscopic examinations suggested pyelonephritis, and the right kidney was removed. The surgical specimen showed fibrotic degeneration of many glomeruli, hyalinization of many tubules and several areas of interstitial

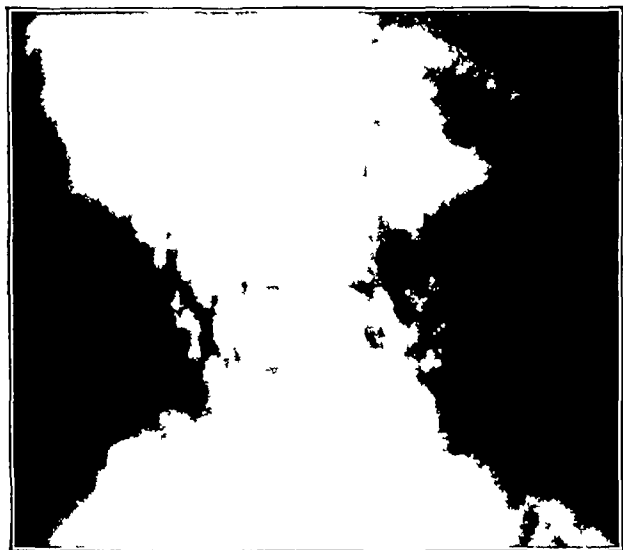


Fig. 2 (case 1)—Abdomen, showing calcification within the substance of a horseshoe kidney.

calcification. The diagnosis of chronic nephritis was made. At that time bone deformities were not apparent. The blood pressure was 155 systolic and 95 diastolic, the blood urea nitrogen was 25 mg per hundred cubic centimeters, the blood uric acid was 6.3 mg, and the phenolsulphonphthalein excretion was 30 per cent. In 1924 she complained of "rheumatic" pains in the feet and arms and a loss of 18 pounds (8.2 Kg). A diagnosis of anxiety neurosis was made. In 1928, after slight trauma, she ruptured the right quadriceps tendon, which was found by x-rays to be partially calcified. She again complained of vague diffuse "rheumatic" pains. In 1931 increasing curvature of the spine, loss of height, and clubbing of the fingers were noted. In June 1932 she reported a loss of 15 pounds (6.8 Kg), hoarseness, weakness and severe pain between the shoulder blades. A roentgen study of the chest did not show any pulmonary pathologic changes but Dr. Ross Golden observed decalcification of the humeri with cysts suggesting hyperparathyroidism. Further roentgen examination disclosed generalized decalcification of bone, with cysts in the left femur and characteristic grainy mottling of the skull (Fig. 4). The serum calcium was elevated (table 1).

On admission, the patient appeared pale and emaciated. She was almost aphonic. There was an extreme rounded dorsal kyphosis, marked deformity of the thoracic cage and expansion of the terminal phalanges. No bowing of the legs, swellings or tenderness of the bones were noted. Her height, normally 68 inches (173 cm), was now 58 inches (147 cm). A small mass was palpable at the right lower pole of the thyroid gland. Laboratory examination on admission showed blood Wassermann test, negative; erythrocytes, 4,160,000; leukocytes, 7,350 with 70 per cent neutrophils, hemoglobin, 87 per cent (Sahli). A faint trace of albumin was present in the urine with many leukocytes in the sediment. The basal metabolic rate was +22 per cent. Investigation of the cause of the aphonia July 5, by direct laryngoscopy under tribrom-ethanol anesthesia revealed only an edema of the mucous membranes. Recovery from anesthesia was slow. Vomiting and drowsiness persisted and blood studies (table 1) indicated increasing renal insufficiency. The phenolsulphonphthalein excretion was 10 per cent and the blood pressure 103 systolic, 85 diastolic. July 20, how-

ever, vomiting ceased and she appeared brighter. Her weight, however, had fallen to 76 pounds (34.5 Kg) and the blood pressure to 75 systolic and 50 diastolic. July 28, exploration (W. B. P.) revealed a considerably enlarged lower right parathyroid gland, which was removed. August 3 (table 1), positive Trousseau and Chvostek signs were elicited and the patient complained of paresthesias. These responded to intravenous administration of calcium gluconate and parathyroid extract, but August 5 marked euphoria, irritability and irrationality developed, culminating in outbreaks of violence. As the serum calcium values rose, these episodes ceased. At the time of her discharge, September 14, her weight was 87 pounds (39.5 Kg) and her general condition was much improved. She could walk slowly but felt some ache in the bones after standing for long periods. Roentgenograms of the bones showed striking recalcification (figs 5 and 6). Twenty months after operation her condition continued to be very satisfactory.

The tumor was described (Dr. A. P. Stout) as a bilobed, partially cystic, yellowish pink mass, 3.0 by 2.0 by 0.8 cm in size, and 4.5 Gm in weight. Microscopic examination revealed a parathyroid adenoma showing a marked proliferation of the water-clear and rose-red cells with large syncytium-like cell groups. Small scattered islands of the two cell types were also seen.

CASE 3—E. M., an unmarried Scotch housemaid, aged 35, was admitted in 1916 because of a painless bony swelling of the right lower jaw of two years' duration. A partial osteotomy of the right mandible was done. On recurrence of the bony swelling in 1920 the jaw was resected. The pathologic diagnosis of the surgical specimen was giant cell sarcoma. All this time her general condition remained excellent except for transitory pains in the feet and right hip, attributed to flat feet. In 1924 she noted pain over the left clavicle, thought to be due to pleurisy or neuritis. In 1926 a definite tender swelling of the clavicle appeared with pain so marked that she was unable to use the left arm. There was also some weakness and slight soreness of the knees and thighs, but there were no general complaints. She had gained 20 pounds (9.1 Kg) since the resection of the jaw.

On physical examination the patient did not appear acutely or chronically ill. Roentgenograms showed a multilocular cyst in the left clavicle, multiple areas of rarefaction in many ribs,

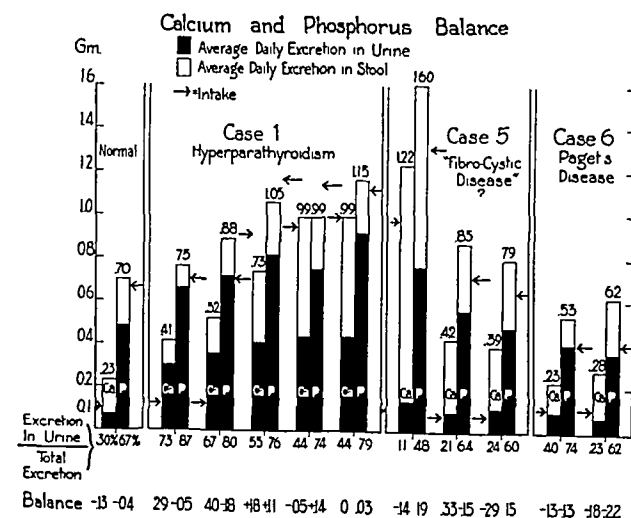


Fig. 3 (cases 1, 5 and 6)—Normal figures calculated from data of Farquharson, Salter and Aub (J. Clin. Investigation 10:251 [June] 1931). Patients 1, 5 and 6 were studied in the metabolism ward under the supervision of a specially trained personnel. Neutral ash diets were prepared; the calcium and phosphorus content being determined by analysis of aliquots of three day periods. Salt and water intake were controlled. The patients were allowed out of bed three hours daily.

in the right clavicle and in the left fibula and tibia. A moth-eaten decalcification of the terminal phalanges was seen in both hands. The skull showed a peculiar soft mottling with widening of the tables attributed to Paget's disease. A biopsy of the area in the left clavicle showed "an unusual type of

giant cell sarcoma," with considerable osteoid tissue. Laboratory examinations revealed a mild secondary anemia, serum calcium, 11.5 and again 12.0 mg per hundred cubic centimeters, serum inorganic phosphorus, 2.5 mg, blood urea nitrogen, 17 mg, and phenolsulphonphthalein excretion, 50 per cent. After treatment with colloidal lead injections, she recovered the use of her left arm and was able to resume work.

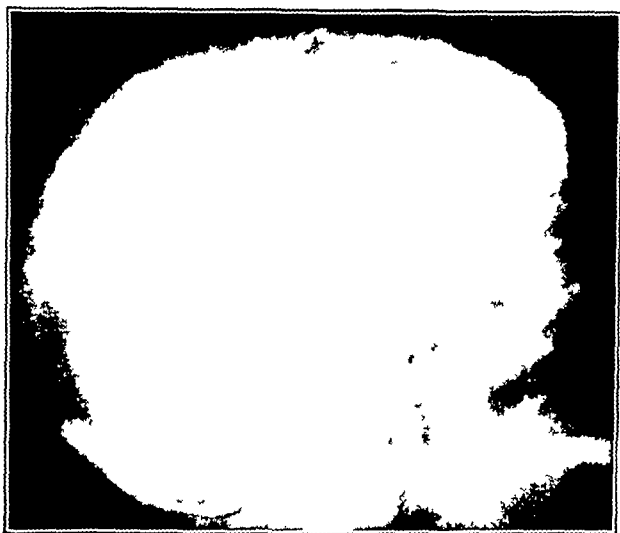


Fig 4 (case 2)—Lateral view of skull before operation

Roentgenograms of the skeleton in 1927 showed new cysts in the left femur and in both patellas. The diagnosis of fibrocystic disease was made by Dr. Ross Golden. In 1928 she returned to Scotland, where she was under the care of Dr. Archibald Young. She continued to feel quite well and maintained her weight and strength. In February, 1932 she suffered a pathologic fracture of the leg. In May of that year a parathyroid adenoma was removed, but the patient subsequently succumbed.

**CASE 4**—N. P., an unmarried American woman, aged 60 a clerk, was referred from the Neurological Institute, May 29, 1933, because of abdominal pain and generalized pruritus. There was a familial history of hypertension. One sister had polycystic kidneys. In 1910, after an attack of colic, a celiotomy disclosed numerous cysts extending from the right kidney to the ovary, which were removed. She had frequent attacks of renal colic since then and passed many stones. In spite of this and numerous minor complaints, she was able to carry on her work. In 1931 she was admitted because of progressive loss of function of the legs, symptoms of cystitis and continued attacks of renal colic. Roentgen examination revealed bilateral polycystic kidneys. In 1932 she complained for the first time, of vague "arthritic" pains and numbness in the extremities. In 1932 she fractured both ischia in an accident, requiring hospitalization for almost a year. In 1933 she developed pruritus, nausea, vomiting and abdominal colic suggestive of biliary stone. She lost 12 pounds (5.4 Kg) in this period. Constipation, present for years, became more marked.

When first seen she walked with a limp using a cane. There was a marked kyphoscoliosis of the lower dorsal and lumbar spine with flaring of the lower ribs. The fingers were clubbed with peculiar transverse indentations of the nails. The breath was definitely urinous and the deep reflexes were hyperactive. The arteries were markedly sclerotic. There was no demonstrable tumor in the neck. The enlarged polycystic kidneys were easily palpable. The blood pressure was 130 systolic and 70 diastolic. The erythrocytes numbered 3,300,000 and the leukocytes 6,100 with 69 per cent neutrophils. The blood Wassermann test was negative. The basal metabolic rate was  $\pm 5$  per cent. A trace of albumin was consistently present in the urine with occasional leukocytes in the sediment. The phenolsulphonphthalein excretion on two occasions

was 0 per cent. The blood urea nitrogen was 100 mg per hundred cubic centimeters, and the blood creatinine 3.3 mg. Roentgen study of the biliary tract failed to show filling of the gallbladder, but no calculi were visualized. Marked decalcification of the vertebrae and a contracted pelvic inlet were noted. Decalcification of the ribs and fine mottling of the skull were described by Dr. Ross Golden as consistent with hyperparathyroidism. The serum calcium was found to be 9.7 mg per hundred cubic centimeters and again 10.2 mg, with elevation of the serum inorganic phosphorus to 8.4 mg per hundred cubic centimeters due to the renal insufficiency. The serum phosphatase was 273 Bodansky units.

Opinion was divided as to whether the skeletal changes were manifestations of a primary parathyroid adenoma or hyperparathyroidism secondary to chronic renal insufficiency due to the presumably congenital polycystic kidneys. In retrospect it is felt that prompt surgical intervention was desirable and that such cases should be explored in spite of renal insufficiency (case 2). She was referred back to the Neurological Institute, where she received radiotherapy to the parathyroid region. The deformity of the spine increased, a swelling of the left maxilla and temporal bone appeared, she became bedfast, grew progressively weaker and finally died, Sept. 15, 1933. We are indebted to Dr. Abner Wolf for the autopsy report, which disclosed a tumor of the right upper parathyroid gland, 2 cm in diameter, partially embedded in the right lobe of the thyroid gland, and another, in part cystic, tumor of the right lower parathyroid gland 1.5 by 0.7 by 0.4 cm. Histologically eosinophilic cells predominated. The bones were remarkably soft and pliable, many cystic. The skull was thickened and the outer table irregular. A fracture of the left femur was present. The liver contained several cysts. The kidneys were greatly enlarged, containing innumerable large and small cysts with partially calcified walls. Microscopic examination showed little functioning renal tissue, marked interstitial fibrosis with areas of calcification, fibrosis of many glomeruli and dilatation of the tubules.

#### CLINICAL PICTURE OF HYPERPARATHYROIDISM

As in all previous studies,<sup>3</sup> our data on 115 published proved cases of hyperparathyroidism indicate that the



Fig 5 (case 2)—Lateral view of skull nine months after operation

disease occurs more frequently in females (eighty-six females twenty-nine males) and, while widely distributed as to age incidence occurs most frequently in middle life (table 2). The course of the disease is usually measured in years rarely in months.

The disease begins most frequently with pain (table 3), usually a dull ache in the lower part of the back, legs or arms, intensified by exercise and often associated with stiffness of the joints. The pain, usually

TABLE 1—Chemical Examination of Blood in Cases 1 and 2

Date	Serum				
	Calcium Mg per 100 Cc	Inorganic Phos- phorus Mg per 100 Cc	Phos- phatase Bodansky Units per 100 Cc	Protein per Cent	Nonprotein Nitrogen Mg per 100 Cc
Case 1					
7/14/33	10.7	2.7	34.0	6.5	
8/1/33	11.4	2.6	31.5	5.7	39
8/15/33	11.8	2.1	25.3	6.5	40
8/17/33	Operation				
8/18/33	9.7	2.4	37.1		47
8/21/33	8.8	1.9	29.9		
8/23/33	8.7	2.1	36.2		25
10/6/33	9.4	4.2	16.6	7.2	51
12/29/33	10.1	4.0	7.9	7.2	60
3/16/34	10.4	4.0	6.1	7.0	60
Case 2					
6/30/32	13.9	3.3		7.6	
7/8/32*	13.1	7.1	20.2		47
7/12/32	10.1	6.1		7.5	136
7/20/32	8.0	5.5			132
7/25/32	9.9	3.9			100
7/28/32	Operation				
7/31/32	7.4	4.8			82
8/1/32	6.4	4.1			76
8/3/32	5.0	3.7			71
8/8/32	6.1	1.7		5.9	65
8/12/32	8.2	2.6	11.5		64
12/7/32*	9.2	3.1	13.8		
4/5/33*	8.9	3.9	12.1		28

\* The authors are indebted to Dr. Aaron Bodansky for these values and for many helpful suggestions. The phosphatase activity of serum of normal adults as determined by his method varies from 1 to 4 units.

regarded as rheumatic, arthritic or neuritic, tends to become more diffuse and intense. It may be so marked as to require the constant use of narcotics, and sometimes, when the patient has to be moved, the use of anesthetics. Bone tenderness, localized at first, is common and may eventually become generalized. Muscle weakness with hypotonia may be so marked as to simulate Addison's disease, myasthenia gravis or progressive muscle dystrophy, when associated with muscle wasting. Localized bone swellings, solitary and painless at first but multiple and tender later on, are most common in the jaws but occur frequently in the tibia, phalanges or elsewhere, particularly after slight trauma. They may appear years before the onset of general symptoms and may be difficult to differentiate pathologically from sarcoma or from focal osteitis fibrosa.

Pathologic fractures, particularly of the extremities and ribs, are often the immediate cause of hospital admission. The incidence of fractures increases as decalcification progresses, until the patients are reduced to such a state that turning in bed or violent coughing may result in bone fracture. Nonunion and malunion are common, often resulting in impairment of function and deformities. Deformities of all types occur (curvature of the spine, collapse of the thoracic cage or pelvis symmetrical or asymmetrical enlargement of the head, lateral or anterior bowing of the legs, coxa vara and genu valgum) sometimes with loss of height and bizarre mutilation of the extremities. The deformities may simulate those seen in osteomalacia or in Paget's disease.

Disturbances of gait of the waddling type or limp may develop relatively early and become progressively

worse, more than a third of the patients in this series ultimately becoming bedfast. Totally incapacitated, wracked with pain, grossly deformed, in constant danger of recurring fractures, such patients emphasize the importance of diagnosis and removal of parathyroid adenomas early in the disease.

Polyuria and polydipsia may be so marked as to suggest diabetes insipidus. Renal colic was the predominating symptom in about 10 per cent of the cases. Bone changes may develop relatively late in patients with nephrolithiasis, pyelonephritis and chronic nephritis with serious impairment of renal function. Episodes of intractable nausea and vomiting may appear suddenly and persist for weeks or months. Anorexia and stubborn constipation are common and may be presenting symptoms. In six cases, sharp pain in the abdomen appeared. The gastro-intestinal symptoms may so dominate the picture as to suggest duodenal ulcer or acute appendicitis. Most patients lose weight, and in one-fourth this was a major complaint. Moderate secondary anemia is common. Nervousness, tachycardia and other symptoms have been described. A tumor in the neck could be palpated definitely in less than 10 per cent of the cases, a palpable mass sometimes proving to be a thyroid adenoma.

It would appear that these apparently diverse symptoms may be referred for the most part to the same causal mechanism—increased parathyroid secretion. Bone lesions similar to those occurring in clinical hyperparathyroidism have been produced in animals by injections of parathyroid extract.<sup>5</sup> Vomiting, anorexia, failure of kidney function and death in uremia result from parathyroid extract overdosage in acute animal

TABLE 2—Age Incidence of 115 Cases of Hyperparathyroidism

Age in years	19	10	19	20	29	30	39	40	49	50	59	60	69	70+
At operation or death	num													
ber of cases			7		17		19		28		23		5	1
At onset of symptoms	number													
of cases	2	10		21		25		23		17				2

TABLE 3—Major Symptoms in 115 Cases of Hyperparathyroidism

	Major Initial Symptoms per Cent of Cases	Major Late Symptoms per Cent of Cases
Skeletal		
1 Pain in back or extremities	72	62
2 Muscle weakness	22	23
3 Pathologic fractures	23	40
4 Bone swellings	26	22
5 Gross deformities	19	30
6 Disturbances of gait	24	22
7 Bedfast	4	31
Renal		
1 Polyuria, polydipsia	10	11
2 Colic	9	3
Gastrointestinal		
1 Nausea, vomiting	8	12
2 Anorexia	3	9
3 Epigastric pain	2	5
Miscellaneous		
1 Marked loss of weight	10	24

experiments.<sup>6</sup> Anorexia, vomiting and stupor, with a hypercalcemia of 19.6 mg per hundred cubic centimeters were reported in a patient who, through error

<sup>5</sup> Jaffe *et al*

<sup>6</sup> Thomson, D. L. and Collip, J. B. The Parathyroid Glands. *Physiol. Rev.* 12: 309 (July) 1932.

<sup>7</sup> Lowenberg, Harry and Ginsburg, T. M. Acute Hypercalcemia. Report of a Case. *J. A. M. A.* 99: 1166 (Oct. 1) 1932.

<sup>4</sup> Bodansky, Aaron. Determination of Serum Phosphatase. *J. Biol. Chem.* 101: 93 (June) 1933.



received excessive doses of parathyroid extract. Almost without exception, removal of parathyroid adenomas in cases of hyperparathyroidism resulted in abrupt cessation of nausea and vomiting in patients who had exhibited these symptoms, sometimes for months. The gastro-intestinal symptoms, therefore, and, to a certain degree, the acute renal symptoms appear to be toxic manifestations of acute hyperparathyroidism.<sup>8</sup> Polydipsia and polyuria presumably reflect the water loss associated with increased urinary excretion of calcium ("calcium diabetes"),<sup>9</sup> which also favors the formation of urinary calculi. Secondary infection of the urinary tract and serious impairment of kidney function are common complications and, not infrequently, the ultimate cause of death, sometimes even after acute symptoms are relieved by removal of a parathyroid adenoma. Postoperative investigation of renal function is, therefore, important (case 1).

#### ROENTGENOLOGIC EVIDENCE OF HYPERPARATHYROIDISM

The importance of a roentgen examination is indicated by the large proportion of cases in which suspi-

structures. Altered trabecular structure and cyst formation are often found in the metacarpals. In early stages of the disease, decalcification may not be striking. Cysts may be entirely absent or present in only one or two bones.

Softening of the skeletal structure results in deformities, particularly of the spine, pelvis and thoracic cage. In the long bones, pathologic fractures are common at the site of cysts. Aberrant calcification occurs with the increased mobilization of calcium from the bone. Renal stones are common. Dresser<sup>11</sup> emphasizes the importance of ruling out hyperparathyroidism in every case of bone rarefaction associated with renal calculus formation.

Diffuse bone rarefaction similar to that seen in hyperparathyroidism occurs in occasional cases of generalized xanthomatosis, metastatic malignant conditions, multiple myeloma and the malacias of nutritional origin but may be differentiated by the dissimilarity in skull changes. The granular appearance of the skull tables cannot be considered pathognomonic of primary hyperparathyroidism, however, since similar roentgen changes have been described in renal rickets<sup>12</sup> and

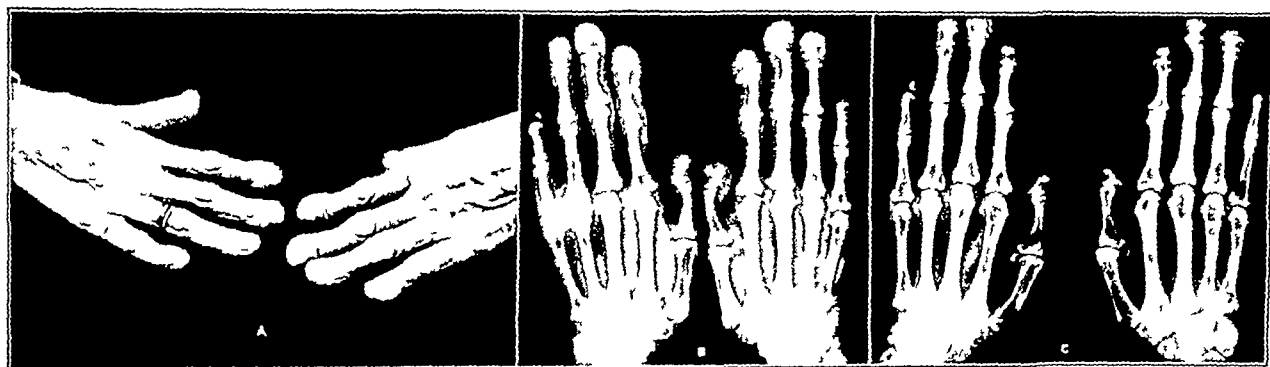


Fig. 6 (case 2)—A clubbing of the fingers in hyperparathyroidism due to decalcification of the terminal phalanges B with recalcification nine months after operation (C)

cion is first aroused by the finding of osteoporosis and osteitis fibrosa with cyst formation in the roentgenogram, often fortuitously. As described by Camp<sup>10</sup> and others, the outstanding feature of hyperparathyroidism is the generalized decalcification of the skeleton producing an osteoporosis of varying severity in different locations. In the skull the calvarium exhibits a finely granular appearance, the bones may become thickened and the tables indistinct. Small cysts may be present. In the long bones the decalcification leads to a marked thinning of both the cortex and the trabeculae, with indistinct, irregular and fuzzy outlines. Cyst formation may be present in the central portion of the shafts or subperiosteally. The vertebrae show a granular pattern much like the calvarium with an added coarsely striated appearance. The same applies to the pelvis where cysts are a common finding. When the disease is of long standing there is a marked loss of substance in the terminal phalanges, which are often almost completely resorbed (fig. 6). The remains of the tufts appear granular and there is a peculiar clubbing of the finger tips due to loss of the supporting

pituitary basophilism.<sup>13</sup> Histologic bone changes of the same character have been described in long-standing nephritis with and without parathyroid enlargement.<sup>14</sup> These may represent states of what has been called "secondary hyperparathyroidism." Case 7 of our series, which falls into this group, showed marked grainy mottling of the skull (fig. 7).

#### MINERAL METABOLISM IN HYPERPARATHYROIDISM

Most of the cases investigated show, or purport to show, a more marked negative calcium and phosphorus balance than normal on low intake of these elements. An intake greater than what is believed to be ordinarily adequate was usually required to maintain the patient in equilibrium. However, variations greater than those occurring in normal persons<sup>15</sup> might not be demonstrable in mildly progressive forms of the

11 Dresser R. Osteitis Fibrosa Cistica Associated with Parathyroid Activity. *Am J Roentgenol* 30: 596 (Nov.) 1933.

12 Vogt E C. Renal Rickets. *Am J Roentgenol* 30: 624 (Nov.) 1933. Langmead F S and Orr J W. Renal Rickets Associated with Parathyroid Hyperplasia. *Arch Dis Childhood* 8: 265 (Aug.) 1933. Caffey, John. Unpublished case.

13 Sosman M C. Pituitary Basophilism. editorial. *Am J Roentgenol* 20: 845 (June) 1933. A case of pituitary basophilism now on our wards shows mottling of the skull.

14 Bergstrand H. Ostitis fibrosa generalisata Recklinghausen mit pluriglandulärer Affektion der innersekretorischen Drüsen und roentgenologisch nachweisbarem Parathyroidtumor. *Acta med Scandinav* 76: 128 1931.

15 Pauer, Walter. Albright, Fuller and Aub J C. The Calcium Excretion of Normal Individuals on a Low Calcium Diet. *J Clin Investigation* 7: 75 (April) 1929.

8 (a) Footnote 5. (b) Albright, Fuller, Baird P C, Cope, Oliver and Bloomberg, Esther. Renal Complications of Hyperparathyroidism. *Am J M Sc* 137: 49 (Jan.) 1934.

9 Morton J J. Hyperparathyroidism. *Internat Clin* 3: 18 (Sept.) 1933.

10 Camp J D. Osseous Changes in Hyperparathyroidism. *J A M A* 90: 1915 (Dec. 3) 1932.

disease or in remission. Crises of osteomalacia, hyperthyroidism, chronic steatorrhea, "fibrocystic disease," multiple myeloma and carcinoma with bone metastases may also be in negative calcium balance. An increased ratio of calcium in the urine to total calcium excretion is characteristic of hyperparathyroidism but may not be present if renal function is markedly impaired.<sup>16</sup> Elevation of the serum calcium above 115 mg per hundred cubic centimeters was reported in seventy-three of the seventy-eight cases in which determinations were recorded, in fifty-nine cases being consistently above 12 mg. In this series, therefore, about 25 per cent of the cases failed to show a consistent hypercalcemia. Some early cases, in evident negative calcium balance but with normal serum calcium, later presented hypercalcemia. Hypercalcemia is frequently found in multiple myeloma,<sup>16</sup> as in three cases recently seen (161, 157, 153 mg per hundred cubic centimeters), usually associated with hyperproteinemia. Hypercalcemia is occasionally observed in carcinoma with bone metastases,<sup>17</sup> as in three of our cases (134, 131, 123 mg per hundred cubic centimeters). The serum calcium was normal in all our cases of focal osteitis fibrosa, Paget's disease, and other diseases involving the bones.<sup>17a</sup> This is in agreement with most recent authors.<sup>18</sup> In osteomalacia and chronic steatorrhea, the serum calcium may be low. Consistent depression of the serum inorganic phosphorus below 2.5 mg per hundred cubic centimeters was found in only twenty-six of the fifty-two cases in which determinations were recorded. Low values are also observed in low phosphorus rickets and osteomalacia.

In chronic nephritis with severe renal insufficiency the serum inorganic phosphorus rises and the serum calcium tends to fall. For this reason, as pointed out by Albright and his associates,<sup>19</sup> the hypophosphatemia and hypercalcemia of uncomplicated primary hyperparathyroidism may not be present when there is an associated marked impairment of renal function. The normal or high serum inorganic phosphorus and the apparently normal serum calcium values observed in cases 2 and 4 and in some cases in the literature might be explained by associated renal insufficiency. In some instances, apparently normal serum calcium values were higher than expected, when derived by the empirical formula of Peters and Eiserson

$$\text{Ca} = -0.255 \text{ P} + 0.556 \text{ protein} + 7$$

That the significance of serum calcium values cannot be fully determined unless the serum inorganic phosphorus and protein content are known<sup>19</sup> holds with particular validity in hyperparathyroidism.

Increased blood phosphatase activity was reported in all of the fifteen cases of classic hyperparathyroidism investigated. Increased serum phosphatase activity within the range observed in hyperparathyroidism may be encountered in monostotic and polyostotic Paget's

disease, in mild and healing rickets and in osteomalacia of the low phosphorus type.<sup>20</sup> Very high values are obtained in active rickets (from 30 to 165 units<sup>21</sup>) and in generalized Paget's disease<sup>22</sup> (50-135 units<sup>23</sup>). Variable increases are observed in disturbed liver function, particularly in obstructive jaundice.<sup>22</sup> In our cases of focal osteitis fibrosa, multiple myeloma and "senile osteoporosis," the serum phosphatase values were normal,<sup>17a</sup> in agreement with most authors.<sup>23</sup> In our cases of carcinoma with osteoclastic metastases to the bones the serum phosphatase was either normal or somewhat increased, rarely over 12 Bodansky units. In three instances with liver metastases, without jaundice, and with normal serum calcium, the serum phosphatase was within the range found in hyperparathyroidism (25.1, 20.4, 20.1 Bodansky units).<sup>17a</sup> From the evidence now available, it would seem that a diagnosis of hyperparathyroidism is probably not indicated in cases presenting definite bone lesions, if the serum phosphatase activity is not definitely increased, particularly if the serum calcium is also normal. According to Albright and his



Fig. 7 (case 7)—Long standing renal insufficiency with skull changes identical with those in classic hyperparathyroidism.

associates<sup>12</sup> the phosphatase may not be elevated in very early cases without demonstrable pathologic changes of bone.

Clinical, roentgenologic and metabolic study usually suffice to distinguish hyperparathyroidism from bone rarefactions encountered in focal osteitis fibrosa, osteomalacia, multiple myeloma, neoplastic diseases of or metastases to the bones, Paget's disease, osteogenesis imperfecta, renal rickets, Hodgkin's disease, generalized xanthomatosis, basophilic adenoma, enchondromas, osteoporosis associated with chronic steatorrhea, senility, disuse or dietary deficiencies, "fibrocystic disease" and other syndromes less sharply defined. Occasionally, a biopsy is necessary. If thorough investigation yields indecisive or conflicting results, surgical exploration

16 Barr and Bulger.<sup>1</sup> Bulger, H. A. and Gausmann, F. Magnesium Metabolism in Hyperparathyroidism. *J. Clin. Investigation* 12: 1135 (Nov.) 1933. Jores, A. Beitrag zur Differential Diagnose des Multiple Myeloms und der Ostitis Fibrosa Generalisata. *Klin. Wchnschr.* 10: 2352 (Dec. 19) 1931. Caylor, H. D. and Nickel, A. C. Multiple Myeloma Simulating Hyperparathyroidism. *Ann. Surg.* 97: 823 (June) 1933.

17 Bulger and Gausmann.<sup>16</sup> Jores, Mason, R. L. and Shields, Warren. Metastatic Carcinoma Simulating Hyperparathyroidism. *Am. J. Path.* 7: 415 (July) 1931.

17a. Tyson, T. L., Gutman, E. B. and Gutman, A. B. Unpublished data.

18 Hunter and Turnbull.<sup>1</sup> Hunter and Turnbull.<sup>16</sup> Jerome, J. T., and Compere, E. L. The Pathological and Biochemical Changes in Paget's Disease. *Illinois M. J.* 64: 449 (Nov.) 1933. Kay, H. D., Simpson, S. L. and Riddoch, G. Osteitis Deformans. *Arch. Int. Med.* 53: 208 (Feb.) 1934.

19 Peters, J. P. and Van Slyke, D. D. Quantitative Clinical Chemistry. I. Interpretations. Baltimore: Williams & Wilkins, 1931.

20 Bodansky.<sup>4</sup> Tyson and the Gutmans.<sup>17a</sup>

21 Kay, H. D. Phosphatase in Growth and Disease of Bone. *Physiol. Rev.* 12: 384 (July) 1932.

22 Roberts, W. M. Blood Phosphatase and the Van den Bergh Reaction in the Differentiation of the Several Types of Jaundice. *Brit. M. J.* 1: 734 (April 29) 1933. Bodansky, Aaron and Jaffe, H. L. Significance of the Variations of Serum Phosphatase in Jaundice. *Proc. Soc. Exper. Biol. & Med.* 31: 107 (Oct.) 1933.

23 Wilder, however, using a different technic, reports increased phosphatase in almost all generalized diseases of the bone. Wilder, R. W. The Diagnosis of Parathyroid Overfunction. *Internat. Clin.* 43: 1 (Sept.) 1933.

for parathyroid tumor is indicated and should include aberrant sites<sup>24</sup> if no tumor is found in the usual areas.

Three recent atypical cases illustrate interesting problems in differential diagnosis.

**CASE 5**—H. W., a Jewish man, aged 37, is deformed and bedridden. His history was summarized up to 1929 by Dr. I. S. Hirsch.<sup>25</sup> Since the age of 6, his course has been one of progressive incapacitation due to numerous deformities, bone swellings and pathologic fractures with marked loss of weight and asthenia but comparatively little pain. The skeleton shows marked decalcification, with numerous cysts, and coarse granular mottling of the skull. Serum calcium has always been normal, serum inorganic phosphorus from 2.5 to 3.5 mg per hundred cubic centimeters, serum phosphatase from 22 to 28 Bodansky units. Renal function is unimpaired. Mineral balance studies (fig. 3) showed marked negative balance without increased calcium excretion in the urine. Biopsy of the bone was variously interpreted as "dysplasia" and osteitis fibrosa. Extensive exploration on two occasions failed to disclose a parathyroid tumor. High calcium diet, viosterol, intensive roentgen therapy to the neck and mediastinum have been without benefit. The diagnosis remains uncertain.

**CASE 6**—A. O., an American woman, aged 60, obese, has polyostotic Paget's disease complicated by repeated fractures of the right leg necessitating marked restriction of activity. In addition to typical Paget changes elsewhere, the pelvic bones, lumbar spine and right leg show marked decalcification of bone with coarse trabeculations but no cysts. The serum calcium and phosphorus have always been normal, serum phosphatase 82 Bodansky units, calcium and phosphorus balance within normal limits (fig. 3).

Case 6 resembles some of those reported as illustrating what some authors believe to be transition stages between Paget's disease and hyperparathyroidism. No evidence of hyperparathyroidism was obtained in our case.

Case 7, for which we are indebted to Dr. R. F. Loeb, is of particular interest with respect to the relationship between chronic renal insufficiency (resulting from congenital anomalies of the urinary tract or following acute nephritis) and bone changes, as in renal rickets and 'secondary hyperparathyroidism'.

**CASE 7**—M. B., an American girl who died at the age of 24, had had increasingly frequent episodes of edema of the face and ankles since the age of 11. There was a persistent albuminuria, the phenolsulphonphthalein excretion never exceeded 5 per cent. The blood urea nitrogen was rarely below 45 mg per hundred cubic centimeters and in the last two years, was usually above 70 mg with marked nephritic acidosis. In 1931 the serum calcium was 9.6 mg per hundred cubic centimeters, serum inorganic phosphorus 8.3 mg and serum protein 6.6. The blood pressure remained normal for years but gradually rose to 170 systolic, 110 diastolic. Retinal changes were absent. No skeletal deformities developed. Roentgen examination showed marked granular mottling of the skull as in hyperparathyroidism (fig. 7) and a rachitic irregularity in the calcification zones of both clavicles at the sternal junction. She died in uremia in 1932. Autopsy showed a chronic glomerulonephritis with extreme renal atrophy. No metastatic calcification or abnormalities of the ureters were observed. No parathyroid tumor was found in routine examination of the neck organs.

#### CONCLUSIONS

Hyperparathyroidism should be considered in the presence of obvious skeletal manifestations such as spontaneous fractures, bone swellings particularly of

the jaws, gross deformities, and unexplained persistent pain in the bones. Obscure cases with presenting symptoms of marked polydipsia and polyuria, recurring renal calculi or unexplained asthenia with wasting of the muscles occasionally prove to be parathyroid adenomas. In most such cases the diagnosis of hyperparathyroidism may be confirmed or excluded by consideration of the history and clinical manifestations, roentgen study of the bones, increased serum calcium and phosphatase activity, low serum inorganic phosphorus and mineral balance studies. The results of clinical or metabolic or roentgenologic investigation alone may be indecisive or misleading. This is particularly true in the presence of marked renal insufficiency, or when the disease is in its early stages, is only mildly progressive or is in remission.

620 West One Hundred and Sixty-Eighth Street

#### ACUTE ANTERIOR POLIOMYELITIS IN PHILADELPHIA

##### A COMPARATIVE STUDY OF THE 1916 AND 1932 EPIDEMICS

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PHILADELPHIA

The year 1932 witnessed the second extensive outbreak of epidemic poliomyelitis in Philadelphia, the first being in 1916. In the intervening years no definite outbreaks occurred although the years 1921, 1927 and 1929 to 1931 inclusive exhibited, as graphically represented in chart 1, an unusual number of cases. In the 1916 epidemic there were reported 1,006 cases and 307 deaths, a case death rate of 30.4 per cent. In the 1932 epidemic there were 728 cases and eighty-four deaths, a rate of 11.5 per cent. The respective death rates, however, are hardly comparable, since in 1916 the diagnostic criterion was paralysis whereas in 1932 many cases in the preparalytic stage were included. Not only was the fatality rate lower in the 1932 epidemic but the type of disease was less severe, resulting in relatively less permanent crippling.

##### SEASONAL AND GEOGRAPHIC DISTRIBUTION

The peak in both epidemics was reached in the fourth week of August with 133 and 118 cases, respectively. The greatest number of cases reported in a single day was thirty-six on August 22, 1916, and twenty-four on August 29, 1932.

The parallelism runs fairly true as to location of first appearance and geographic distribution. Both epidemics seem to have originated during the month of July from a focus in South Philadelphia. In 1916 there was a coexisting focus in North Philadelphia, and in 1932 a similar accessory focus in North-Central Philadelphia. In both years the disease extended to involve consecutively North and Northwest Philadelphia, and North and Southwest Philadelphia.

##### PREVALENCE IN ADJACENT LOCALITIES

The simultaneous prevalence of the disease in adjacent suburbs along the main line including Merion, Devon, Narbert and Haverford, and in the adjoining

<sup>24</sup> Mandl, Felix. Zur Technik der Parathyroidektomie bei Ostitis fibrosa auf Grund neuer Beobachtungen. Deutsche Ztschr. f. Chir. **240**: 362, 1933. Churchill, E. D. and Cope, Oliver. Parathyroid Tumors Associated with Hyperparathyroidism. Surg. Gynec. & Obst. **58**: 255 (Feb.) 1934.  
<sup>25</sup> Hirsch, I. S. Generalized Osteitis Fibrosa. Radiology **13**: 44 (July) 1929.

city of Camden was noticeable early in August. Seashore resorts within the city's commuting area were similarly afflicted, and a goodly number of resident children ill with the disease were returned home, some with the source of infection traced here, others to the resorts proper. The department of public health constantly endeavored to keep in close touch with the surrounding suburban areas in order to anticipate any localized prevalence of the disease. Throughout the counties of the commonwealth not adjacent to Philadelphia County the prevalence was normal or only slightly above. In the adjoining counties, however, the increased prevalence was early recognized and for the year totaled seventy-one cases in Montgomery, eighty in Delaware, twenty-two in Chester and fifteen in Bucks County. Exclusive of Philadelphia County there were 422 cases and sixty-five deaths reported throughout the state in 1932. In none of the large cities of the country did the prevalence rate approach that of Philadelphia.

#### SERUM PREPARATIONS IN 1931

In 1931 the city of New York experienced its third epidemic and by the middle of July was reporting twenty-five cases daily. It was early realized that Philadelphia, because of its proximity and ease of accessibility, was in great danger of sharing in this epidemic. A list of persons who had recovered and contacts from the 1916 epidemic was compiled, and consents were obtained among those over 16 years of age for donation of blood. The laboratory of hygiene of the bureau of health prepared the serum and dispensed it in measured containers for free distribution to physicians and hospitals. About 10,000 cc of serum was so prepared but not all consumed, since the expected epidemic did not materialize.

#### BLOOD DONORS IN 1932

Early in June 1932 the department of public health, doubly apprehensive, formulated a working plan of attack and outlined an emergency program as well. Blood donors were again solicited and resolicited, so that approximately 38,000 cc of serum was pooled for distribution to city and out of town areas. Blood had been contributed voluntarily by 1,139 persons, in 314 instances from persons who had recovered. Of the remaining there were 529 cases of contact and 296 in which the donors were normal persons who had not come in contact with the disease. In the latter part of August, on account of the shortage of serum, it became necessary to appeal for additional donors through the county medical society's weekly roster, the press, the radio and the pulpit.

#### USE OF BLOOD FOR PROPHYLAXIS

The injection of whole blood or serum, preferably pooled, from recovered, contact or other normal adults for prophylactic purposes was urged by the department early in August. This procedure was followed in many of the general hospitals as well as in private practice. The following data have been collected from these hospitals and from our own case records:

In fourteen hospitals, 2,255 children were immunized, of this number all received parents' whole blood excepting 320, who received both whole blood and convalescent serum. The average dose of whole blood was 60 cc and of convalescent serum, 20 cc. One hospital immunized 1,341 children among whom three cases of anterior poliomyelitis developed. Our records show

twelve cases of the disease in immunized children, four of whom developed frank paralysis and the remainder a nonparalytic type.

A tabulation of the twelve cases with the interval in days, preparation used, cell count and clinical type of disease is given in table 1.

#### HOSPITALIZATION

In the beginning of the epidemic, for purposes of diagnosis, hospitalization and serum requirement, the city was divided into four districts, each in charge of a diagnostician. The Philadelphia General Hospital was opened for cases not otherwise cared for in general hospitals. Permission was given general hospitals to admit cases in cubicles or separate wards with facilities for sterilizing utensils, linens, and the like, and in charge of special nurses observing medical asepsis. Early in August, in order to secure additional beds and

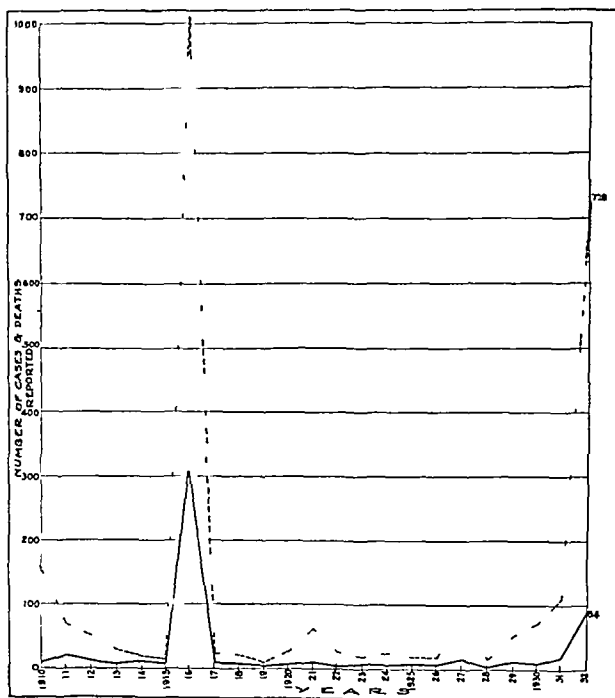


Chart 1—Anterior poliomyelitis in Philadelphia 1910-1932. solid line, deaths; broken line, cases.

treatment facilities for the increasing prevalence, the wards of the Philadelphia Hospital for Contagious Diseases were opened.

#### PHILADELPHIA HOSPITAL FOR CONTAGIOUS DISEASES

All cases reported were first examined by a representative of this department before hospitalized or quarantined at home. The nurses on the ambulance, in addition to securing a history of present illness and past diseases, instructed the parents to report at once at the hospital to donate blood for serum. Patients on admission were classified, so that those in the pre-paralytic stage or early paralytic stage were placed in an acute ward, and the late paralytic cases in a convalescent ward. Cases of doubtful diagnosis were isolated in cubicles until the diagnosis was determined. The latter group comprised those presumably in the abortive stage as well as those with other indetermined acute infections. Lumbar puncture was done in all cases on admission, and immune serum was adminis-

tered to all with clinical or laboratory evidence of poliomyelitis and to those in whom an active progressive infection was observed with or without evidence of paralysis. Serum not given in afebrile cases exhibiting definite paralysis without progressive symptoms. A minimum of 100 cc of immune serum, 40 cc of convalescent serum and 60 cc of contact serum constituted the initial dose. Whole blood was at times substituted for part serum when the supply of the latter was low. Two Drinker respirators were in constant use, and when both were occupied respiratory cases were temporarily transferred to nearby hospitals similarly equipped. During the outbreak there were 410 cases admitted, of which 304 or 74 per cent, were diagnosed as epidemic poliomyelitis. The remainder, 106, or 26 per cent, were diagnosed as other acute infections, including probably some abortive cases of

As far as is known, not a single secondary case developed among other patients in any hospital admitting poliomyelitis cases. This has been a universal experience and tends to emphasize the feebly communicable character of the disease in its clinical phase. The excellent medical and nursing care received in hospitals contributed in no meager way to the conservation of life and freedom from serious after-crippling.

#### HOSPITAL DISCHARGES QUARANTINED AT HOME

Acute cases in all hospitals, physical condition permitting, were transferred to home addresses, if the premises were private after the temperature, pulse and respiration had remained normal for one week and there were no evidences of further extension of paralysis. They were transported in the Philadelphia Hospital for Contagious Disease ambulances, and home

TABLE 1—Cases Receiving Prophylaxis

Date of Exposure	Date Injected	Date of Illness	Days Intervening	Age	Preparation	Amount Cc	Route	Cell Count	Paralyzed
8/17/32	8/23/32	8/27/32	4	6	Whole blood	40	Intramuscular	170	Preparalytic
8/31/32	9/ 2/32	9/ 9/32	7	7	Whole blood	60	Intramuscular	180	Preparalytic
9/16/32	9/20/32	9/23/32	3	6	Whole blood	80	Intramuscular	3	Bulbar
Unknown	8/29/32	9/ 3/32	4	7	Convalescent	10	Intramuscular	100	Preparalytic
Unknown	9/ 6/32	9/11/32	10	4	Whole blood	60	Intramuscular	670	Preparalytic
Unknown	8/28/32	9/ 8/32	10	9	Whole blood	60	Intramuscular	141	Preparalytic
Unknown	8/23/32	9/12/32	17	3	Whole blood	50	Intramuscular	250	Left leg
Unknown	9/ 1/32	9/10/ 2	9	3	Convalescent	10	Intramuscular	318	Left leg
Unknown	8/18/32	9/11/32	13	4	Whole blood	60	Intramuscular	No data	Preparalytic
Unknown	8/28/32	9/12/32	14	6	Convalescent	30	Intramuscular	110	Both legs
Unknown	9/ 5/32	9/10/32	10	4	Whole blood	60	Intramuscular	200	Preparalytic
Unknown	9/ 4/32	10/16/32	42	5	Convalescent	20	Intramuscular	200	Preparalytic

TABLE 2—End Results in 605 Cases—Six Months After Original Report

	Original Paralysis or Muscular Weakness								No Paralysis or Muscular Weakness								Total			
					No								No						No	
	Cases	Per Cent	Cases	Per Cent	Serum Given	Per Cent	No Serum Given	Per Cent	Cases	Per Cent	Serum Given	Per Cent	No Serum Given	Per Cent	Serum Given	Per Cent	Serum Given	Per Cent	Serum Given	Per Cent
Normal	265	43.8	128	48.3	109	85.2	19	14.8	187	51.7	70	51.0	67	49.0	179	67.0	86	33.0		
Good	87	14.4	72	82.7	65	76.3	17	23.7	15	17.3	6	40.0	9	60.0	61	70.0	26	30.0		
Fair	84	13.9	70	83.3	53	75.6	17	24.4	14	16.7	5	35.7	9	64.3	58	68.9	26	31.1		
Poor	56	9.3	46	82.1	37	80.0	9	20.0	10	17.9	5	50.0	5	50.0	42	66.0	14	34.0		
Trace	21	3.4	18	85.7	10	55.0	8	45.0	3	14.3	3	100.0	0	0.0	13	60.0	8	40.0		
Totally paralyzed	12	2.0	12	100.0	8	67.0	4	33.0	0	0.0	0	0.0	0	0.0	8	67.0	4	33.0		
Deaths	80	13.2	61	76.0	37	60.2	24	39.8	19	24.0	9	47.3	10	52.7	46	57.5	34	42.5		
Total followed	605	83.0	407	67.3	309	76.0	98	24.0	198	32.7	98	49.4	100	50.6	407	67.3	198	32.7		
Unable to follow	119	16.3	86	74.8	71	82.5	15	17.5	33	25.2	17	51.0	16	49.0	88	74.0	31	26.0		
Deaths unable to follow	4	0.6	4	100.0	2	50.0	2	50.0	0	0.0	0	0.0	0	0.0	2	50.0	2	50.0		
Total cases	725	100.0	497	68.2	382	79.7	115	20.3	231	31.8	115	49.8	116	50.2	497	68.2	231	31.8		
Total deaths	84	11.6	65	77.0	39	60.0	26	40.0	19	23.0	9	47.3	10	52.7	48	57.0	36	43.0		

the disease. Of those diagnosed as poliomyelitis, 152, or 50 per cent, showed evidences of weakness or paralysis on admission, and 192, or 63.2 per cent, showed the same symptoms on discharge, an increase of over 13 per cent.

There were twenty-four deaths at the hospital, a case death rate of 7.89 per cent, as compared with 13 per cent in 1916.

The general hospitals of the city were very cooperative and in many instances, with beds full, continued to make room for the newcomer. In 1932 there were 360 patients, or 50 per cent, admitted to general hospitals, of whom fifty-three died, a case fatality rate of 14.7 per cent. The total number of cases hospitalized was 664, or 91 per cent, with a fatality rate of 11.6 per cent. There were sixty-four or 8.89 per cent, of cases quarantined at home, with seven deaths, a case fatality rate of 10.9 per cent. In 1916, 76.7 per cent were hospitalized and 23.4 per cent treated at home, the fatality rate in hospitals was 22.6 per cent, and at home, 53.2 per cent.

premises were placarded for the remainder of the quarantine period of twenty-one days.

Discharged patients were given a list of instructions regarding further isolation and quarantine and were referred to the family physician for continued surveillance. Here again not a single secondary case developed in the homes of those so discharged. The Division of Child Hygiene was notified as a routine of all hospital discharges and sent its nurses to the homes for the purpose of instructing the heads of families in the rules of quarantine and of securing proper medical attention and supplies. This service was secured through the Emergency Aid, which organization had been instrumental in the rehabilitation of the 1916 group. This medical follow up, whether in home or hospital cases, was sufficiently comprehensive to include the prompt services of an orthopedic surgeon, the purchasing of needed braces and appliances, the transportation of convalescents to and from hospital clinics, and rehabilitation through occupational therapy with vocational guide and placement service. Cases discharged

with revised diagnoses were likewise visited by the nurses and observed by the medical inspectors for a period of fourteen days to detect evidences of muscular weakness or partial paralysis acquired in the interim

#### COOPERATION OF THE MEDICAL PROFESSION

In the early days of August the director of public health, anticipating the gravity of the situation, called a joint meeting of the representatives of the county medical society and the health officers for the purpose of discussing ways and means of combating the disease. A plan was formulated for physicians familiar with the diagnosis of poliomyelitis to volunteer their services as diagnosticians to the department should an emergency arise. It was further suggested that general hospitals function as neighborhood centers for the examination of spinal fluids in suspected cases. In the latter part of the month neurologists and orthopedists in joint meeting proffered their services in the wards of the Philadelphia Hospital for Contagious Diseases, and in those of their own appointed hospitals for the treatment and after-care of the seriously crippled. This group functioned with great credit to all concerned. Reinforced by the cooperation of the county medical society, the medical profession at large, the hospitals, the civic organizations, the social workers and nurses, the public press, the radio and the pulpit, the health department was well entrenched to cope effectively with this epidemic.

#### DIAGNOSTIC AND CONTROL MEASURES

All suspicious and positive cases reported were seen for diagnosis and when doubtful the services of the district diagnostician were solicited. In all cases hospitalization was urged unless adequate home facilities prevailed. Cases of doubtful nature were likewise removed to a hospital for further clinical and laboratory study. The premises in home cases were placarded for the quarantine period of twenty-one days and the contacts kept under observation for fourteen

TABLE 3—*Treatment of One Hundred and Ninety-Eight Preparalytic Cases With and Without Serum Results at End of Six Months*

	Total Cases	Completely Recovered	Per Cent	Weakness or Paralysis	Per Cent	Deaths	Per Cent
Serum	98	70	71.4	19	20.5	9	9.1
No serum	100	67	67.0	23	23.0	10	10.0

days. When patients were removed to a hospital, others in the same household were placed under observation quarantine and the premises placarded with an observation placard for the incubation period of two weeks. Contact food-handlers, school children, school teachers and others engaged in school work were excluded from employment during this period.

#### IMPORTED CASES

The importation of cases from the suburbs, outlying towns and nearby resorts by physicians and the public alike not only added to the increased prevalence and fatality rate but seriously interfered with the proper functioning of public health control. Many cases were conveyed to hospitals by physicians in their own cars, others in private conveyances to physicians' offices, and from there relayed to the Philadelphia General Hospital and the Philadelphia Hospital for Contagious Diseases

or to other hospitals, still others were boldly conveyed to the very gates of the contagious disease hospital.

During the 1932 epidemic there were forty-one cases of the disease admitted from out of town to the Philadelphia General Hospital and the Philadelphia Hospital for Contagious Diseases and to other hospitals in this irregular way. Of our own residents eighty-four contracted the disease out of the city, and 603 were supposedly infected at home.

#### BOARD OF HEALTH DEFERS OPENING OF SCHOOLS

August 31, by a resolution of the board of health, the opening of schools was postponed and assemblages of persons under 18 years were forbidden in public and

TABLE 4—*One Hundred and Fifty-Two Preparalytic Cases on Admission to the Philadelphia Hospital for Contagious Diseases With and Without Serum*

	Admitted Preparalytic	Discharged Nonparalytic	Paralyzed	Per Cent Paralyzed	Deaths	Per Cent
Serum	130	100	30	23.0	7	5.4
No serum	22	12	10	45.6	0	0.0

semipublic places. This was a precautionary measure well taken and met with the approval of educators and the public alike. The ban was completely lifted, October 5.

The epidemic of 1932 did not parallel that of 1916 in degree of prevalence, extent of virulence, or fatality rate. This may, in part, be attributed to the constant urge of early diagnosis and isolation, to the prompt reporting and hospitalization, to the early use of convalescent serum and to a possible neutralization of the virus itself.

#### END RESULTS OF A FOLLOW-UP SURVEY

A follow-up survey of 605 cases was made by medical inspectors in March 1933, including 407 cases with paralysis or muscular weakness and 198 without paralysis at the time of the original report. The end results in these cases were tabulated in accordance with the standards for measuring the degree of paralysis by the Harvard Infantile Paralysis Commission. While these end result examinations were not checked against similar examinations made at the time of the original report, they nevertheless serve as fairly accurate estimates of degree of recovery in the groups specified.

Table 2 represents these results with a further division into those treated with and without serum. There are 119 other cases in which no follow up was possible, as well as the total deaths tabulated with regard to paralysis and no paralysis, with and without serum.

Of the total 605 cases investigated, it is interesting to note that 265, or 43.8 per cent, are classified as normal or completely recovered, and that of these 128, or 48.3 per cent, originally showed weakness or paralysis, and 137, or 51.7 per cent, did not. There are 248 cases, or 41 per cent, showing varying degrees of residual paralysis, and twelve patients are totally paralyzed. Of the patients 407, or 67.3 per cent, received serum, 179, or 44 per cent, of whom recovered, and 198, or 32.7 per cent, did not receive serum, of whom eighty-six, or 43.4 per cent, recovered. Of the 304 cases admitted to the Philadelphia Hospital for Contagious Diseases, 192, or 63.5 per cent, showed evi-



dences of weakness or paralysis, and 112, or 36.5 per cent, did not.

Regarding serum treatment, 254, or 83.5 per cent, received serum, and fifty, or 16.5 per cent, did not. Of the 254 receiving serum, 124 presented evidences of weakness or paralysis on admission and 130 did not, of the fifty who did not receive serum twenty-five showed evidences, and twenty-two did not. Among twenty-four deaths at this hospital, eighteen, or 75 per cent, of the patients had serum, and six, or 25 per cent, did not.

#### TREATMENT WITH AND WITHOUT SERUM

Tables 3 and 4 represent the end results in 198 preparalytic cases and the results on discharge of 152 preparalytic cases at the Philadelphia Hospital for Contagious Diseases in which treatment with and without serum was given.

The normal end results obtained in 265 cases previously tabulated, of which 179, or 67 per cent, were

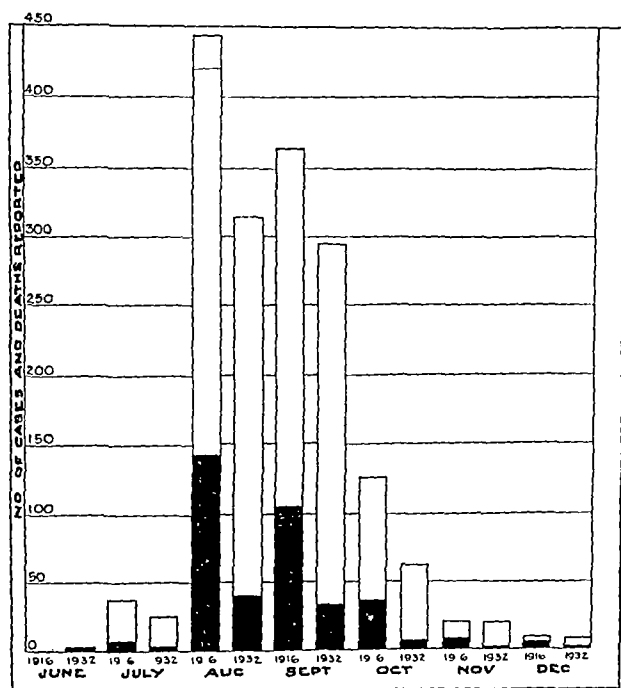


Chart 2—Comparative monthly incidence of cases and deaths from anterior poliomyelitis in Philadelphia 1916-1932. White rectangles cases, black rectangles deaths.

serum treated, are favorable to its use, but unfortunately the cases were not divided into comparable groups numerically or by case classification. Regarding the end results in 198 preparalytic cases, 98 with and 100 without serum, the serum group shows an advantage. In the 152 preparalytic cases at the Philadelphia Hospital for Contagious Diseases the paralysis percentage is proportionally less in the serum treated, but the death percentage is higher, probably because there were more cases of the severer grades of paralysis included. It is generally conceded that immune serum is of no value after the onset of paralysis, yet its use was not limited to the preparalytic type either in home cases because of insistence of parents or in hospital cases showing febrile and progressive symptoms.

The small number of preparalytic cases with controls shows no decided advantage in favor of the serum treated group. While there is no conclusive evidence

presented in favor of the use of serum, we feel that for want of a specific therapeutic agent its use should be continued in the early preparalytic cases, checked whenever possible by comparable controls until a final evaluation is determined on. A comparative estimation of the routes of administration of serum shows that the intravenous was used in 37 per cent of cases, the intramuscular in 56 per cent, and spinal in combination in 2.5 per cent. Whole blood was used in combination in 22.5 per cent and transfusion in 2 per cent. There were 1,062 spinal counts made by the Division of Laboratories, 754 of which showed a count of over 12 per cubic millimeter. The average cell count for all cases was 88 per cubic millimeter and the highest count was 1,500 per cubic millimeter.

#### CROSS PROTECTION

In an effort to determine what bearing cross protection in infections may have on immunity to poliomyelitis, a careful history of previous acute infectious diseases taken in all cases admitted to the Philadelphia Hospital for Contagious Diseases showed that 64.1 per cent of cases gave such a history with apparently no acquired protection as a result. Of the 304 patients, 56.3 per cent were vaccinated against smallpox, and 51.3 per cent had had diphtheria toxin-antitoxin. Enlarged tonsils, probably diseased, were present in 81.6 per cent of cases, presumptive evidence of a diseased nasopharynx with a consequent lowering of the virucidal property present in its normal secretions as determined by Amos and Taylor. A history of recent tonsillectomies was not compiled.

#### COMPARATIVE EPIDEMIOLOGIC DATA

The following data represent the most important epidemiologic features in an analysis of 728 case histories.

**Seasonal Incidence**—The distribution of cases by months in chart 2 shows the seasonal variation. In both 1932 and 1916 the maximum prevalence occurred, in the order given, in the months of August, September and October. The onset in 1932 started later in July, but in both epidemic years the greatest monthly prevalence was in August, with the maximum number of cases reported in the fourth week. This high rate of prevalence was coincident with a high mean temperature and a low mean rainfall. The mortality curve follows that of the incidence with the greatest number of deaths in August and September of both years.

**Cases and Deaths by Sex and Age**—Males were more susceptible than females in the proportion of 58.5 per cent to 41.5 per cent for 1932, and of 54.4 per cent to 45.6 per cent in 1916. The case mortality for males was slightly higher in 1932. In both epidemic years the age group 1 to 5 years prevailed, followed by the 5 to 10 year group. In 1916 no cases of patients over 30 years of age were reported. In the 1932 epidemic comparatively more cases occurred in the older age groups 5 to 10, 10 to 15, 15 to 20 years. The mortality rate was highest in the 1 to 5 year group in both years but in 1932 the rate was comparatively higher in the 5 to 10 and the 10 to 15 year groups.

Chart 3 represents the comparative percentage groups of cases and deaths in both epidemics.

**Color Grouping Cases and Deaths**—In 1916 there were twenty-eight Negro cases as contrasted with 107 in 1932. This is attributed to an increase of 160 per cent in the Negro population since the 1910 census,

1 c, an increase from 84,459 to 219,599. The ratio of cases to deaths in both years is about the same for the Negro and the white race. In 1932 a similar trend toward the older age groups is observed.

**Multiple Cases in Families**—The infectiousness of poliomyelitis has frequently been questioned because of

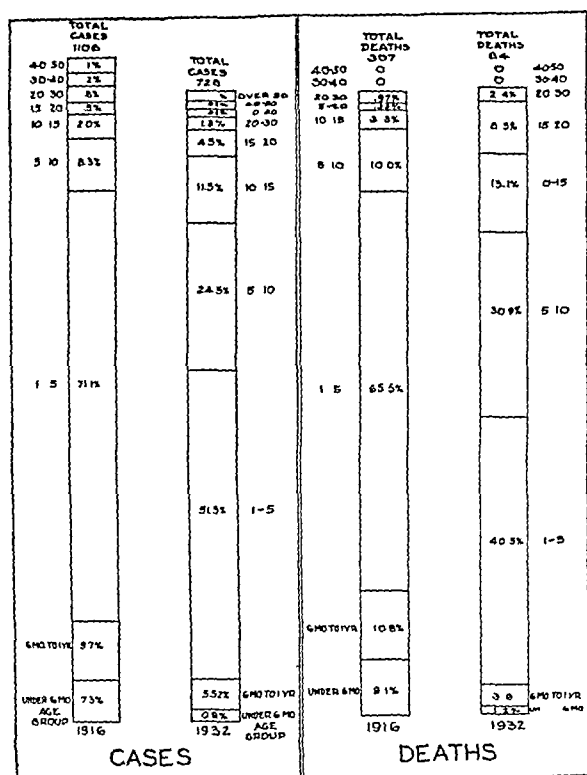


Chart 3—Cases and deaths acute anterior poliomyelitis comparative age groups in percentage 1916 and 1932

the large number of families with children in which only one case occurred. In 1932 there were twenty-five family groups in which more than one case developed, as contrasted with fourteen similar groups in 1916. There were twenty-four families with two cases, and one family with three cases.

In these multiple-case groupings it is important to distinguish between those that may be regarded as true secondary cases and those in which infection resulted from a common or independent source. Among our so-called secondary cases there are three abortive, thirteen preparalytic and ten paralytic cases. According to Aycock and Eaton, the subsequent cases occurring in families up to an interval of eight days are probably of common source infection, and those from the ninth to the seventeenth day, averaging fourteen, are probably true secondary cases. In our series there are apparently six true secondary cases: two at nine, two at ten, one at eleven and one at nineteen day intervals. One case that occurred after an interval of twenty-four days is probably of a common or independent source of infection. These authors conclude by saying that in poliomyelitis the recognized case of the disease is relatively a far less important source of infection than in scarlet fever or diphtheria, and that in poliomyelitis it is not so much the case itself as the source from which the case was infected.

Table 5 gives the interval in days between primary and subsequent cases.

**Relative Frequency of Symptoms and Signs**—The classic symptoms of fever, headache and vomiting, and the signs of hyperesthesia, irritability, twitchings, tremors, stiffness of the neck and rigidity of the spine are prominently represented in table 6.

It is interesting to note that the average number of days between the onset of illness and the visit of the physician was three days, between the physician's visit and the date of report three days, and from the date of onset to the appearance of paralysis three days.

**Distribution of Paralysis of Extremities**—The right leg was found to be the most frequent single extremity involved, followed by the left leg and then both legs. The right arm was more frequently involved than the left, as table 7 shows.

TABLE 5—Multiple Cases of Poliomyelitis in Families in 1932

Family Group	Date of Onset	Interval of Days	Sex	Age	Paralysis	Cell Count
1	* July 19		♀	4	Right arm	
	July 26	7	♂	3	Left arm	
	July 26	7	♀	2	Right arm	
2	* July 31		♂	6	Left arm	
	August 4	4	♂	4	Preparalytic	150
3	* July 27		♀	12	Right arm and right leg	
	August 1	5	♀	13	Both arms and legs	
4	* August 5		♂	5	Both legs	
	August 7	2	♀	3	Preparalytic	60
5	* August 8		♀	6	Facial	
	September 1	24	♂	4	Abortive	
6	* August 8		♂	7	Preparalytic	177
	August 10	2	♀	3½	Left leg	
7	* August 10		♀	5	Preparalytic	33
	August 19	9	♂	12	Preparalytic	70
8	* August 8		♀	1	Both legs	
	August 14	6	♂	1	Abortive	
9	* August 13		♂	3	Right leg	
	August 18	5	♂	1	Preparalytic	50
10	* August 12		♀	4	Both legs	
	August 15	3	♀	1	Preparalytic	220
11	* August 5		♀	6	Abortive	
	August 14	9	♂	6	Left arm	
12	* August 14		♂	7	Right arm	
	September 2	10	♀	10	Preparalytic	51
13	* August 19		♂	4	Bulbar	
	August 23	4	♂	3	Preparalytic	49
14	* August 17		♀	3	Preparalytic	120
	August 27	10	♂	6	Preparalytic	170
15	* August 20		♂	7	Right leg	
	August 28	8	♂	1	Preparalytic	197
16	* August 26		♂	7	Preparalytic	133
	August 29	3	♂	3	Left leg	
17	* August 10		♂	3	Abortive	
	August 14	4	♀	7	Right leg	
18	* August 18		♂	7	Bulbar	
	* August 29	11	♂	5	Abortive	
19	* August 26		♂	4	Preparalytic	142
	August 30	4	♀	7	Left leg	
20	* August 22		♂	1	Preparalytic	70
	August 24	2	♀	3	Right arm and both legs	
21	* August 28		♀	5	Preparalytic	31
	September 4	7	♂	3	Preparalytic	390
22	* August 19		♀	1	Preparalytic	195
	August 29	10	♂	6	Preparalytic	20
23	* September 1		♂	10	Preparalytic	30
	September 9	8	♂	6	Preparalytic	19
24	* September 15		♂	5	Preparalytic	670
	September 15	0	♂	4	Preparalytic	270
25	* September 16		♀	10	Bulbar	
	September 23	7	♂	8	Bulbar	

\* Initial case

**Clinical Types of Paralysis**—As usual, the spinal type of the disease predominated and was represented in 62.37 per cent of the 497 cases presenting weakness or paralysis.

There were 107 cases showing muscular weakness and 231 preparalytic cases presenting the clinical symptoms and spinal fluid changes of this type.

SUMMARY

The 1932 epidemic differed little in its seasonal incidence or geographic distribution but much in its morbidity and mortality rates from the 1916 epidemic. There were a total of 728 cases and 84 deaths reported in the former and 1,006 cases and 307 deaths in the latter year. The case death rate in 1932 was 11.5 per cent, or 56 per hundred thousand of population, in

TABLE 6—Relative Frequency of Symptoms and Signs in Percentage

Symptom	Per Cent	Symptom	Per Cent
Fever	92.5	Convulsions	3.8
Headache	66.2	Chills	14.7
Vomiting	48.0	Coryza	2.2
Pains	37.1	Stiffness of the neck	50.4
Irritability	33.2	Rigidity of the spine	24.0
Drowsiness	19.5	Kernig sign	6.7
Hypersensitivity	2.2	Babinsky sign	3.0
Constipation	16.0	Muscular twitching	6.7
Diarrhea	14.7	Tremors	3.4

1916 30.4 per cent, or 18 per hundred thousand of population. There were many more cases diagnosed and reported in the preparalytic stage during the recent outbreak, resulting in a greater number of recovered cases. In addition to a proportionally greater number of recovered cases there was a substantial reduction in the paralyzes of the more severe grades, as evidenced in the end results of the follow up group of 605 cases, among which 43.8 per cent were classified as normal,

TABLE 7—Relative Frequency of Paralysis of Extremities in Percentage

Part	Per Cent	Part	Per Cent
Right leg	8.3	Left arm	4.6
Left leg	7.9	Both arms	1.6
Both legs	7.3	Both arms and both legs	1.5
Right arm	6.0		

14.4 per cent as good, 13.9 per cent as fair, 9.3 per cent as poor, 3.4 per cent as showing a trace of paralysis, 2 per cent as totally paralyzed, and 13.2 per cent as deaths.

Early diagnosis and isolation, prompt reporting and hospitalization, serum therapy and appropriate after-care were consistently urged on the profession.

The susceptible age group in both epidemics was the 5 to 10 year group, with the higher age groups involved to a greater degree in the 1932 outbreak. In the latter,

TABLE 8—Types of Paralysis

Paralysis	Number of Cases
Spinal	310
Bulbospontine	70
Landry's	6
Cerebral	3
Polio-encephalomyelitis	1

57 per cent of the cases and 45 per cent of the deaths were in the age group under 5 years, whereas in 1916 88 per cent of the cases and 85.4 per cent of the deaths were so differentiated. The greatest seasonal incidence encompassed the summer months, coincident with the high temperature and low rain fall.

No conclusive evidence is offered with regard to the value of passive immunization by the use of whole blood or serum.

The use of human immune serum for treatment in the early preparalytic cases seems justified by the end

results obtained in a small series of cases and controls. The dearth of true secondary cases in families, hospitals and institutions serves to emphasize the fact that infection by direct contact with clinical cases is not common. Human carriers apparently constitute the reservoir for the virus.

The closing of schools and swimming pools and the restricted attendance at the moving picture theaters certainly prevented mass contact exposure, but at no time were they considered as foci of infection.

No epidemic can be successfully checked and the damage repaired without the whole-hearted cooperation of the medical profession, the hospitals, the public and the various coordinating agencies, including the nurses, the social service workers, the public press, the pulpit, the radio and, finally, such organizations as the Emergency Aid, whose interest in the after-care and treatment of those left crippled completes the list.

City Hall Square

THE ABSENCE OF DETERIORATING EFFECTS OF BROMIDES IN EPILEPSY

HARRY A. PASKIND, M.D.  
CHICAGO

Bromine was discovered by Balard<sup>1</sup> in 1828, he was also the first to produce potassium bromide. In 1850 Huette<sup>1</sup> published a study of the action of potassium bromide and stated that it causes general and sexual sedation, anesthesia of the palate and throat, mental torpor, disorders of motility and cutaneous anesthesia.

Locock<sup>2</sup> first used bromides in epilepsy and noted its favorable effect. Later Voisin<sup>1</sup> and Brown-Sequard<sup>1</sup> systematized and made clear the use of bromides in this disorder, and ever since they have been in general use. That they diminish the number and severity of seizures has been demonstrated times beyond number.

The reputation of bromides is, however, not unsullied, for many writers, old and modern, have stated that in patients with epilepsy they produce mental deterioration.

Eccheverria<sup>3</sup> in 1870 stated that a single dose of from 10 to 20 grains (0.65 to 1.30 Gm.) had caused patients with epilepsy to become maniacal, suicidal, hallucinatory and melancholic. Bannister<sup>4</sup> described an orderly patient with epilepsy who on 15 grains (1 Gm.) of bromide three times daily became a "dangerous lunatic," the imputation being that bromide caused the mental change. Jewell<sup>5</sup> believed that many persons with epilepsy were in asylums not because they had epilepsy but because they were treated with bromides. Bennett<sup>6</sup> wrote that, in 188 per cent of epileptic patients treated with bromides, mental weakness developed. Hare<sup>7</sup> stated that mental changes in epileptic

From the Department of Nervous and Mental Diseases Northwestern University Medical School.  
1. Quoted by Seguin E. C. The Abuse and Use of Bromides J Nerv. & Ment. Dis. 44:5 1877.  
2. Locock C. Lancet 1:528 1857.  
3. Eccheverria M. G. On Epilepsy New York: William Wood & Co. 1870 p. 321.  
4. Bannister H. M. Note on a Peculiar Effect of the Bromides upon Certain Inane Epileptics J Nerv. & Ment. Dis. 8:561 1881.  
5. Jewell in discussion on paper by H. M. Bannister at the Seventh Annual Meeting of the American Neurological Association J Nerv. & Ment. Dis. 8:593 1881.  
6. Bennett A. H. Action of the Bromides in Epilepsy Edinburgh M. J. 26:784 1880 1881.  
7. Hare H. A. Epilepsy Its Pathology and Treatment Philadelphia and London: F. A. Davis & Co. 1890.

patients are greatly increased by the constant administration of bromides, Huchard<sup>8</sup> wrote that they affect the intelligence, Collins<sup>9</sup> that, in epileptic patients, bromides produce "colossal" mental and physical depravity, and Maguire<sup>10</sup> expressed the opinion that the prolonged administration of bromides is liable to produce changes in the cortical nerve cells, such as chromatolysis and complete dissolution with consequent dementia, but he did not adduce histologic evidence. Weir Mitchell<sup>11</sup> stated that effective doses of bromide may produce loss of memory, inertness, low spirits and, in rare cases, forms of melancholia, maniacal excitement and even suicidal or homicidal mania. Davy<sup>12</sup> believed that the continued use of bromides in patients with epilepsy produced physical and mental enfeeblement, and Rayner<sup>13</sup> that the use of bromides was in many instances responsible for the institutionalization of previously sane persons with epilepsy. Hunt<sup>14</sup> states that the prolonged administration of bromides may cause a condition akin to dementia paralytica. Sollmann<sup>15</sup> states that long continued use of bromides leads to psychic deterioration, which may disappear when the drug is stopped or reduced. Church<sup>16</sup> wrote that it was a frequent experience to see patients with epilepsy "brutalized" by bromides go months without fits but with a loss of mental and physical activity. Clark<sup>17</sup> advised that the use of bromides be discontinued in epilepsy because they produce symptoms just as bad as the disease itself. Wechsler<sup>18</sup> in a recent textbook, says "It is said that bromism may cause mental deterioration." Muskens<sup>19</sup> stated that there is no doubt that most cases of epilepsy in which bromides have been used over a period of years do present very serious mental deterioration. Strecker and Ebaugh<sup>20</sup> wrote that bromides in large doses brutalize the patient with epilepsy.

These statements constitute a serious indictment against the use of bromides in epilepsy and, if true, would practically contraindicate their use.

I shall try to show that this impeachment of the use of bromides in epilepsy is unjustifiable. Such a demonstration I believe to be urgently needed, for a great many physicians, because of such authoritative statements, doubtless bolstered up by experience with the abuse of bromides, have come to use them timidly, half-heartedly, ineffectually or not at all.

The material used in this study consists of the records of fifty-four patients with epilepsy, from the private practice of Dr. Hugh T. Patrick, who have been treated with bromides for a year or longer. Of these, five were treated for one year, nine, two years, five, three years, three, four years, seven, five years, five, six years, four,

seven years, three, eight years, one, nine years, one, ten years, three, eleven years, two, twelve years, three, thirteen years, two, sixteen years, and one for seventeen years. Of these patients, three, or 5.5 per cent, were found to be mentally deteriorated. The remainder, or 94.5 per cent, showed not the slightest signs of deterioration or behavior disorder and performed their customary tasks, sometimes very responsible tasks, with the same efficiency as persons in good mental health.

In a previous study of 304 epileptic patients from the private practice of Dr. Patrick who had had the disease six years or longer, I<sup>21</sup> found that 65 per cent had deteriorated. In this group there were many patients who had received no treatment for years, or inadequate treatment, or periodic treatment, some had received adequate treatment throughout the course of the illness, in some the disease was not recognized as epilepsy until some months or years after the onset. It would seem then, that the occurrence of deterioration in the present group that received bromide medication continuously for a year or more is no greater than in the larger group in which treatment was in a few cases adequate but in most cases inadequate, periodic or absent and in which various remedies had been used including bromides (5.5 per cent deteriorated to 65 per cent, respectively).

In order to elucidate the question more clearly I have prepared the accompanying table, outlining the salient features of the cases dealt with in this report. A study of this table shows that the dosage of bromide employed was not inconsiderable, in almost all instances it was large enough to exert a favorable influence on the disease. In some cases the seizures disappeared while the patient was taking bromides. It may also be noted that regardless of how long the patient took bromides (with the exception of the three deteriorated patients) there was no educational or vocational decline.

Based on these observations I have come to believe that bromides in rather full therapeutic doses do not cause deterioration in patients with epilepsy and that statements in the literature regarding this point are in need of revision.

It remains to be explained why so many authors have believed that bromides cause deterioration in patients with epilepsy. The reasons for this are not far to seek.

I believe that one of the reasons that bromides are in such bad repute is the failure to adjust the dosage. A dosage that will produce salutary effects in one patient may produce signs of bromism in another. The symptoms of bromism have been well described by Turner<sup>22</sup> as follows:

This condition is characterized by a blunting of the intellectual faculties, impairment of memory and production of a dull and apathetic state. The speech is slow, the tongue tremulous, saliva may flow from the mouth, the gait is staggering and the movements of the limbs feeble and infirm. The mucous membranes suffer so that the palatal sensibility may be abolished and nausea, flatulence and diarrhea supervene. The action of the heart is slow and feeble, the respiration shallow and imperfect and the extremities blue and cold. Acne usually covers the skin of the face and back.

It must be remembered, however, that these symptoms of bromism are produced only by doses in excess of the patient's tolerance and that this is intoxication.

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21 Paskind H A. *Extramural Patients with Epilepsy with Special Reference to the Frequent Absence of Deterioration*. *Arch Neurol & Psychiat* 28 370 (Aug) 1932.

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*Effects as Regards Deterioration of Patients with Epilepsy Treated with Bromides for from One to Seventeen Years*

Case	Sex	Age of Onset	Duration, Yrs	Type and Frequency of Seizures	Sodium Bromide	Effect on Seizures	Occupation Before Taking Bromides	Occupation After Taking Bromides	Evidences of Deterioration
1	♂	31	10	Grand mal 2 3 per month Petit mal 1 per week to 3 per day	66 72 gr daily for 1 year	Diminished in number	Salesman	Salesman	None
2	♀	10	4	Petit mal 1 per week to 8 per day	40-60 gr daily for 1 year	Diminished in number	Grammar school	Grammar school	None
3	♀	5	7	Grand mal 1 per year to 1 per week	45 gr daily for 1 year	Eradicated	Grammar school	Grammar school	None
4	♀	18	7	A few petit mal every 3 to 11 months	60 66 gr daily for 1 year	Eradicated	Student	Teacher	None
5	♂	10	30	Petit mal 3 4 per week	66 gr daily for 1 year	Less frequent	Clerk	Clerk	None
6	♀	6	22	Petit mal 4 per week	60 66 gr daily for 1 year	Less frequent	Teacher	Teacher	None
7	♂	21	10	Grand and petit mal 3 4 per year	60 gr daily for 2 years	Diminished in frequency and intensity	Teacher	Teacher	None
8	♀	29	9	Grand mal, 3 4 per year	60-66 gr daily for 2 years	Eradicated	College student	College student	None
9	♀	12	6	Petit mal every 2 days	45 60 gr daily for 2 years	Less frequent	High school	High school	None
10	♀	33	16	Grand mal, every 2 weeks	66 72 gr daily for 2 years	Less frequent	Housekeeper	Housekeeper	None
11	♂	2	1	Grand mal every 2 weeks	27 gr daily for 2 years	Eradicated		At age of 27 a college graduate looking for work	None
12	♂	24	6	Grand mal every 3 months to 3 days	66 72 gr daily for 2 years	Reduced severity and frequency	Insurance agent	Insurance agent	None
13	♂	35	34	Grand mal 4-6 per year Petit mal 1 2 per month	66 gr daily for 2 years	Eradicated	Farmer	Farmer	None
14	♂	50	18	Grand mal 4 12 per year	60 gr daily for 2 years	Reduced in frequency and severity	Banker	Banker	None
15	♂	9	3	Grand mal every 3 months	76 45 gr daily for 3 years	Eradicated	School boy	School boy	None
16	♂	33	6	Grand mal 1 2 per year Petit mal 1 in 2 months to a few per day	66 72 gr daily for 3 years	Reduced in frequency	Mechanic	Mechanic	None
17	♀	18	12	Grand and petit mal 3 times per year to 1 in 2 weeks	66 gr daily for 3 years	Reduced in frequency	Housekeeper	Housekeeper	None
18	♀	21	24	Petit mal 1 8 per day	66 75 gr daily for 3 years	Reduced in frequency	Housekeeper and communal worker	Housekeeper and communal worker	None
19	♀	29	5	Grand mal 1 per month to every few days	66 gr daily for 3 years	Reduced in frequency	Housekeeper	Housekeeper	None
20	♂	39	11	Petit and grand mal 1 in 2 weeks to 8 per week	66 gr daily for 4 years	Reduced in frequency	Bookkeeper	Bookkeeper	None
21	♂	13	5	Petit mal 20 per day Grand mal 5-6 per day	45 60 gr daily for 4 years	No change	None	None	Became deteriorated
22	♂	15	5	Petit mal 1 per month to 1 per day	45 60 gr daily for 4 years	Reduced in frequency	Student	Student	None
23	♂	15	7	Grand mal 1 in 6 months to 1 in 2 weeks	66 gr daily for 5 years	Reduced in frequency and severity	Student	Junior business executive	None
24	♂	19	7	Grand mal 1 in 3 months to 1 in 5 days	66 90 gr daily for 5 years	Reduced in frequency	Machinist	Machinist	None
25	♂	21	8	Petit mal a few per day	66 gr daily for 5 years	Eradicated	Office worker	Office worker	None
26	♂	27	12	Petit mal a few per day Grand mal 1 in 2 months	66 90 gr daily for 5 years	Reduced in frequency	Foreman	Foreman	None
27	♀	26	13	Petit mal 2 3 per month Grand mal 3 4 per year	66 72 gr daily for 5 years	Eradicated	Beauty shop operator	Beauty shop operator	None
28	♀	16	25	Petit mal 12 15 per month	66 72 gr daily for 5 years	Eradicated	Housekeeper	Housekeeper	None
29	♂	22	19	Petit mal 1 4 per day Grand mal 1 4 per year	66 90 gr daily for 5 years	Reduced in frequency	Clerk	Clerk	None
30	♀	16	7	Grand mal 1 4 per year	45 75 gr daily for 6 years	Reduced in frequency	Student	Student	None
31	♀	13	7	Petit mal 1 5 per day	66 gr daily for 6 years	Reduced in frequency	Student	Student	None
32	♂	30	10	Petit mal 2 3 per month	66 gr daily for 6 years	Reduced in frequency	Physician	Physician	None
33	♀	31	34	Grand mal 4 12 per year	66 72 gr daily for 6 years	Eradicated	Housekeeper	Housekeeper	None
34	♀	32	12	Grand mal 3 4 per year	66 72 gr daily for 6 years	Reduced in frequency	Housekeeper	Housekeeper	None
35	♀	24	8	Grand mal 3 4 per year	45 66 gr daily for 7 years	Eradicated	Grocery clerk	Grocery clerk	None
36	♀	16	7	Grand mal 3 4 per year	45 66 gr daily for 7 years	Eradicated	Student	Student	None
37	♀	31	11	Petit mal 3 4 per day Grand mal every 3 months	66 gr daily for 7 years	Reduced in frequency	Housekeeper	Housekeeper	None
38	♀	16	16	Grand mal 2 per year	66 gr daily for 7 years	Reduced in frequency and severity	Housekeeper	Housekeeper	None
39	♂	14	11	Petit mal 1 per month to several per day	45 60 gr daily for 8 years	Eradicated	Farmer	Farmer	None
40	♀	18	4	Petit mal 1 11 per day Grand mal 2 per month	66 gr daily for 8 years	Slightly reduced in frequency	None	None	Deteriorated
41	♀	15	9	Grand mal 1 per year to 1 per month	66 72 gr daily for 8 years	Eradicated	Student	Cashier	None
42	♂	18	30	Petit mal daily	66-90 gr daily for 9 years	Eradicated	Farmer	Farmer	None
43	♂	9	12	Petit mal 1 per week to 1 per day Grand mal 1 per week to 1 per day	45-60 gr daily for 10 years	Reduced in frequency and severity	Grammar school	Farmer	None
44	♀	15	14	Petit mal 2 per month Grand mal 1 per month	66 gr daily for 11 years	Reduced in frequency and severity	Student	Music teacher	None
45	♂	27	11	Petit mal 1 2 per week Grand mal 1 per week	66 gr daily for 11 years	Reduced in frequency and severity	Grocer	Grocer	None
46	♀	15	14	Grand mal 2 per year	66 90 gr daily for 11 years	Reduced in frequency	Music teacher	Music teacher	None
47	♀	20	25	Petit mal 3 4 per year Grand mal 1 per year	66 gr daily for 12 years	Reduced in frequency	Bank cashier	Bank cashier	None
48	♀	5	30	Grand mal 1 2 per month	66 gr daily for 12 years	Reduced in frequency	Missionary	Missionary	None
49	♂	1	18	Grand mal 1 per month to a few per day	24-60 gr daily for 12 years	Reduced in frequency and severity	Grammar school	College student	None
50	♂	26	30	Petit mal 1 2 per month	60 gr daily for 13 years	Reduced in frequency	Salesman	Salesman	None
51	♂	16	42	Grand mal 3 4 per year	60 72 gr daily for 13 years	Eradicated	Furniture dealer	Furniture dealer	None
52	♀	31	16	Petit mal 1 2 per week Grand mal 3 8 per month	72 gr daily for 16 years	Reduced in frequency	Housekeeper	Housekeeper	None
53	♀	26	22	Petit mal 1 per month to 3 per week Grand mal 1 per month to 3 per week	66 72 gr daily for 16 years	Reduced in frequency	None	None	Deteriorated
54	♂	22	23	Petit mal 3 10 per day	66 gr daily for 17 years	Reduced in frequency	Lawyer	Lawyer	None

and not deterioration. That in many instances this intoxication has been mistaken for deterioration seems reasonable, and the observers of this intoxication have warned others against the use of bromides. But this intoxication disappears in a short time with proper reduction of the dose, while deterioration is chronic and ineradicable. This intoxication is no more deterioration than is a single episode of pronounced alcoholism.

Another reason for the undeserved bad reputation of bromides, I believe, is that bromides were given to patients who became deteriorated because of their epilepsy or its underlying cause. Some persons with epilepsy undergo mental deterioration, others do not. In a previous study of patients with epilepsy I<sup>21</sup> attempted to show that the occurrence of deterioration is correlated with certain factors in the patient's background and symptoms. The nondeteriorated patients come of a stock less heavily burdened with neuropathy than do the deteriorated ones, the onset in the nondeteriorated patients is later, they have attacks less frequently and they have more and longer remissions. It is these factors, I believe, that play a rôle in the occurrence of deterioration, and not the administration of bromides.

Finally, the reputation of bromides has undoubtedly suffered through their use in institutions for epileptic and mentally ill patients. Epileptic patients are sent to institutions because they are deteriorated or because they show behavior disturbances. Some days such patients are orderly, other days they are irritable, bad tempered, ugly, combative and even brutal. If bromides happened to be administered before or during such a period the bromides were held responsible, and tocsins were sounded against their use. Here, again, a sequence in time was mistaken for cause and effect. Furthermore, the use of bromides had few defenders, because practically all men who wrote on epilepsy were institution men whose judgment of the value of bromides was colored by observations, such as those quoted, and who did not know that there are large numbers of persons with epilepsy who do not undergo mental changes and who are never institutionalized. On the extramural nondeteriorated patients they were unable to make sufficient observations regarding the effects of bromides.

#### CONCLUSIONS

Almost all writers on the use of bromides in epilepsy have stated that, although they are efficient in eradicating or ameliorating the seizures, they are dangerous in that they sometimes produce mental deterioration.

A study of fifty-four patients with epilepsy who have taken bromides in sufficient amounts to affect the seizures for from one to seventeen years show that only three, or 5.5 per cent, became deteriorated. The occurrence of deterioration in this more adequately treated group was less than in a larger, less adequately treated group.

The misleading statements in the literature regarding the adverse effects of bromide in epilepsy are due to (1) failure to distinguish between intoxication and deterioration, (2) the use of bromides in persons with epilepsy who were destined to deteriorate without their use, and (3) the chance occurrence of behavior disturbances in insane or neurotic epileptic patients who had received bromides and in whom such behavior disorders occur without bromides.

25 East Washington Street

## ANTERIOR PITUITARY-LIKE PRINCIPLE IN THE TREATMENT OF MALDESCENT OF THE TESTICLE

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In 1932, Engle<sup>1</sup> described the experimental production of descent of the testicle in immature monkeys by the injection of hormones of the anterior pituitary gland or substances obtained from pregnancy urine. Since maldescent of the testicle is a condition for which the physician is not infrequently consulted, it was felt that this observation might open up a new approach to the study and treatment of this developmental defect.

#### INCIDENCE

The incidence<sup>2</sup> of undescended testicle in army recruits is reported as varying from two to five per thousand applicants. Maldescent apparently occurs more frequently on the right side, since the descent of the left testicle normally precedes that of the right. The condition of maldescent is bilateral in about 25 per cent of the cases.

#### SURGICAL TREATMENT

Bevan<sup>3</sup> advises that an operation for undescended testicle be performed in the first or second year of life. He does not believe that the testicle ever spontaneously descends between birth and puberty if the organ cannot be manually forced into the scrotum.

Cabot<sup>4</sup> recommended that the operation for undescended testicle be performed before the age of 9 years and feels that the earlier it is done the better the result will be.

Others<sup>5</sup> concur with the exponents of surgery at an early age. Higgins<sup>6</sup> is of the opinion that operation is always indicated when the testicle cannot be palpated.

However, the results of surgical treatment are not sufficiently encouraging to warrant the degree of assurance with which these authors have stated their opinions. Goetsch<sup>2</sup> reports a follow up of fifteen operations for maldescent and found that the operated testicle had developed normally in only one case. Burdick and Coley<sup>6</sup> in a report on 537 orchidopexies were of the opinion that 50 per cent of the operations proved satisfactory as to position of the testicle and that in about 15 per cent of the cases the testicle was normal in size. Turner<sup>7</sup> reports the testis to be well down after operation in 70 per cent of the cases, and Pasten<sup>7</sup> reports thirty-one operations with good results in 32 per cent.

The newer Torek operation seems to offer a possibility of better end results when used by competent surgeons who have made a thorough study of the technic. Harris<sup>8</sup> has obtained good results in 100 per cent of his series of thirty Torek operations.

From the Department of Pediatrics, Mount Zion Hospital.  
1 Engle, E. T. Experimentally Induced Descent of the Testis in the Macaque Monkey by Hormones from the Anterior Pituitary and Pregnancy Urine. *Endocrinology* 16: 513 (Sept.) 1932.

2 Goetsch, Arthur. Undescended Testis, *Am J Surg* 12: 63 (April) 1931.

3 Bevan, A. D. The Operation for Undescended Testis. *Ann Surg* 90: 847 (Nov.) 1929.

4 Cabot, Hugh and Nesbit, R. M. Undescended Testis. *Arch. Surg* 22: 850 (May) 1931.

5 Wangenstein, O. H. The Undescended Testis. *Arch. Surg* 14: 663 (March) 1927. The Surgery of the Undescended Testis. *Surg Gynec & Obst* 54: 219 (Feb.) 1932. Higgins, C. C. and Welt, H. Surgical Treatment of Undescended Testicle. *ibid* 48: 536 (April) 1929.

6 Burdick, C. G. and Coley, B. L. Abnormal Descent of the Testicle. *Ann Surg* 84: 867 (Dec.) 1926.

7 Cited by Higgins and Welt.<sup>6</sup>

8 Harris, F. I. Results of Thirty Torek Operations. to be published.



Drake<sup>9</sup> observed maldescent of the testicle in a group of school boys over a long period of time and is of the opinion that practically all these cases will show spontaneous descent. He believes that surgery has been utilized too freely in the past. Harris<sup>8</sup> reported that in his series of Torek operations performed in the majority of cases on subjects past puberty the testes were usually found to be small. He advises that when operation is indicated it should be done at or after puberty.

#### HORMONE TREATMENT

Lower and Johnston,<sup>10</sup> working with normal adult rats, found that injection of the gonad-stimulating hormone of the anterior pituitary gland resulted in stimulation of the testes as well as of the prostate and seminal vesicles. Evans, Meyer and Simpson,<sup>11</sup> also working with rats, injected anterior pituitary-like principles. These authors state that "though the testes did not appreciably increase in weight, the accessory organs increased markedly under the influence of gonad-stimulating hormone, attaining the size characteristic of these organs in young adults." Evans<sup>12</sup> repeated the foregoing experiments but stated in addition that the testicles themselves actually decreased in weight and seemed to be damaged by the treatment. Butcher,<sup>13</sup> using anterior pituitary-like substance, also in immature male rats, found that it accelerated spermatogenesis and increased the size of the testis. Brosius and Schaffer<sup>14</sup> noted the repeated production of spermatogenesis following the administration of anterior pituitary-like principle in a patient with complete aspermia with bilateral testicular atrophy following orchitis. Aspermia reappeared after withdrawal of the treatment. Engle's<sup>1</sup> work with monkeys, which forms the stimulus for this paper, has already been mentioned.

Goldman and Stern<sup>15</sup> reported the use of anterior pituitary-like principle in two human subjects for treatment of maldescent of the testis. The first patient showed coexistent evidences of glandular hypofunction. The conclusions regarding the second patient, aged 15, are open to criticism because of the possibility that spontaneous improvement may occur at this age, as noted by Drake<sup>9</sup>. However, both patients seemed to have been benefited by the therapy.

#### COMMENT

Although Evans<sup>12</sup> has stated that anterior pituitary-like principle may damage the testicle of the immature male rat, it would seem from the other instances mentioned that such a reaction does not occur in the human being. To the contrary, certain beneficial effects seem to result, such as an increase in the size and weight of the accessory sex organs (the seminal vesicles and the prostate) and an apparent increase in the length, weight and diameter of the spermatic cord. Furthermore, testicular function is apparently restored or augmented by injection of this substance.

#### METHOD

Since anterior pituitary-like principle had not been used in treatment of maldescent of the testicle in the human subject when the work which forms the basis of this report was started in February 1933, an arbitrary dosage was chosen. One cubic centimeter of the commercial preparation<sup>16</sup> containing 100 rat units was administered subcutaneously three times weekly until ten injections had been given.

#### REPORT OF CASES

CASE 1—A boy, aged 8 years, was normal in appearance and development, save for the fact that the testicles had never been noted in the scrotum. On examination the testicles were found to be located in the middle of the inguinal canal and could not be forced down past the external ring. Both testicles descended well into the scrotum after the second injection of anterior pituitary-like principle and were still there after six months.

CASE 2<sup>17</sup>—A boy, aged 9 years, of generally normal appearance as to size and development, showed maldescent of the right testicle. It was at the level of the internal ring and was movable only for a short distance. The testicle descended well into the scrotum after the second injection of anterior pituitary-like principle and remained there after six months.

CASE 3—A boy, aged 11 years, of generally normal appearance as to size and development, showed maldescent of the right testicle, which was at the midportion of the inguinal canal. It was manually reducible to the external ring. It descended six hours after the first injection of anterior pituitary-like principle and remained well down after four months.

CASE 4—A boy, aged 7 years, showed a slight tendency toward obesity and feminine conformation. The left testicle was well down in the scrotum and apparently was normal. The right testicle was not palpable. It became palpable at the level of the internal ring after the fourth injection. It did not descend farther. This child will probably require an operation.

CASE 5—A boy, aged 10 years, showed a definite Frohlich syndrome. A Torek operation had been done on the right side and the testicle had been found to be markedly atrophic. The left testicle was not palpable. After eight injections of anterior pituitary-like principle it became palpable in the scrotum. Twenty injections were given and the testicle rapidly became normal in size and position. After maintaining a normal position for about six months it began to rise into the canal. Six additional injections of anterior pituitary-like principle were given with a resultant descent of the testicle well down in the scrotum. The right testicle in the meanwhile had attained a normal size and position. The child's general condition improved greatly. The obesity seemed to be redistributed in a more normal manner, the genitalia became less infantile, and a growth of fuzz appeared on the cheeks.

CASE 6—A boy aged 12 years, had had a Bevan operation for bilateral testicular maldescent several years previously, with complete failure on both sides. A Torek operation was done on the right side and while he was convalescing, the patient was given a course of injections of anterior pituitary-like principle. The result was entirely satisfactory. The testicle remained well down in the scrotum. Pubic hair and fuzzy hair on the upper lip appeared shortly thereafter.

#### CONCLUSIONS

The anterior pituitary-like principle of pregnancy urine is apparently effective in causing the descent of undescended testicles when there is no anatomic malformation to act as a mechanical obstruction. When an obstruction exists, a partial descent will occur, but operation will be required to complete the process. In surgical cases, anterior pituitary-like principle is a valuable adjunct in the production of a successful outcome.

<sup>9</sup> Drake C B Spontaneous Late Descent of the Testis J A M A 102 759 (March 10) 1934

<sup>10</sup> Lower W E and Johnston R L Further Studies on Experimental Work on Probable Causes of Prostatic Hypertrophy J Urol 26 599 (Nov.) 1931

<sup>11</sup> Evans H M Meyer K and Simpson M E Memoirs of the University of California 2 1933

<sup>12</sup> Evans H M Second Herzstein Lecture San Francisco Jan 31 1934 (to be published)

<sup>13</sup> Butcher E O Anat Rec (supplement 1) 54 48 1932

<sup>14</sup> Brosius W L and Schaffer R L Spermatogenesis Following Therapy with the Gonad Stimulating Extract from the Urine of Pregnancy J A M A 101 1227 (Oct 14) 1933

<sup>15</sup> Goldman Alexander and Stern Abner Treatment of Undescended Testis by Injection of Prolan New York State J Med 33 1095 (Sept. 15) 1933

<sup>16</sup> Antuitrin S Parke Davis & Co

<sup>17</sup> I am indebted to Drs Newton Shapiro Franklin Harris and David Susnow for permission to use the data presented in cases 2 3 and 6 respectively

## SUMMARY

Four otherwise normal children were treated for maldevelopment of the testicle with subcutaneous injections of anterior pituitary-like principle. Three cases evidenced complete improvement. The fourth case showed evidence of mechanical obstruction and will require operation.

A fifth case presented one operated side, which furnished an admirable opportunity for a controlled observation and showed evidences of pituitary hypofunction. Both the condition of the testicles and the general glandular hypofunction improved under the therapy.

The sixth patient was operated on again after several years and injections of anterior pituitary-like principle were used as an adjunct to surgery. The result was entirely successful as to both the condition of the testes and the general condition of the patient.

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## THE INHERITANCE OF DIABETES

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Is it possible to predict the onset of diabetes in a given individual at a given time? This question was uppermost in our minds, Dec. 17, 1931, for while we were treating a 5 year old girl for diabetic coma her solicitous similar twin sister waited nearby. Surely, we thought, if the theory of the inheritance of diabetes is correct here is an instance in which the prediction is possible. Our patient had just developed diabetes and the second twin should develop the disease and likely within a decade. April 10, 1934, the first child returned to the clinic with her twin sister. Three weeks previous to this the second twin had developed the symptoms of diabetes and her mother had found a red reduction with the Benedict test. At the clinic the diagnosis was confirmed, for the urine was found to contain 4.6 per cent of sugar and the blood 0.28 per cent.

The conception of the inheritance of diabetes is not new, for it was first described by Morton<sup>1</sup> in 1696 and has been emphasized by many students of the disease.<sup>2</sup> Inconsistencies in the series of reports are bound

to arise, first, because of the short duration of the life of diabetic patients prior to the use of insulin, so that the data of family histories have been incomplete and the mode of transmission has not been demonstrable, and, second, because some schools believe in the manifold origin and character of the disease and others in its unity.<sup>3</sup> The former may thus select for analysis only those patients who have a positive history of inheritance, and the latter will analyze consecutive case histories. We ourselves believe in the unity of the disease—unity of symptoms, manifestations, complications and the underlying cause. On this conception of the unity of diabetes our own analyses have been made.

The evidence of the inheritance of diabetes rests primarily on three facts: (1) the concurrence of diabetes in homologous twins, (2) the greater incidence of diabetes in the relatives of a diabetic person than in a control population, and (3), indirectly, on the demonstration that mendelian ratios are found in large series of case histories selected at random and in smaller series of families tested for accuracy of diagnosis and for latency of the disease.

The concurrence of diabetes in twins has already been described in the literature.<sup>4</sup> This has obviously suggested the inheritance of the disease, since in 80 per cent of the cases reported the twins were of the homologous type. No analysis of dissimilar twins has been made, but from such a comparative analysis much can be learned, for, if the disease is inherited, the incidence of diabetes in both similar twins should obviously exceed the incidence in dissimilar twins. The latter, in fact, all conditions being equal, should show the same inheritance as that found among ordinary brothers and sisters.

An analysis of our own data shows that forty-one of our diabetic patients have a twin. Of this group thirteen pairs were known to be similar and thirteen dissimilar. We were compelled to exclude fifteen sets of twins because of the death of one of the twins in infancy. Among nine of the thirteen sets of similar twins both were diabetic, whereas in only two of the thirteen pairs of dissimilar twins were both diabetic. The incidence among the siblings of control, diabetic and twins populations is compared in table 2.

It is evident that an overwhelming excess occurred among the group of similar twins.

The age incidence of diabetes must be considered here, for perhaps the excess in the similar twin group could be explained on the basis of greater age. This is not the case, for although 45 per cent of the individuals in the similar twin group were in the age incidence zone of 50 years, 35 per cent of the dissimilar twins were of the same age, and the median age of the two groups was in the same decade. The family history of diabetes in the two groups of twins was nearly identical, since there were three instances of parental diabetes among the dissimilar twins and two among the similar twins.

The statistically significant difference between the occurrence of diabetes in a diabetic and a control population<sup>5</sup> was that 2 per cent of the parents of our control population had diabetes whereas 8 per cent of the parents of our diabetic patients had the disease. Diabetes occurred ten times more frequently in the brothers and sisters of diabetic patients than in the control group.

From the George F. Baker Clinic of the New England Deaconess Hospital and the Laboratory of General Physiology, Harvard University.  
<sup>1</sup> Morton, R., cited by Allen, F. M., *Total Dietary Regulation in the Treatment of Diabetes*, 1919, p. 9.

<sup>2</sup> These authors include:

- (a) Naunyn, B., *Der Diabetes Mellitus*, Vienna, 1906, p. 37.
- (b) Finke, W., *Ztschr. f. klin. Med.* **114**, 713, 1930.
- (c) von Noorden, Carl, *Die Zuckerkrankheit*, Berlin, A. Hirschwald, 1910.
- (d) Umber, F., *Klin. Wchnschr.* **10**, 5 (Jan. 3), 1931.
- (e) Kennedy, Samuel, *Hereditary Diabetes Mellitus*, J. A. M. A. **96**, 241 (Jan. 24), 1931.
- (f) Sherrill, J. W., *The Diagnosis of Latent or Incipient Diabetes*, J. A. M. A. **77**, 1779 (Dec. 3), 1921.
- (g) Woodyatt, R. T., in Cecil, R. L., *Text Book of Medicine*, ed. 3, Philadelphia, W. B. Saunders Company, 1933, p. 628.
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- (i) White, Priscilla, *Diabetes in Childhood and Adolescence*, Philadelphia, Lea & Febiger, 1932, p. 40.
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<sup>3</sup> Naunyn & Joslin.<sup>2b</sup>

<sup>4</sup> Curtis & White, *Diabetes in Childhood and Adolescence*, p. 40.

<sup>5</sup> Peck.<sup>o</sup>

<sup>5</sup> Pincus and White.<sup>p</sup>

Criticism of such data is often given that perhaps we selected unfairly against diabetes. This is not actually the case and is substantiated by the control series of German<sup>6</sup> and English<sup>7</sup> investigators.

Expected mendelian ratios of the simple recessive type were found in our three types of crosses (diabetic  $\times$  diabetic, diabetic  $\times$  carrier, carrier  $\times$  carrier). Among 800 odd consecutive families studied, ninety-eight diabetic patients (or 4 per cent) were found in the 2,309 siblings of the carrier  $\times$  carrier cross, forty-eight (or 10 per cent) in the 475 siblings of the diabetic  $\times$  carrier cross, and eight diabetic children (24 per cent) in the thirty-three instances of the diabetic  $\times$  diabetic cross. If our data had been complete we would have expected more<sup>8</sup>—16 per cent in the first, 40 per cent in the second and 100 per cent in the third—but this could occur only if all members of the families had attained old age. The significant fact is this. The expected ratios were 1 to 25 to 61, and the actual ratios were 1 to 24 to 57.

It is on this point and the concurrence of diabetes in homologous twins that the validity both of the initial hypothesis of inheritance and of the mendelian type of transmission rests, for if the basic etiology of diabetes were due to an infection, trauma or nutritional state it is highly improbable that such an excess would occur in homologous twins and less than one chance in a million that the three ratios would be fulfilled in this manner. Actually we have identified only one fourth of the diabetic patients expected, and the next step has been the attempt to find the missing patients. There are two sources. Some may have occurred in those individuals who died of other causes before developing

of diabetes is undoubted, for in each consecutive thousand of our cases, our cases compared with those of other clinics, and in American clinics as compared with European clinics the incidence behavior is essentially the same. From these two factors the potentiality for developing diabetes in parents and children has been predicted.<sup>9</sup>

Although these data seem obviously convincing, besides dealing with a population whose status is changing—once diabetic always diabetic, but once nondiabetic not always nondiabetic—another source of confusion is possible. Dependent on case histories, some indi-

TABLE 2—Incidence of Diabetes in a Control, Diabetic and Twin Population

Type of Population	Number of Individuals	Per Cent of Siblings With Diabetes
Control	153	0.6
Diabetic	523	6.0
Dissimilar twins	13	16.0
Similar twins	13	70.0

viduals classified as diabetic may be nondiabetic and some classified as nondiabetic may actually be diabetic. Therefore, a series of control and another of diabetic families were studied for symptoms and tested with routine blood sugar tests and with tolerance tests.

Relative hyperglycemia was characteristic of the families of diabetic individuals, no matter whether the examinations were routine or by tolerance test. 14 per cent in the 169 persons tested by routine and 25 per cent in the 95 persons examined by tolerance test were diabetic in type, as compared with 2 per cent in the control population. These cases were not classified as diabetic and not utilized in our calculations, because we have dealt only with clinical cases of diabetes and not with potential diabetes. Time alone will reveal the significance of the latter observations. The tested selected families on the basis of clinical diabetes confirmed the consecutive case histories.

#### CONCLUSIONS

1 Each member of similar twins developed diabetes more than four times as frequently as each member of dissimilar twins, namely, 70 per cent of the former and 16 per cent of the latter.

2 The incidence of diabetes in the relatives of a diabetic population is significantly greater than in a nondiabetic group.

3 Mendelian ratios were found in a consecutive series of diabetic cases and in a selected mendelian population tested by histories and blood sugars.

4 Many blood relatives of diabetic patients have symptomless hyperglycemia the significance of which is unknown. These instances occurred when one would expect diabetes to develop according to mendelian inheritance.

5 We believe that the potentiality for developing diabetes is transmitted as a simple mendelian recessive trait and that the secondary factors which permit the expression of the gene can best be studied among predestined diabetic patients, namely, homologous twins of diabetic patients and the offspring of two diabetic patients.

81 Bay State Road

9 Pincus and White

TABLE 1—Diabetes Mellitus in Similar and Dissimilar Sets of Twins

Set	Sex	Similar Twins			Family History
		Diabetes Mellitus	Age of Onset		
1	♂	+	58	Father's mother	
2	♀	+	133	Father's brother	
3	♀	+	2917	None	
4	♂	+	30	Mother's aunt	
5	♀	+	5247	Two sisters' mother	
6	♀	+	62-62	Brother	
7	♀	+	63	None	
8	♀	+	6729	None	
9	♀	+	6719	None	
10	♀	+	73	Mother	
11	♀	+	5553	None	
12	♀	+	60	None	
13	♀	+	6356	Brother	
Dissimilar Twins					
1	♂	+	1912	Cousin	
2	♀	+	14	None	
3	♀	+	19	None	
4	♀	+	21	None	
5	♀	+	42	Mother	
6	♀	+	48	Mother	
7	♀	+	52	Father	
8	♀	+	54	Mother's brother	
9	♀	+	70	None	
10	♀	+	56	None	
11	♀	+	62	None	
12	♀	+	60	None	
13	♀	+	6262	None	

diabetes and some will be found among people who have not reached the diabetic danger zone of middle life. The remainder of the problem depends on the time or age behavior of the disease and the nondiabetic lethal factors. The validity of time behavior or age incidence

6 Finke<sup>6</sup>

7 Cammidge<sup>7</sup>

8 (a) Pincus Gregory and White Priscilla. Am J M Sc. to be published. (b) footnote 8<sup>8</sup>. Corrections have been made for bringing families into series because one was a known diabetic patient.

## Clinical Notes, Suggestions and New Instruments

### DETECTION OF FREE ACID IN PATIENTS WITH SUSPECTED ANACIDITY

HEINRICH NECHELES M D AND LOUIS SCHEMAN M D CHICAGO

In examining a great number of patients with peptic ulcer or with subtotal gastrectomies, one is often faced with the problem of an apparently complete acidity and a lack of response of the acid secretion of the stomach even to histamine in patients who complain about heartburn, belching of sour material, and the like. Sometimes examination of the stomach contents of such persons right after sampling but before filtration reveals a strong positive reaction for free acid (Topfer's reagent) on the surface of the mucous material only. This soon disappears, especially after filtration. Such cases cannot be called anacid but under the conditions of an ordinary stomach test would so appear. Evidently the little free hydrochloric acid that is present combines quickly with the mucus which in most of these cases is abundant. In other cases, regurgitation from the duodenum is the neutralizing factor. We therefore devised a method by which the reaction of each small sample of gastric contents can be tested as soon as it passes out of the stomach.

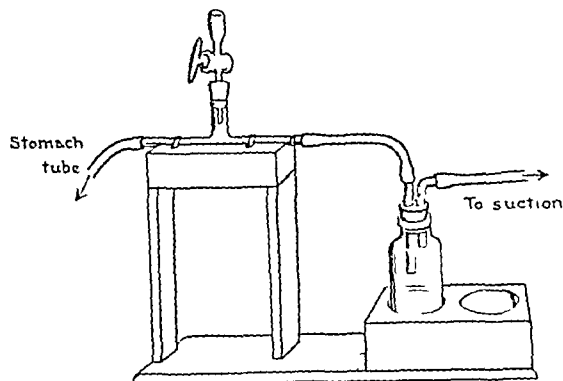


Diagram of apparatus devised to test sample of gastric contents as soon as it passes out of stomach tube

The apparatus used is here illustrated. It consists of a glass T-tube, the vertical arm of which is wide enough to hold a stopper with a bore. The lower end of a buret is used, the glass tube below the stopcock being pushed through the bore of the stopper. The opening of this glass tube is made as narrow as possible. One end of the T-tube is connected to a suction device with a mercury manometer and needle valve. The other end of the T-tube is connected to the stomach tube. The container above the stopcock is filled with Topfer's reagent. Small sealed glass tubes with various concentrations of hydrochloric acid and Topfer's reagent may conveniently be attached alongside the horizontal part of the T-tube to read the concentration of free acid in the gastric juice. The base of the wooden stand on which the T-tube rests is painted white. As the suction works and gastric contents appear in the T-tube, the stopcock is opened, permitting a drop of reagent to come in contact with the stomach juice and notes are taken of the color reaction. Mucus, bile and pure stomach juice can thus be tested separately before neutralization takes place. This method has proved so successful in our hands that it may be of interest to others. Since we have begun to use it, we have been able to demonstrate free acidity in eighteen out of twenty patients with subtotal gastrectomies.

Twenty-Ninth Street and Ellis Avenue

From the Department of Gastro-Intestinal Physiology, Nelson Morris Research Institute, Michael Reese Hospital.

We are indebted to Drs. Alfred and Sigfried Strauss and Jacob Meyer for sending us patients for these tests.

This study was carried on by the aid of a grant from the Louis L. Cohn and Kuppenheimer funds to the Stomach Group of the Michael Reese Hospital.

### DEATH FOLLOWING PHRENICECTOMY

JOHN WEBER, M D, GLENDALE, CALIF.

Death following phrenicectomy, a relatively simple operation, is rare. In Sauerbruch's series of 300 operations there was only one operative death.<sup>1</sup> A branch of the short thyrocervical artery, sometimes encountered in the fat between the fascia beneath the platysma muscle and the scalenus anticus muscle, was severed. In order to check the hemorrhage the subclavian artery was ligated but the patient died.

This report describes a cause of death following this operation, which I believe has not previously been related in the medical literature. I wish also to suggest a second operation which might have saved the patient's life.

A man, aged 33, unmarried, an American, gave a history of chronic pulmonary tuberculosis of ten years' duration, six of which he had spent in bed. Physical examination revealed a far advanced, active fibrocaseous tuberculosis of the right lung with cavity formation involving practically the entire upper lobe. There was also a moderate amount of tuberculous infiltration of the upper lobe of the left lung. Roentgenograms of the chest confirmed the physical examination and the sputum showed myriads of tubercle bacilli. During each twenty-four hour period the patient raised from 5 to 6 ounces of mucopurulent sputum. The temperature remained practically normal with bed rest. His weight while stationary during the six months preceding operation, was 30 pounds (13.6 Kg.) below the average for his age and height.

Artificial pneumothorax was attempted five times unsuccessfully. A phrenicectomy was advised, to be followed later by a paravertebral thoracoplasty.

Phrenicectomy was performed and was followed by gradually increasing dyspnea, cardiac failure and death in six days. It was not possible to obtain postoperative roentgenograms of the chest, but physical examination following operation demonstrated an elevation of the right diaphragm from the sixth to the fourth rib in the mammary line and a deviation of the heart into the left side of the chest, measuring 4 cm. The resultant mechanical interference with cardiac movement was the cause of death.

### BENEFIT OF PHRENICECTOMY

Unfortunately for the patient I did not consider the benefit that might have followed a left phrenicectomy, or, better still, a simple crushing of the phrenic nerve with a hemostat combined with cutting of the accessory nerves. The latter operation would have caused only a temporary paralysis of the left diaphragmatic leaf. If either of these operations had been performed, the left diaphragm probably would have ascended sufficiently upward into the thorax to force the heart back into its normal position, thus relieving the complication. I believe now that the second operation should be performed in the presence of this particular complication.

Bilateral phrenicectomy or simple phrenicotomy has been used with marked success for persistent singultus and to permit artificial respiration in diaphragmatic tetanus by Sauerbruch,<sup>2</sup> Kroh,<sup>3</sup> Jehn,<sup>4</sup> Lehman<sup>5</sup> and Dehler and Stern.<sup>6</sup> Unfortunately the value of this relatively simple operation, particularly for the relief of persistent and often fatal hiccups, is not generally appreciated. It will not only effect a cure when all other measures have failed but also causes, as a rule, only a temporary embarrassment of respiration.

Glendale Professional Building

From the University of Southern California School of Medicine, Los Angeles.

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## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.  
CHICAGO

*NOTE—In their preparation these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by the various members are incorporated in the final draft prepared for publication. The series of articles will be continued from time to time in these columns.—Ed*

#### THERAPY OF FRESH ACCIDENTAL WOUNDS

The therapy of fresh accidental wounds must meet four general indications: check hemorrhage, treat shock, render the wound aseptic and put the affected part at rest, and restore the part to the greatest possible degree of usefulness.

Hemorrhage may be checked by pressure (tourniquet, bandage), elevation or heat (120° F). See also "Therapy of Bleeding."

Shock may be treated by analgesia, recumbency and heat. See also "Circulation Deficiency Crises."

The wound should be rendered aseptic and closed according to approved surgical principles as soon as this has probably been accomplished. An aseptic wound is one that heals by first intention without signs of excessive inflammation and without constitutional disturbance. It need not necessarily be sterile, i. e., completely free from micro-organisms. Asepsis is a clinical concept, sterility, a bacteriologic term.

As an emergency dressing, the wound should be covered with the cleanest (most nearly sterile) possible absorbent material. The skin surrounding the wound (but not the wound itself) may be painted with antiseptic solution of iodine (2 per cent in 50 per cent alcohol). As soon as possible thereafter, with aseptic (operating room) technic, (1) contamination should be removed, (2) culture medium for micro-organisms should be removed, (3) the affected part should be immobilized, (4) local tissue reaction should be improved and (5) systemic resistance should be improved.

1 Contamination should be removed as thoroughly as possible, meaning at least all visible dirt. First, the part surrounding the wound is scrubbed with soap, brush and sterile water (and with ether or gasoline if nonsaponifiable fatty matter is a contaminant, while the wound is kept covered with sterile gauze). Then the skin surrounding the wound may be painted with antiseptic solution of iodine. Secondly, the wound itself should be cleansed with neutral soap and gently wiped with sterile gauze sponges and irrigated with sterile water. Ether or gasoline may have to be used to remove soap-insoluble grease. Solution of hydrogen dioxide has quite a cleansing value for dirt ground into flesh and for the removal of crusts and clots, but it should not be used unnecessarily. Chemical disinfectants probably have no place in this cleansing process; they are apt to damage tissue cells more than they harm micro-organisms. Good wound healing depends as much on the vitality of the cells on the wound surface as on the absence of micro-organisms, and probably more. If anesthesia is required for the treatment of the wound, nitrous oxide-oxygen inhalation is the agent

of choice, as it aggravates shock less than any of the other anesthetics.

2 All culture medium for micro-organisms should be removed, and its accumulation prevented.

(a) Debridement removes all undoubtedly irretrievably damaged tissue. The aim should be to secure as nearly as possible fresh and clean wound surfaces so that they may heal by primary union and without drainage. All hemorrhage should be checked, for a hematoma means culture medium and inevitable infection.

(b) When a complete debridement is inadvisable because of the functional importance of the tissue that would have to be sacrificed, a chance may be taken that the tissue might be viable and the wound closed with the exception of a small drain, which should be removed as soon as possible. Drainage is not so much for the purpose of serving for the escape of micro-organisms as for the removal of fluid exudate, the accumulation of which under these circumstances determines infection.

(c) The Carrel-Dakin technic of contaminated wound disinfection should be instituted in very extensive, grossly mutilated wounds with much more or less devitalized tissue, after as thorough debridement as advisable and after the wound has first been converted into an open surface down to its very depth. Secondly, irrigating tubes are inserted into every nook and corner of the wound, and the surface is so postured as to make a trench in which surgical solution of chlorinated soda may be kept in contact with the tissue as thoroughly as possible. Fresh solution is introduced into the wound at intervals of every two hours, because by that time the fluid will have lost its disinfecting value. The chief virtue of this solution is that it renders necrotic tissue unsuitable for the growth of micro-organisms and favors its solution. The skin surrounding the wound should be protected with petrolatum, because the fluid is irritating. As soon as all necrotic tissue has been removed and the wound looks clean, an attempt at secondary union should be made, the wound surfaces being freshened if necessary. The making of bacterial counts from the wound surfaces is helpful to determine the amount of infection present.

3 The affected part should be absolutely immobilized immediately after the injury to prevent as much as possible the dissemination of micro-organisms. Since it is impossible to sterilize such wounds, the prevention of systemic invasion, as well as of extensive spread to surrounding tissues, depends on the speediest possible formation of a fibrin network (which occurs within half an hour) and its protection against rupture so that it may serve as scaffolding for the ensuing round cell infiltration. The immobilization also favors inception of healing. As soon, however, as no further danger of spread of infection is present and sufficient union of tissue has occurred to permit motion without rupture, gradual resumption of function should be insisted on.

4 Local tissue reaction should be improved, chiefly by antagonizing edema, the part being elevated if possible and proximal constriction being prevented, but allowance should be made for a certain amount of inevitable swelling by not drawing the sutures tight and by rather loose bandaging. Evidence of infection means immediate recourse to hot, moist dressings and the earliest possible release of accumulated fluid.

5 Systemic resistance should be improved. Because of the seriousness of tetanus, with all wounds that are

deep and hable to harbor unremovable earth or street dirt, tetanus antitoxin (1,500 units unless the wound is very extensive, then 5,000 units) should be administered immediately. Still better is the combination of tetanus and gas bacillus antiserum in the prophylactic treatment of all severe wounds. In especially endangered wounds, a second dose should be given within a week. A dose should also be administered before the undertaking of a secondary operative procedure on such a wound. The antitoxin is not required in slight, superficial or uncontaminated cuts and bruises in which mere iodization suffices to destroy the contaminating micro-organisms, even though it may delay the healing process.

Needless to say, an abundance of sleep and a nutritious diet, suitable for the individual, are of importance in securing the promptest possible recovery.

Efficient treatment of any systemic abnormality, be this syphilis, or diabetes, nephritis or anemia, will also contribute to expedite healing. Every surgical case is, therefore, also a medical case.

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

**DIODRAST**—35 diodo-4-pyridone *N*-acetic acid and diethanolamine— $C_5H_5ONI \cdot CH_2COOH + NH(CH_2CH_2OH)_2$ —A mixture or a loose combination (in solution) of diethanolamine,  $NH(CH_2CH_2OH)_2$  and 35 diodo-4-pyridone-*N*-acetic acid,  $C_5H_5OHNI \cdot CH_2COOH$  in equimolecular quantities. Diodrast contains approximately 49.8 per cent of iodine.

**Actions and Uses**—Diodrast is proposed as a contrast agent for intravenous urography. Local reactions about the site of injection are said usually not to occur or to be very mild when they are observed, systemic reactions occur occasionally. The latter consist chiefly of flushing of the skin with a sense of warmth, less often transient nausea, vomiting, erythematous eruptions, respiratory distress and cyanosis may occur. These side effects are said usually to subside within a few minutes to an hour or so without special therapy, but the skin eruptions may rarely persist for several days. In animals diodrast in doses equivalent by weight to those used clinically has been found to lower the blood pressure for a period of about two hours, this slowly returns to normal and may be followed by a secondary rise at the same time respiration is stimulated. These actions have been reported also to occur in the human being. Fasting and dehydration of patients preliminary to injection of the drug are widely employed. The optimum time for taking roentgenograms varies between five and fifteen minutes after injection in individuals with normal kidney function (usually one exposure is made after ten minutes and a second after a further interval of ten or fifteen minutes). When renal function is impaired, this interval is proportionately longer (thirty minutes or more). Pressure over the bladder is employed by some clinicians; this is released immediately before the first exposure and is replaced until the next. The use of the drug is contraindicated in patients with severe liver disorders, nephritis, tuberculosis or hyperthyroidism and great care must be exercised in cases of uremia. Preliminary renal and hepatic function tests are advisable in suspected cases. Caution should be exercised in cases in which a reduction in blood pressure would be dangerous or otherwise undesirable.

**Dosage**—Twenty cc of a solution containing 7 Gm of diodrast previously warmed to body temperature is injected slowly usually into the cubital vein. Children are given correspondingly smaller doses. Diodrast is administered intravenously in the form of an aqueous solution, each cubic centimeter contains 0.35 Gm.

Manufactured by Winthrop Chemical Co., Inc. New York U. S. Patent and Trademark applied for.

**Diodrast Sterile Solution (35 per cent weight/volume)** 10 cc size ampule 10 cubic centimeters contains diodrast 3.5 Gm.

**Diodrast Sterile Solution (35 per cent weight/volume)**, 20 cc size ampule 20 cubic centimeters contains diodrast 7.0 Gm.

Diodrast responds to the following identity tests. Dilute about 10 cc of diodrast solution with an equal volume of water, add an excess of diluted hydrochloric acid, collect the liberated 35 diodo-4-pyridone-*N*-acetic acid on a filter paper, wash and dry at 100°C. It melts with decomposition between 245 and 249°C (the melting point bath previously heated to 200°C). (Save the filtrate.) Transfer about 0.1 Gm of the resultant acid to a small hard glass test tube containing a piece of sodium (about the size of a pea) previously melted after the first violent action has ceased, heat until the contents of the test tube are decomposed, vapors of iodine are evolved, the tube and contents are allowed to cool, add 10 cc of water, boil the mixture for a few minutes, filter through paper and divide into two portions, to one portion add 1 cc of concentrated nitric acid, boil, cool and add 1 cc of silver nitrate solution, a curdy yellow precipitate results, insoluble in an excess of stronger ammonia water, to the other portion add a few drops of fresh ferrous and ferric sulphate solutions, heat to nearly boiling and carefully neutralize with diluted hydrochloric acid, a finely divided blue precipitate results. Concentrate the original filtrate from the foregoing, cool in ice water, filter, evaporate to syrupy consistency, add 5 cc of alcohol, neutralize the mixture carefully with normal sodium hydroxide using litmus as an indicator, filter and increase the volume of the filtrate to about 10 cc with absolute alcohol, add 1 Gm of trinitrophenol (picric acid), heat to boiling and finally cool in ice water, collect the resulting diethanolamine trinitrophenolate on a filter paper, recrystallize from alcohol and dry in a desiccator over sulphuric acid under a partial vacuum, it melts at 245 to 249°C with decomposition (the melting point bath previously heated to 200°C).

Dissolve about 1 Gm of the resultant acid in 1.5 cc of a 10 per cent solution of sodium hydroxide and make up to a volume of 3 cc, a clear colorless solution results. To the foregoing solution add 7 cc of water and an excess of diluted hydrochloric acid, filter and divide the filtrate into two portions, to one portion add 1 cc of chloroform and 0.1 cc of ferric chloride solution, no coloration is imparted to the chloroform layer (absence of free inorganic iodides), to the other portion add 1 cc of barium chloride solution, no turbidity results (sulphate).

Diodo-4-pyridone-*N*-acetic acid, a component of diodrast, responds to the following tests for identity and purity.

Diodo-4-pyridone-*N*-acetic acid occurs as a white crystalline odorless powder, slightly soluble in water, practically insoluble in organic solvents. It melts at 245 to 249°C with decomposition (the melting point bath previously heated to 200°C).

Diodo-4-pyridone-*N*-acetic acid responds to identity and purity tests previously described under diodrast, except those dealing with diethanolamine.

Dry about 1 Gm of diodrast acid component 35 diodo-4-pyridone-*N*-acetic acid accurately weighed to constant weight at 100°C, the loss in weight does not exceed 1 per cent. Transfer about 1 Gm of Diodrast acid component accurately weighed to a 500 cc Kjeldahl flask and determine the nitrogen content according to the official method described in Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists, third edition, page 20, chapter 2, paragraph 22, the percentage of nitrogen corresponds to not less than 3.3 nor more than 3.6 when calculated to the dried substance. Transfer about 0.5 Gm of the diodrast acid component to a Parr sulphur bomb, determine the iodine content by the Lemp and Braderson Method (*J. A. Chem. Soc.* 39, 2069), the amount of iodine found corresponds to not less than 62.3 per cent nor more than 63.2 per cent when calculated to the dried substance.

#### DIODRAST STERILE SOLUTIONS

Diodrast solution is prepared by neutralizing 35 diodo-4-pyridone-*N*-acetic acid in water with an equimolecular quantity of diethanolamine. The mixture thus formed in solution (not isolated in solid form) is very soluble in water.

Diodrast solution occurs as a clear and nearly colorless liquid. It is neutral to litmus. Diodrast solution is incompatible with mineral acids. The specific gravity is from 1.180 to 1.190 at 25°C.

Place 10 cc of diodrast solution accurately measured in a suitable tared platinum dish, evaporate to dryness on the steam bath and ignite, the residue does not exceed 0.10 per cent.

Transfer 10 cc of diodrast solution accurately measured to a suitable glass stoppered erlenmeyer flask, neutralize with normal hydrochloric acid, adding a very slight excess, cool the flask and contents to about 5°C, collect the precipitate formed in a tared gooch crucible, wash with cold diluted acid solution, dry to constant weight at 100°C, the weight of 35 diodo-4-pyridone-*N*-acetic acid obtained corresponds to not less than 2.7 Gm nor more than 2.8 Gm. The free acid corresponds to the standards given under diodrast.

**Note**—The assay by precipitation with a mineral acid is roughly approximate, it is important that as nearly exactly the specified amount of diodrast solution as possible be used, because the solubility of the 35 diodo-4-pyridone-*N*-acetic acid precipitate varies. This assay method of standardization is therefore at best approximate and must be considered tentative until such time as more accurate analytic procedure is available.

**THIO-BISMOL** (See New and Nonofficial Remedies, 1934, p. 123).

The following dosage form has been accepted:

**Ampoules Thio Bismol** 2 Gm. Each ampule contains 2 Gm (30 grains) of thio-bismol to be dissolved in 20 cc of sterile distilled water before administration.

**METHENAMINE** (See New and Nonofficial Remedies, 1934, p. 212).

**Urotropin**—A brand of methenamine-U. S. P.

Manufactured by Schering & Glatz, Inc. New York. U. S. trademark 269,754.

**Urotropin Tablets** 5 grains (0.3 Gm.)

**Urotropin Tablets** 7½ grains (0.5 Gm.)



**POLLEN EXTRACTS-SWAN-MYERS** (See New and Nonofficial Remedies, 1934, p 40)

The following dosage form has been accepted

*Mixed Ragweed Pollen Extract Decimal Dilution Set* A mixture of equal parts of short and giant ragweed pollen extract marketed in packages of five vials containing respectively 5 cc of a 1:100,000 dilution (10 pollen units per cubic centimeter) 5 cc of a 1:10,000 dilution (100 pollen units per cubic centimeter) 5 cc of a 1:1,000 dilution (1,000 pollen units per cubic centimeter) 5 cc of a 1:100 dilution (10,000 pollen units per cubic centimeter) and 0.5 cc of a 1:10 dilution (50,000 pollen units per cubic centimeter)

Manufactured by the Abbott Laboratories North Chicago Ill No U S patent or trademark

## Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING GENERAL DECISION  
RAYMOND HERTWIG Secretary

### SWEETS IN THE DIET, ESPECIALLY OF CHILDREN

The adequate nutrition of children and adults requires careful selection of foods both as to kind and as to quantity. Each type of food has a proper place in the diet. A well balanced diet, including ample proteins, fats, carbohydrates, minerals, vitamins and roughage, is one of the prime requisites for growth and health. Sweets consisting essentially of sugars are likely to be taken in excess because of their highly pleasing flavor. They supply energy only for body activity. Although sweets are wholesome and valuable foods when given their proper place in the balanced diet, they contribute few or none of the structural components required for good nutrition. Common concentrated sweets used to excess are harmful, especially in the case of children, so far as they impair the appetite for other highly necessary foods and lead to a reduced intake of milk, eggs, fruits, vegetables, meat and cereals.

Food advertising that obscures the facts of good nutrition by encouraging too liberal use of sweets should be condemned.

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG Secretary

#### CALIFORNIA HOME BRAND CHILI SAUCE

*Manufacturer*—California Conserving Company, Inc., San Francisco

*Description*—Chili sauce containing tomatoes, sucrose, distilled vinegar, onions, sodium chloride, cassia, mace, cloves, garlic, celery seed chilies and pepper.

*Manufacture*—Vine ripened sorted tomatoes, specially grown, are spray washed, scalded, again spray washed, hand peeled and cored, and cooked with the named spices (in cotton bags), sugar and salt for twenty minutes. The spice bags are removed, distilled vinegar is added, steam is turned off and a sample is drawn for laboratory test. When refractometer, mold count, color and consistency tests indicate that the product has reached the required standards, the mass is automatically bottled at 88 C and cooled.

*Analysis* (submitted by manufacturer) —

	per cent
Moisture and volatile substances	66.4
Ash	4.5
Fat (ether extract)	0.4
Protein (N X 6.25)	3.0
Reducing sugars as invert sugar	8.1
Sucrose	16.9
Crude fiber	1.7
Titratable acidity as citric acid	1.0
Volatile acid	1.0

*Calories*—12 per gram 34 per ounce

*Claims of Manufacturer*—The speed of handling tomatoes from field to finished product keeps mold and bacteria at a minimum and protects tomato flavor and color.

### STOKELY'S FOR BABY SPECIALLY PREPARED STRAINED TOMATOES

SEASONED WITH SALT

*Manufacturer*—Stokely Brothers & Company, Inc., Indianapolis

*Description*—Pasteurized sieved tomatoes, seasoned with salt, largely retaining the natural vitamins and minerals.

*Manufacture*—Sound tomatoes at the height of color and flavor are washed in troughs of running water, rolled through reel washers equipped with water sprays for thorough rinsing, sorted and trimmed on continuous belts, and the underripe and overripe fruit eliminated. The selected clean tomatoes are sliced, passed through a preheating chamber containing an atmosphere of steam, comminuted, canned and processed as described for Stokely's Strained Green Beans (THE JOURNAL, May 26, 1934, p 1763).

*Analysis* (submitted by manufacturer) —

	per cent
Mixture	93.1
Total solids	6.9
Ash	0.9
Sodium chloride	0.4
Fat (ether extract)	0.1
Protein (N X 6.25)	1.1
Reducing sugars as dextrose	3.2
Sucrose (copper reduction method)	0.0
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	4.5
Alkalinity of ash (cc normal acid per gram ash)	5.7
PH	4.7

*Calories*—0.2 per gram 6 per ounce

*Vitamins*—Selection of vine ripened tomatoes, vacuumizing to remove air naturally in the tomatoes, the exclusion of air throughout the preparation and processing of the juice, insure a high retention of the natural vitamins. An excellent source of vitamin C and a good source of vitamins A and B.

*Claims of Manufacturer*—Supplementary to the infant milk diet, and valuable for children and adults on soft diets. Has smooth consistency and supplies desirable bulk without roughness. The straining renders the nutrient content readily available for digestion. Scientifically prepared to retain in high degree the natural flavor, mineral and vitamin values. Seasoned to bring out full flavor and packed in enamel lined cans. Requires only warming for serving.

KEYSTONE SILVER LABEL GELATIN  
KEYSTONE SPECIAL B A I GELATIN  
KEYSTONE "CONFECTIONERS' OO' GELATIN  
KEYSTONE "CONFECTIONERS' O' GELATIN  
KEYSTONE 'MIXRITE' GELATIN  
KEYSTONE 'WHIPRITE' GELATIN  
KEYSTONE 'AA' GELATIN  
KEYSTONE 'XLO' GELATIN  
KEYSTONE "EASYMIX' GELATIN  
KEYSTONE NO 546 GELATIN  
KEYSTONE NO 431 GELATIN  
KEYSTONE "JELRITE" GELATIN  
KEYSTONE "KWIKJEL" GELATIN

*Manufacturer*—The American Agricultural Chemical Company, Detroit

*Description*—Plain unsweetened, unflavored gelatins made from hard bones green salted calfskin trimmings and frozen pigskins graded on the basis of jelly strength for special uses.

*Manufacture*—Bones after leaching with hydrochloric acid to remove the mineral phosphate and washed calfskins are immersed in a milk of lime solution for several weeks. After removal they are washed and placed in boiling water in tanks. The thawed pigskins are treated with hydrochloric acid, washed and placed in the boiling water vats. The ossein of the bone and the collagen of the skins are hydrolyzed and a solution of gelatin is formed. Several runs of which are taken off at increasingly higher temperatures the runs decreasing in gel strength. These various runs are blended in accordance with predetermined schedules concentrated in a vacuum pan filtered and jelled into a flexible sheet on a refrigerated belted conveyor. The sheet is cut placed on aluminum wire frames and dried.

to 10 12 per cent moisture content The dried gelatin is laboratory tested, ground, screened and placed in paper lined barrels for shipment The ground gelatin of the different runs may be blended to produce any one of the market grades Keystone Silver Label Gelatin is left in sheet form and wrapped in individual packages

*Analysis* (submitted by manufacturer) —

(Range of analyses for all grades)

	per cent
Moisture	11.0-13.0
Ash	0.3-2.0
Fat (ether extract)	0.0-0.0
Protein (N $\times$ 5.5)	82.0-85.0
Carbohydrates	0.0-0.0

\* Jelly strength of different grades

75-250 Bloom

	parts per million
Arsenic (As)	0-1.0
Copper (Cu)	0.0-20.0
Zinc (Zn)	0.0
Lead (Pb)	0.0
Sulphur dioxide (SO <sub>2</sub> )	0.0
Added preservatives	none

\* Official Bloom method of the Edible Gelatin Manufacturers Research Society of America

*Calories*—33 per gram 94 per ounce

*Claims of Manufacturer*—For use in normal and restricted diets and in all food gelatin preparations

### DU BARRY'S FOOD

*Manufacturer*—Du Barry and Company, San Francisco

*Description*—Powdered mixture of boiled hulled red lentils (U S and India grown) and barley

*Manufacture*—Red lentils, grown in the United States and India, and barley are individually cleaned, scoured, boiled, dried, ground and bolted Definite proportions of the barley and lentil flours are mixed and canned

*Analysis* (submitted by manufacturer) —

	per cent
Moisture	7.8
Ash	1.7
Fat (ether extract)	0.9
Protein (N $\times$ 6.25)	22.4
Reducing sugars as dextrose	trace
Sucrose (copper reduction method)	5.1
Starch (diastase method)	56.7
Dextrins (alcohol method)	4.6
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	66.4
Iron (Fe)	117 parts per million
Copper (Cu)	3 parts per million
* Potential alkalinity	6

\* J Biol Chem 11 323 338 1912

*Calories*—36 per gram 102 per ounce

*Vitamins*—56 Sherman and Spohn vitamin B complex units per ounce

*Claims of Manufacturer*—Effect on Curd Tension of Boiled, Pasteurized and Certified Milks A gruel was prepared by cooking in a double boiler for twenty minutes 28 Gm of Du Barry's Food 7 Gm of sodium chloride and one-half pint of water This quantity of gruel was added to 710 cc of raw, pasteurized and cooked milk (boiled two minutes) respectively

The curd tensions and curd tension reductions of the different lots of modified and unmodified milks, as determined by the Hill method,\* follow

	Curd Tension Gm	Curd Tension Reduction Per Cent
1 Du Barry's Food and boiled milk	15	17
2 Control boiled milk	18	
3 Du Barry's Food and pasteurized milk	41	23
4 Control pasteurized milk	53	
5 Du Barry's Food and certified milk	33	50
6 Control certified milk	65	

\* Bull 227 Utah Agricultural Experiment Station June 1931

A good source of iron, copper and vitamin B complex For adding to milk for infant feeding in accordance with the directions of the physician

### BURNETT'S SLICED BREAD

*Manufacturer*—Burnett Baking Company, Greenville Texas

*Description*—Sliced white bread made by the sponge dough method (method described in THE JOURNAL, March 5 1932, p 817), prepared from patent flour, water sucrose shortening powdered skim milk yeast sodium chloride malt extract and a yeast food containing calcium sulphate ammonium chloride, sodium chloride and potassium bromate

### STRAINED BEETS, CARROTS, CELERY, GREEN BEANS, PEAS, PRUNES FLAVORED WITH LEMON JUICE, SPINACH, TOMATOES, AND VEGETABLES WITH CEREAL AND BEEF BROTH

#### UNSEASONED

- (1) A-C BRAND
- (2) ARISTO BRAND
- (3) DOT
- (4) EAVEY'S E BRAND
- (5) I G A
- (6) IOWA MAID
- (7) KO-WE-BA BRAND
- (8) OPAL
- (9) PLEE-ZING
- (10) RE-JOYCE BRAND

*Distributors*—(1) The W L Adamson Co, Dayton, Ohio, (2) Market Wholesale Grocers, Inc, Chicago, (3) The Janszen Co, Cincinnati, (4) A H Perfect & Co, Fort Wayne, Richmond and Huntington, Ind, Xenia, Ohio, and Sturgis, Mich, (5) Independent Grocers Alliance Distributing Co, Chicago, (6) and (8) Charles Hewitt & Sons Co, Des Moines, Iowa, (7) Kothe, Wells & Bauer Co, Indianapolis, (9) Plee-Zing, Inc, Chicago, (10) Joyce-Laughlin Co, Peoria, Ill

*Packer*—The Larsen Company, Green Bay, Wis

*Description*—Respectively sieved beets, carrots, celery, green beans, peas, prunes flavored with lemon juice, spinach, tomatoes and vegetables (carrots, potatoes, tomatoes, celery, peas, beans, spinach) with pearl barley and beef extract, prepared by efficient methods for retention in high degree of the natural mineral and vitamin values No added sugar or salt These products are the same as the respective accepted Larsen's vegetables and fruits (THE JOURNAL, July 1, 1933, p 35, July 8, 1933 p 125, July 22 1933, p 282, July 29, 1933, p 366, Aug 12, 1933, p 525, Aug 19, 1933, p 605, Aug 26, 1933, p 675, Sept 2, 1933, p 779)

### MILTON QUALITY TOMATO JUICE

*Distributor*—M I Kimball & Company, Lawrence, Mass

*Packer*—Vincennes Packing Corporation, Vincennes, Ind

*Description*—Pasteurized tomato juice with added salt, retains in high degree the natural vitamin content of the raw juice The same as Vincennes "Class A" Brand Tomato Juice, THE JOURNAL, March 19, 1932, page 983

### BELMONT BRAND EVAPORATED MILK BROOKMONT BRAND EVAPORATED MILK HANDY BRAND EVAPORATED MILK HURON BRAND EVAPORATED MILK KEYSTONE BRAND EVAPORATED MILK UNITED BRAND EVAPORATED MILK UNSWEETENED STERILIZED

*Manufacturer*—The United Dairy Company, Barnesville, Ohio

*Description*—Canned unsweetened sterilized evaporated milk

*Manufacture*—The milk is collected from farms inspected by the city of Pittsburgh and the department of health of the state of Pennsylvania On receipt at the factory the milk is examined, condensed, homogenized, standardized under laboratory control to conform to the stipulated analysis for this product, sealed in cans and sterilized according to standard procedures (THE JOURNAL, April 16, 1932 p 1376)

*Analysis* (submitted by manufacturer) —

	per cent
Moisture	73.8
Ash	1.4
Fat (ether extract)	7.8
Protein (N $\times$ 6.38)	8.5
Lactose (by difference)	8.5

*Calories*—14 per gram 40 per ounce

*Claims of Manufacturer*—See announcement on the advertising of the Evaporated Milk Association (THE JOURNAL, Dec 19 1931, p 1890)

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 14, 1934

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## ORGANIZED MEDICINE AND MEDICAL CARE

In some places confusion seems to exist regarding the attitude of organized medicine in relationship to some of the proposals for changes in the nature of medical practice. The confusion has been worse confounded by the precipitate and widely publicized action taken by the American College of Surgeons at a specially called meeting of its Board of Regents in Chicago on June 10, one day before the opening of the annual session of the American Medical Association in Cleveland, at which, as had been announced well in advance, the whole profession of the United States proposed to consider this subject. No doubt, the rebuke administered to the Board of Regents of the American College of Surgeons by the House of Delegates of the American Medical Association was well warranted, and the unanimous approval which greeted the passing of the resolution that the Board of Trustees and the Judicial Council of the Association request an explanation and justification from the Board of Regents was testimony to the manner in which the medical profession in general viewed this action. Even though it may be established that the consideration of this topic by the Board of Regents at such a time was unthinking and unpremeditated, its effect has been such as to give the American medical profession serious concern. Editorials published in newspapers indicate how the propagandists who oppose the policies of organized medicine have taken advantage of this action of the Board of Regents of the American College of Surgeons. THE JOURNAL has called attention repeatedly to the fact that representatives of the Milbank Fund, the Twentieth Century Fund and the Rosenwald Fund have made and are making it their major function to put over a system of social medicine in this country. Mr. E. A. Filene, founder of the Twentieth Century Fund, indicated recently that these three foundations intend to organize particularly to put over their plans. Unless the medical profession speaks with one voice the possibilities of successful opposition are threatened. Since members

of such special societies within organized medicine as the American College of Surgeons and the American College of Physicians, and similar specialistic organizations, are all either members or Fellows of the American Medical Association, the directing councils, bureaus and regents of such bodies should be made to realize by their membership that the majority of physicians of the United States prefer to express their views on economic, political and governmental questions through organized medicine, and that the function of the specialistic societies should be limited to proper consideration of scientific and educational questions.

The considerations that have here been set forth should not lead any one to believe that the American Medical Association, representing 100,000 physicians in the United States, is opposed to all change in the nature of medical practice or to properly controlled experiments in providing medical service that may be set up in any city, county or state. Organized medicine does stand for certain basic principles in any form of medical practice which are fundamental to a maintenance of the high quality of medical care now given to the vast majority of the American people. Even the most radical proponents of change are willing to grant that the standards of medical care in the United States today are higher than those to be found in any other country in the world, regardless of the system of medical care under which it operates.

The House of Delegates of the American Medical Association, following a long executive session, set forth ten principles to guide medical practice and to form the basis for any experiment that may be contemplated. These principles were published in the proceedings of the House of Delegates in THE JOURNAL for June 30, page 2200. It is proposed to discuss these principles individually in further comments in THE JOURNAL from time to time. As was well set forth by the special committee of the House of Delegates which drew up these principles, a reasonable observance will remove many of the disturbing influences from any experiment, particularly as these principles are planned to focus the attention in all medical service on the quality as well as on the costs. These principles were planned to circumvent the interest of politicians, commercial promoters and propagandists whose activities in relationship to new forms of medical practice are not wholly unselfish. The principles are planned to protect the character of the service to be given. They will maintain the personal relationship between physician and patient, which keeps medicine a profession.

On the principles adopted by the House of Delegates the American medical profession must stand, and in their favor it must speak with a united voice. This is no time for the activities of the individual who seeks personal prestige and political preferment as a reward for contributed leadership. In most of the great nations of the world, social medicine has been the panacea proffered by politicians and philanthropists

against social unrest. Let us learn from the experience of those who have tried and who, in many instances, have failed. Let us not be misled by high sounding phrases and insidious diction. Let us beware of generalizations which lead to disaster when the details of their fulfillment become apparent. Let us consider carefully, act with caution, reserve judgment, and speak with one voice for the truth.

### CHOLESTEROLEMIA AND THYROID DISORDER

Ever since the development of methods for the more ready estimation of cholesterol in small samples of blood, data have been accumulating in increasing numbers regarding the occurrence of this blood lipid. The amount present is evidently subject to marked variations even in conditions of health. This is apparently not due to differences in cholesterol intake, for the latter ordinarily has relatively slight influence on the level of blood cholesterol. For some reason it seems to be influenced by the general state of health and nutrition, but until recently even experts in the study of blood were forced to confess that "our knowledge of the factors that determine the level of the various lipid constituents in the blood in disease is pitifully meager"<sup>1</sup>. The values for healthy persons fluctuate between 0.13 and 0.20 per cent. According to Peters and Van Slyke, increase in blood cholesterol, when it occurs in any disease, is more correctly to be associated with some functional disturbance connected with the disease than directly with the malady itself. It is of only secondary significance. High figures for blood cholesterol have long been associated with certain types of kidney disorder, the content sometimes reaching more than 500 mg per hundred cubic centimeters of plasma. More recently, variations in blood cholesterol have been associated with variations in the activity of the thyroid.

Although there has appeared to be a lack of clear relationship between the basal metabolic rate and the blood cholesterol value (during fasting) in the absence of thyroid disturbance,<sup>2</sup> the observations point to the desirability of more intensive study of the subject. Hurvath<sup>3</sup> of the Lahey Clinic in Boston has summarized a large experience. It indicates that the blood cholesterol is low in toxic thyroid states and is brought to a normal level partly by preoperative treatment but chiefly by subtotal thyroidectomy. There seems to be a reciprocal relationship between the average elevation of the basal metabolic rate and the average lowering of the blood cholesterol level in toxic goiter, which is further confirmed. In myxedema and other equally well defined cases of hypothyroidism, hypercholesterolemia

is a quite constant finding. Accordingly Hurvath states that hypercholesterolemia, when not explainable on any other basis, may be considered as possibly of thyroid origin and is a rational indication for thyroid administration.

The finding of hypercholesterolemia, in the absence of its few other common causes, points more specifically to thyroid deficiency than does the finding of a low metabolic rate. Finding both renders the possibility of thyroid deficiency extremely likely. The relationship between the blood cholesterol and the basal metabolism is usually reciprocal when they undergo change as the result of variations in the activity of the thyroid gland or thyroid substance in the body. Accordingly it seems warranted to assume that the blood cholesterol provides another variable that may be used as a guide in the treatment of thyroid disease.

### IS CANCER BECOMING MORE PREVALENT?

For a number of years it has been much debated whether or not a real increase has occurred in the incidence of cancer throughout the civilized world. The method employed has been statistical and therefore based as a rule on observations made by a number of different people under different circumstances. The reliability of the conclusions thus deduced depends fundamentally on two components, which are applicable also to any other set of medical or vital statistics—the accuracy and completeness of the original observations and the statistical interpretation and dissociation of modifying factors.

The diagnosis and recording of cancer, especially of the internal organs, have improved markedly in the last few decades but, as every practicing physician and every pathologist knows, the distribution by organs differs according to whether the observations are made by a physician or by a pathologist. Wells<sup>1</sup> noted these points in 1927. The percentage of necropsies is increasing with consequent modification of recorded cancer mortality and correct assignment of distribution. In regard both to accuracy and to completeness of original cancer observations there is a constant change, and comparative statistics based on recorded morbidity and mortality must take this factor into account.

Probably of even greater moment than the changing accuracy and recording of original cancer are the methods of handling the statistics. This fact has not lacked recognition and has been discussed and treated in various ways in numerous articles. Wood,<sup>2</sup> for example, in analyzing the reliability of cancer statistics, says "An examination of the death certificates of cancer cases showed that on 22 per cent of many hundred certificates the 'duration' of the cause of death

<sup>1</sup> Peters J P and Van Slyke D D. Quantitative Clinical Chemistry Interpretations. Baltimore: Williams and Wilkins Company. 1931.

<sup>2</sup> Grabfield G P and Campbell A G. New England J Med 205: 1148 (Dec 10) 1931.

<sup>3</sup> Hurvath L M. Blood Cholesterol and Thyroid Disease. II Arch Int Med 52: 86 (July) 1933. III ibid 53: 763 (May) 1934.

<sup>1</sup> Wells H G. Cancer Statistics as They Appear to a Pathologist J A M A 88: 399 (Feb 5) 476 (Feb 12) 1934.

<sup>2</sup> Wood H B. Reliability of Cancer Statistics. Am J Surg 18: 31 (Oct) 1932.

exactly corresponded to the two dates showing the length of treatment. To quote the duration of illness as given on death certificates, therefore, is misleading. There was a preponderating guess that the duration of the disease was one year, or similar designation." He says further "One of the largest hospitals in the state (Pennsylvania) during six years showed a decrease in lip and tongue cancers, mouth cases showed no change, and the larynx cases doubled, stomach cases quadrupled, rectal cancers increased one half and cervical one sixth. These simply show an experience and do not indicate any trend of cancer development." It is thus possible to testify to the flimsy foundation on which such statistics are often based. At least the error possible should be recognized and allowance made.

The crude death rate, i. e., the deaths from cancer annually per hundred thousand of the total population, does not furnish a sound base for the decision as to fact or degree of cancer increase. Thus, as has been repeatedly pointed out, the age groups from which the statistics are drawn modify the interpretation. A striking example is mentioned by Macklin,<sup>3</sup> who says "In 1928 Prince Edward Island had a cancer rate of 114, while Saskatchewan had a rate of only 55, or less than half that of the former province. When, however, we consider the age of the population in the two provinces, we see that in the one with the high cancer rate, 31.5 per cent of the inhabitants were over 40 as contrasted with 19.6 per cent in the province with the low cancer rate."

On the other hand the mere variation in or increase of individuals in the upper age groups probably fails to account wholly for the reports of cancer increase. In the group of Metropolitan Life Insurance Company<sup>4</sup> policyholders, for example, even when the 1930 and 1931 cancer death rates are standardized for age, a large increase in the rate was found. "Further," the report states, "no such marked increase in the death rate has been observed in the mortality from cardiac disease, chronic nephritis and cerebral hemorrhage, all of which, like cancer, are diseases of the older ages."

An ingenious, if not perhaps conclusive, method of analysis has been described by Bolduan and Weiner.<sup>5</sup> Their statistics were based on the cancer mortality in New York City, which they divided into "visible cancer," i. e., of the skin, breast, buccal cavity and female genitals, and other forms. When adjusted for age distribution they found practically no change in the death rate from visible cancer in a thirty year period, though the death rate charged to cancer generally showed an upward trend. They believe, therefore, that this evidence seems to "warrant the conclusion that cancer is probably no more prevalent now, in any given age group, than it was a generation ago."

A consideration of some of the factors involved thus shows the difficulty in determining the facts clearly. Training in statistical methods is essential, equally important is a knowledge of the limitations imposed by the source of the material for analysis. No one but the physicians and the pathologists who sign the original statements can fully realize the limits of the latter, when the two qualifications are combined in one individual, the closest approach to the ideal analysis should be reached.

## Current Comment

### THE STORAGE OF VITAMINS IN THE BODY

The ability of the organism to store a surplus of some of the essentials for its proper functioning is of considerable importance. Much has been said of late about the maintenance of "steady states" in the body, that is, the protection of the latter from untoward reactions by a process of homeostasis, as Cannon of Harvard has designated it. This is the biologic device by which the temperature of the body is kept constant within narrow ranges, the reaction of the blood and other features of its desirable composition are maintained in fairly uniform condition, and still other protective adjustments are accomplished. Physiologists have long been aware of the storage of energy in the form of glycogen in the liver and muscles, likewise of readily available fats in the adipose tissues. Now it is being learned that some of the vitamins are subject to storage. This undoubtedly represents a factor of safety by furnishing a depot of supply in times of dietary shortage. Thus the protection of the body against scurvy may be potentially large or small, depending not only on abundance of vitamin C in the food intake and on its adequate absorption but also on the amount deposited in the tissues. For example, King<sup>1</sup> reported not long ago that in susceptible animals<sup>2</sup> studied by him depletion follows rapidly and regularly with a scorbutic diet. External indications of the depletion appear much later. The distribution of vitamin C in human tissues is analogous to that in guinea-pigs and has been found to show such marked variations for individuals that a wide zone of depletion appears to be fairly common without external evidence of a deficiency. This intermediate zone may be physiologically significant without being recognized by casual examination. Investigations<sup>2</sup> at the University of Wisconsin in Madison show that when vitamin A in the form of halibut liver oil was fed to animals the amount of vitamin A stored in the livers was found to parallel the amount of vitamin A in the diet but that only 10 to 20 per cent of the ingested vitamin A was recovered from this organ. Much of the vitamin was destroyed in the digestive tract, but not all of the losses could be attributed to this destruction. A similar storage of

<sup>3</sup> Macklin, Madge T. Is the Increase of Cancer Real or Apparent? *Am. J. Cancer* 16: 1193 (Sept.) 1932.

<sup>4</sup> Unprecedented Rise in the Cancer Death Rate. *Bull. Am. Soc. for Control of Cancer* 14: 6 (Oct.) 1932.

<sup>5</sup> Bolduan, C. F. and Weiner, L. Is Cancer Becoming More Prevalent? *Quart. Bull. City of New York Dept. of Health* 2: 1 1934.

<sup>1</sup> King, C. G. The Vitamin C Content of Human and Guinea Pig Tissue. *J. Nutrition* 7: 13 (May abstr.) 1934.

<sup>2</sup> Baumann, C. A., Rising, B. M. and Steenbock, Harry. The Absorption and Storage of Vitamin A by the Rat. *J. Nutrition* 7: 13 (May abstr.) 1934.

vitamin A has been described, among others, by McCoord and Luce-Clausen<sup>3</sup> of the University of Rochester, N Y The concentration of vitamin A in the blood is no indication of the amount that may be stored in the liver The Rochester nutritionists venture to speculate as to the reason for this striking capacity of the liver to store vitamin A One thinks at once of a storage to combat infection, but their results lend no support to the theory of the anti-infective value of vitamin A when supplied to animals in adult life It should not be inferred from the foregoing that all the known vitamins are stored with equal readiness, for this is surely not the case The important point is that it is probably advantageous to keep the reserve depots, for some of the vitamins at least, well filled with these valued requisites for perfect health and well being

### CREATINE AND THE CARDIAC MUSCLES

Creatine is a constant component of the striped muscle tissue of all vertebrates and it occurs to some extent in other tissues As most of the creatine in the body is present in the muscles, the content approximating an average of 0.4 per cent, there is a suggestion at least that creatine is concerned in some way with the function of the contractile tissue This has been further emphasized through the discovery of phosphocreatine in muscle and the growing evidence that this interesting compound plays some vital part in muscular contraction In view of these considerations it is significant that the concentrations of creatine of the left and right ventricular muscles of the heart are different, the former having the greater concentration This has been established recently at the Western Reserve University by Seecof, Linegar and Myers<sup>1</sup> These investigators emphasize that, in addition to embryologic, anatomic, physiologic and pathologic observations, chemical evidence is now presented pointing to the fact that the left and right ventricles are different muscles The magnitude of the differences under discussion amounts to 30 per cent in favor of the left heart It applies to human and animal hearts alike The two ventricles differ not only in creatine content but also in respect to other components Differences in glycogen, lipids, phosphoric acid, inorganic salts, potassium and calcium have been recorded Wearn<sup>2</sup> showed variations in the number of capillaries of different portions of the heart in man and in animals There are electrocardiographic differences between the ventricles, which may again indicate qualitative differences between the left and the right ventricle The Cleveland investigators remark that there are probably other differences with which we are not acquainted They also point out that the realization that the left and right ventricles (as well as other portions) of the heart are chemically different may have some value in pharmacologic and therapeutic measures as applied to the heart Seecof, Linegar and Myers conclude that

the concept that the two ventricles are different offers a working theory, which may reconcile, in a manner better than has been possible heretofore, the functional activities with the structure and the chemical constitution of the heart As such its value remains to be proved or disproved

## Association News

### MEDICAL BROADCASTS Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4 30 to 4 45, Central daylight saving time The speaker will be Dr W W Bauer The next three broadcasts will be as follows

July 19 Entertaining the Convalescent Child  
July 26 The First Month  
August 2 Dog Days

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS, EDUCATION PUBLIC HEALTH ETC)

### ARKANSAS

**Resolution on School Clinics**—The Ouachita County Medical Society, Camden, recognizing that adequate examinations of school children cannot be conducted in large groups, recently adopted a resolution announcing its future policy School children will be supplied with the necessary forms and referred to their family physicians for examination Only those able to pay will be charged This policy will also affect persons wishing to be immunized against typhoid, diphtheria and smallpox Those who are not able to pay will be immunized, but the vaccine, virus or toxin-antitoxin will be furnished by the health department as at present

### CALIFORNIA

**The Epidemic of Poliomyelitis**—A total of 1,223 cases of poliomyelitis have occurred throughout California since May 1, the New York Times reported, July 1 San Francisco has had sixty-nine cases of paralysis since May 1, with six deaths, Alameda County, 113 cases with eight deaths during the same period, while, on June 25, 325 patients were being treated in the Los Angeles General Hospital and 155 were under observation Dr James P Leake of the U S Public Health Service is in California to cooperate with health officials in combating the disease

**Plague in Ground Squirrels**—Although no case has been reported among human beings, a recent noticeable increase in the ground squirrel population led the state board of health to make a survey of bubonic plague The work has been concentrated in the rural sections of Kern, Tulare, Monterey and San Luis Obispo counties Twenty-one cities and towns were visited 162 ranches were visited and squirrels were hunted on 143 There were 3,185 squirrels shot, 34 of which were found positive for plague of the 2,400 squirrels found dead, 106 proved positive There were 5,304 postmortem examinations made on rodents, and twenty-four plague foci were located Plague was not evidenced in any of the rats examined

**Society News**—At a meeting of the Alameda County Medical Association, June 18 Drs Mark L Emerson, Frank H Bowles and Archie A Alexander discussed "The Use of Histamine as an Indicator of Cutaneous Circulation in Leg Amputations and Drs Robert A Glenn and Vernon G Alderson, amebiasis All are from Oakland—Dr James W Sherrill San Diego spoke on Relation of the Glands of Internal Secretion (Other than the Pancreas) to Carbohydrate Metabolism before the Hollywood Academy of Medicine June 21—Speakers before a joint meeting of the Solano and Contra Costa county medical societies in Vallejo, June

3 McCoord Augusta B and Luce Clausen Ethel M The Storage of Vitamin A in the Liver of the Rat J Nutrition 7 557 (May) 1934  
1 Seecof D P Linegar C R and Myers V C The Difference in Creatine Concentration of the Left and Right Ventricular Cardiac Muscles Arch Int Med 53 574 (April) 1934  
2 Wearn J T The Extent of the Capillary Bed of the Heart J Exper Med 47 273 (Feb) 1928



12, were Drs William C Voorsanger, San Francisco, and Fred R Fairchild, Woodland, on tuberculosis in children and appendicitis, respectively—The cornerstone of the library of the Los Angeles County Medical Association was laid, June 21, by Dr Walter Jarvis Barlow. It is expected that the new building will be ready for occupancy about September 1—Clarence Cook Little ScD, Bar Harbor, Maine, discussed "The Role of Heredity in Cancer" before the San Francisco County Medical Society, July 7

### GEORGIA

**Program for Health Chairmen**—Members of the Fulton County Medical Society presented a program in April for health chairmen of elementary and preschool associations of the Atlanta Council of Parents and Teachers, the DeKalb and Fulton County councils, under the auspices of the woman's auxiliary of the state medical association. The following physicians participated

Lawson Thornton Posture Defects and Correction  
Launcelot Minor Blackford The Heart Damages Through Disease Avoidance  
Lewis D Hoppe Jr, Control of Communicable Diseases in the Home and School  
William Howard Hailey Common Skin Diseases of Children  
Zachariah W Jackson, Sight Conservation

### IDAHO

**Society News**—Drs John F Coughlin, Twin Falls, and James O Cromwell, Gooding, addressed the South Side Medical Society at Jerome, May 28, on "Staphylococcic Skin Infections" and "Infections of the Foot," respectively—The Nez Perce County Medical Society and the Tri-County Medical Society have recently combined to form the North Idaho District Medical Society, with Drs Russell T Scott and Malcolm J McRae, Lewiston, as president and secretary, respectively

### ILLINOIS

**Automobile Deaths Increase**—There were 2,177 deaths from automobile accidents in Illinois during 1933 as compared with 2,104 in 1932, giving a rate of 28.5 for the state as a whole as against 27.5 per hundred thousand of population in 1932. The rate for the state exclusive of Chicago was 28.8, and for Chicago, alone, 28. According to the *Chicago Tribune* at a recent meeting of the Illinois Conference on Highway Safety Legislation, which is sponsoring drivers' license and financial responsibility laws to reduce accidents, J S Baker engineer for the National Safety Council, estimated that accidents of all descriptions have increased about 50 per cent in the first few months of this year as compared with the corresponding period of 1933. He also declared that the number of accidents is growing faster in rural than in urban areas

### Chicago

**Dr Lederer Named Head of Department**—Dr Francis L Lederer, who has been associate professor and acting head of the department of rhinology, laryngology and otology, University of Illinois College of Medicine, has been appointed professor and head of the department to succeed Dr Norval H Pierce, who is now professor emeritus

**Joseph A Capps Prize**—The Institute of Medicine of Chicago is again offering the Joseph A Capps Prize of \$500 to graduates of Chicago medical schools who have received the degree of doctor of medicine during the year 1932 or thereafter. The prize will be awarded for the most meritorious investigation in medicine or in the specialties. Investigation in the fundamental sciences will be considered also, provided the work has a definite bearing on some medical problem. Manuscripts must be submitted to the secretary of the Institute of Medicine of Chicago, 122 South Michigan Avenue, not later than December 31

**Typhoid Outbreak Among Firemen**—Physicians are asked to be on the alert for patients with symptoms suggestive of typhoid and amebiasis which might result from water consumed at the fire in the Union Stock Yards, May 19. On June 25 thirty-three persons ill with typhoid had been reported to the city board of health. It was pointed out that these persons drank from cattle troughs and almost any place they found water available. The city water supply was and is safe and only certain persons of those who drank contaminated water became infected. Eighteen suspected typhoid cases were being investigated at the time of this report, most of these persons also drank water at the stockyards. Following the fire eight of the thirty-three patients were ill with diarrhea, cramps, nausea and fever for a day or two and recovered. Later however, they became ill with typhoid. Definite onset

dates of these thirty-three cases range from June 1 to June 16. Physicians are urged to avail themselves of the facilities of the laboratory of the health department when they encounter a case they suspect of being either amebiasis or typhoid

### KANSAS

**Brinkley Thrice Runs for Governor**—Dr John R Brinkley, the so-called "goat gland" specialist, announced his candidacy for the Republican nomination for governor of Kansas, the *Chicago Tribune* reported, June 21. Brinkley has been an unsuccessful independent gubernatorial candidate on two previous occasions. His license to practice medicine in Kansas was revoked in 1930, when he was found guilty of gross immorality and unprofessional conduct

### MARYLAND

**Society News**—Dr Arthur M Shipley, Baltimore, addressed the Caroline County Medical Society at Denton, May 16, on "Surgery of the Blood Vessels"—The Baltimore County Medical Association was addressed in Baltimore, June 20 by Drs Harry M Stein on "Lung Abscess of Unusual Origin" with exhibition of case, and George H Yeager, "Passive Vascular Exercises," with exhibition of cases

**Examination of Substandard Workers**—Physical examinations of substandard workers in specified industries have been made by deputy state health officers in a number of counties in Maryland, recently, at the request of the state commissioner of labor and statistics, with the approval of the state board of health. Required under the National Recovery Administration, the examinations are to determine the extent to which physical handicaps or infirmities constitute a disability for the particular job on which a worker is engaged. Following these examinations, persons who are physically handicapped may be certified for employment, the wage rate to be adjusted in accordance with the extent of the disability

**Rocky Mountain Spotted Fever in Maryland**—Thirteen cases of Rocky Mountain spotted fever have been reported to the bureau of communicable diseases of the Maryland State Department of Health since the middle of April, according to the *Monthly Bulletin* for July. Two occurred in Baltimore City, three in Anne Arundel County, four in Baltimore County, and one each in Montgomery, Prince Georges, Talbot and Worcester counties. Three cases were fatal, one each in Anne Arundel, Baltimore and Montgomery counties. Two victims were children under 6 years of age and the third was a woman 24 years old. All of the patients were exposed to ticks. The child who died from the disease in Anne Arundel County had not been bitten but had crushed a tick in his hands. Preventive measures during the past year have included the inoculation of 130 children in the Somerset area of Montgomery County

### MASSACHUSETTS

**Harvard Bans Patents**—Harvard University faculty members have voted that the patenting of discoveries or inventions bearing on matters of health and therapeutics is undesirable. As a result, Harvard scientists will not be permitted to take out such patents, unless granted dispensations by the university, newspapers report

**Dr Overholser Appointed Commissioner**—Dr Winfred Overholser, assistant professor of psychiatry at Boston University School of Medicine and assistant commissioner in the state department of mental diseases, has been appointed commissioner of mental diseases, succeeding Dr James V May, who resigned to return to his former position as superintendent of Boston State Hospital, which he had held from Dec 1, 1917, until 1933. Dr Overholser is 42 years of age and a graduate of Boston University School of Medicine. Dr Joseph E Barrett, Taunton, has been appointed assistant commissioner to succeed Dr Overholser. He has been associated with the department for more than six years

### MICHIGAN

**Koch Cancer Outfit Sued**—A verdict for \$25,000 was returned by a jury in recorder's court before Judge Sherman D Callender, June 12, in the suit of Alfred A Fortner against Dr William F Koch director of the Koch Cancer Foundation, Detroit. According to the *Detroit Medical News* Fortner alleged that Dr Koch charged him \$300 each for injections of the cancer serum when he was not suffering from cancer. In 1921 Koch was dropped from the membership of the Wayne County Medical Society for exploiting a cancer cure, the claims for which have never been substantiated. In the recent trial Fortner said he went to Koch believing he had

cancer and was treated with the serum from June to September in 1931, after which Koch advised him to discontinue the treatment and go to a hospital. Fortner then discovered he had another disease. The complaint charged Dr Koch with negligence in that he failed to inspect the infected tissue to determine the cause of trouble, that he injected a poisonous drug in the man's blood stream, and that he abandoned his patient without cause. Koch did not appear in court to testify. The attorney for Koch said he will appeal the case.

### NEW MEXICO

**State Medical Meeting at Las Vegas**—The fifty-second annual meeting of the New Mexico Medical Society will be held in Las Vegas, July 19-21, under the presidency of Dr Charles F Milligan, Clayton. Among guest speakers will be

Dr Franklin D Garrett El Paso Texas Anaphylaxis—An Important Cause of Obscure Abdominal Pain and Digestive Disturbances  
Dr Casper F Hegner Denver Surgery of the Abdomen  
Dr James A Britton Chicago Silecosis  
Dr James W Kennedy Philadelphia, Indications for Vaginal Hysterectomy  
Dr Louis A Buie Rochester Minn Hemorrhoids  
Dr Charles W Mayo Rochester Appendicitis  
Dr Hugo O Deuss, Chicago, Blood Dyscrasias—Agranulocytosis and Acute Leukemia  
Dr Onis H Horrall Chicago Trauma of the Joints and Cartilaginous Repair

### NEW YORK

**Personal**—Drs Horace Lo Grasso, Joseph P Gimbrone and Anthony J Cetola, Buffalo, were guests of honor at a dinner given by the Baccelli Medical Club at the Hotel Statler, Buffalo, June 19, marking their completion of twenty-five years of medical service. The Medical Society of Montgomery County gave a dinner, June 19, at Canajoharie, in honor of Dr Frank V Brownell, Canajoharie, who has completed fifty years of medical practice.

**Dr Wright to Head Department**—Dr Arthur W Wright, for the past four years director of a laboratory of pathology, has been appointed professor and head of the department of pathology at Albany Medical College to succeed Dr Victor C Jacobson, who resigned. Other resignations announced are those of Drs Henrietta C Horner, associate professor of neuropathology, and Ada Hazel Curry, Troy, assistant professor of bacteriology.

**Society News**—Drs Edgar A Vander Veer and James S Lyons, among others, addressed the Medical Society of the County of Albany, June 27, on "Cysts of the Gallbladder and Bile Ducts" and "Anomalies of the Urinary System," respectively. Dr Stanley E Alderson spoke, May 23 on "Acute Intestinal Obstruction."—Dr James E King, Buffalo, was elected president of the Medical Alumni Association of the University of Buffalo at the annual meeting, June 12.—Dr Howard F Rowley gave his presidential address at a meeting of the Rochester Pediatric Society, June 1, on "Observations on the Thymus Gland."—Dr William G Turner, Montreal, among others, addressed the Franklin County Medical Society at its semiannual meeting in Saranac Lake, June 13, on "Surgical Problems in Correcting Deformities."

### New York City

**Personal**—Dr Thomas A McGoldrick was appointed chief surgeon of the police department, June 12. He has been associated with the police department for twenty-five years and is also assistant professor of medicine at Long Island College of Medicine and chief surgeon at St Peter's Hospital, Brooklyn.—Associates of Dr Frederick C Holden, professor of obstetrics and gynecology, University and Bellevue Hospital Medical College, gave a dinner in his honor at Sherry's, June 1, on the occasion of his retirement from active duty at the medical school and hospital. On behalf of his colleagues, Dr Edwin W Holladay presented to Dr Holden a silver bowl. Speakers were Drs Edward A Schumann, Philadelphia, Robert L Dickinson and Joseph Brettauer.—Dr Edward Cathcart, Detroit, has been appointed associate dean of Columbia University College of Physicians and Surgeons, to succeed Dr Frederick T van Beuren Jr, who resigned. Dr Cathcart, a graduate of the University of Michigan Medical School, Ann Arbor was until recently at the Mayo Clinic, Rochester, Minn.—Dr Menas S Gregory has resigned as director of the psychopathic division of the department of hospitals. Dr Carter N Colbert has been appointed acting head of the psychiatric staff at Bellevue Hospital to serve until civil service examinations are held for the position.—Dr David Sackin has recently been promoted to associate professor of otolaryngology at New York Homeopathic Medical College.

### OHIO

**Dr Friedlander Appointed Dean at Cincinnati**—Dr Alfred Friedlander, professor of medicine, University of Cincinnati College of Medicine, was appointed dean of the college in June, to succeed Dr Arthur C Bachmeyer, resigned. He will assume office, September 15. Dr Friedlander is a native of Cincinnati and was graduated in medicine from the university in 1895. He was associate professor of pediatrics in the college of medicine from 1910 to 1917 and has been professor of medicine since 1919.

**Grants for Research**—Grants totaling \$8,500 annually for two years have been made to Western Reserve University School of Medicine, Cleveland, for extension of research in experimental pathology, it was announced at the commencement, June 13. Of the total amount, \$3,000 annually will be contributed by Nathan G and Charles L Richman, Cleveland, \$500 annually by Richard H Kohn, Cleveland, and \$5,000 from a trust fund established by Commodore Louis D Beaumont, a former resident of Cleveland. Dr Harry Goldblatt, associate professor of pathology and assistant director of the Institute of Pathology will have charge of the work to be done under the grants, relating especially to hypertension and peritonitis.

### PENNSYLVANIA

**Survey of Diphtheria Immunization**—The Pittsburgh department of health in an investigation of diphtheria immunization recently found that, of 40,044 children investigated in 27,491 families, 7,679 had been immunized. Of the number of immunizations, 67.9 per cent had been done by public health agencies and 32.1 per cent by private physicians.

**Seminars at Sayre**—A series of six graduate seminars is being presented at Robert Packer Hospital, Sayre, under the auspices of the medical societies of Bradford, Sullivan, Susquehanna, Tioga and Wyoming counties. During June speakers were Drs Edward J G Beardsley, on cardiovascular renal disease, Edward L Bauer, diseases of children, Catharine MacFarlane, gynecologic conditions, and Vaughn C Garner, dermatologic subjects. All are from Philadelphia.

### Philadelphia

**Hospital News**—The Fridenberg Memorial Surgical Building of the Jewish Hospital was dedicated June 24. Judge Harry S McDevitt delivered the principal address. The building was erected at a cost of \$400,000 from a legacy left by the late Mone Samuel Fridenberg. It is five stories high and will accommodate 100 ward patients with no provisions for private or semiprivate patients.

**Memorial to Dr Knowles Proposed**—The Philadelphia County Medical Society is sponsoring a memorial fund to the late Dr George A Knowles, former assistant director of health of Philadelphia. Part of the fund will be used to have a bust made of Dr Knowles, to be mounted in the society's headquarters, and the remainder to create an endowment fund in the aid and association of the society.

**Personal**—The University of Pennsylvania conferred the honorary degree of doctor of science on Dr William Gibson Spiller, emeritus professor of neurology in the school of medicine.—The honorary degree of doctor of science was conferred on Dr Robert F Ridpath professor of rhinology, Temple University School of Medicine by Ursinus College, Collegeville, June 11.—Dr Horatio C Wood Jr received the honorary degree of master of science at the annual commencement of the Philadelphia College of Pharmacy and Science.—Dr Walter G Elmer has been advanced to professor of orthopedics at the Woman's Medical College of Pennsylvania.

### TENNESSEE

**University News**—Dr Marcus Pimson Neal, Columbia, Mo., is visiting professor of pathology and bacteriology at the University of Tennessee School of Medicine, Memphis during the summer quarter in the absence of Dr Harry C Schmeisser.—The annual Alpha Omega Alpha Lecture at Vanderbilt University School of Medicine was delivered, April 30, by Dr Samuel C Harvey, New Haven, Conn., on "Tumors of the Nervous System Derived from the Neural Crest."

**Health at Memphis**—Telegraphic reports to the U S Department of Commerce from eighty-six cities with a total population of 37 million indicate that the highest mortality rate (194) appears for Memphis and the rate for the group of cities as a whole was 10.8. The mortality rate for Memphis for the corresponding week of 1933 was 13.4 and for the group of cities, 10.2. The annual rate for eighty-six cities for the twenty-six weeks of 1934 was 12.1 as against a rate

of 115 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for wide areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

### UTAH

**State Medical Election**—At the fortieth annual session of the Utah State Medical Association, held in conjunction with the thirteenth annual meeting of the Pacific Northwest Medical Association at Salt Lake City, June 21-23, officers were chosen as follows: Drs. William R. Tyndale, Salt Lake City, president elect, Menzies J. MacFarlane, Cedar City, and Farley G. Eskelson, Vernal, vice presidents, and George N. Curtis, secretary. Dr. John Driver, Ogden, was made honorary president, the first physician to have this distinction, he is 85 years old. The next annual session will be held in Logan.

### VIRGINIA

**Dr. Riggins Appointed State Health Officer**—Dr. Warren F. Draper, assistant surgeon general of the U. S. Public Health Service, who has served as health officer of Virginia for the past three years, has resigned and will be succeeded by Dr. Irl C. Riggins, director of rural health work. Dr. Riggins, a graduate of Johns Hopkins University School of Medicine, Baltimore, was state epidemiologist for Virginia in 1925 and also served as health commissioner of Lorain County. Later he was executive director of the American Heart Association for several years, returning to Virginia as director of rural health work in July 1932. Dr. Draper, who has been on leave of absence, will return to the federal health service.

### WASHINGTON

**Personal**—Dr. Edward C. Ruge has resigned as superintendent of the Northern State Hospital at Sedro-Woolley. Dr. Howard L. Hull, superintendent and medical director of Oakhurst Sanatorium, Elma, since 1923, has resigned to enter private practice in Yakima. Dr. Leslie P. Anderson, White Haven, Pa., will succeed him. Dr. Max Cutler, Chicago, addressed the King County Medical Society, June 29, on pathology and treatment of neoplastic diseases.

### WEST VIRGINIA

**Society News**—Drs. Russell B. Bailey, Wheeling, and Earl Bannette Henson, Charleston, addressed the Raleigh County Medical Society, Beckley, June 7, on "Lesions of the Lungs and Mediastinum" and "Treatment of the Tuberculous Bone Lesion," respectively. Drs. Oscar H. Fulcher and Harry T. Schiefelbein, Welch, addressed the Mercer County Medical Society in a joint meeting with the McDowell County Medical Society at Bluefield, June 21, on "Presacral Sympathectomy for Bladder Conditions" and "Crossed Eyes," respectively. Dr. Richard B. Easley, Huntington, presented a paper on "Cisterna Magna Puncture: Its Technique and Use" before the Cabell County Medical Society, June 14. A symposium on heart disease was presented at a meeting of the Kanawha Medical Society, June 19, by Drs. George H. Barksdale and Pat A. Tuckwiller, Charleston. Drs. Martin L. Bonar, Charleston, and Clint W. Stallard, Montgomery, addressed the Fayette County Medical Society, Oak Hill, June 12 on "The Eczemas" and "Diagnosis of Sacro-Iliac Relaxation with Operative Treatment," respectively. Dr. William C. D. McCuskey, Wheeling, spoke on transurethral resection of the prostate at the final meeting of the Lewis County Medical Society for this season at Weston, June 7.

### WYOMING

**State Medical Meeting at Casper**—The thirty-first annual meeting of the Wyoming State Medical Society will be held in Casper, July 16-17, at the Elks Club under the presidency of Dr. Frederick L. Beck, Cheyenne. Guest speakers will include:

Dr. Adolph Sachs, Omaha, Modern Cardiac Therapy  
Dr. John Jay Keegan, Omaha, Emergency Brain Surgery  
Dr. Douglas W. Macomber, Denver, Early Diagnosis of Ectopic Pregnancy  
Gordon E. Davis, U. S. Public Health Service, Hamilton, Mont., Colorado Tick Fever

Wyoming physicians who will participate include:

Dr. Paul S. Read, Worland, Medical Economics  
Dr. Hugo L. Lucie, Cheyenne, Common Causes of Blindness  
Dr. Edwin Earl Whedon, Sheridan, The Spencer Parker Vaccine and Its Use in Sheridan County

The Natrona County Medical Society will entertain with a smoker Sunday evening, July 15, at the Gladstone Hotel, and a golf tournament will be begun Monday morning and finished Tuesday. There will be clinics at the county hospital Monday and Tuesday mornings and Dr. Nolie Mumey, Denver, will have a special exhibit of wax models of pathologic specimens.

### GENERAL

**Otolaryngology Examinations**—Sixty-two candidates were examined by the American Board of Otolaryngology in Cleveland, June 11, fourteen were conditioned or failed. Examinations will be held during the meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago, September 8, and at the meeting of the Southern Medical Association in San Antonio, Texas, November 16. Prospective applicants for certificates should address the secretary, Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, for application blanks.

**School Physicians' Meeting**—Dr. Charles H. Keene, Buffalo, was elected president of the American Association of School Physicians at its annual meeting at Saratoga Springs, June 27. Drs. John Sundwall, Ann Arbor, Mich., James F. Rogers, Washington, D. C., Charles C. Wilson, Evansville, Ind., and Haven Emerson, New York, were elected vice presidents and Dr. William A. Howe, New York State Department of Education, Albany, was named secretary. Among speakers on the program were the following:

Dr. William H. Park, New York, Immunization  
Dr. Edward Francis, Washington, D. C., Diagnosis of Undulant Fever  
Dr. Esmond R. Long, Philadelphia, Tuberculin: Proposal of a Standard Substance for Uniformity in Diagnosis and Epidemiology  
Dr. Simon Flexner, New York, Two Decades of Medical Research  
Dr. Hugh S. Cumming, Washington, D. C., Public Health in the United States  
Clarence C. Little, Seaside, Bar Harbor, Maine, Public Health Aspects of the Cancer Problem  
Dr. Henry D. Chadwick, Newton, Mass., School Health Service in Massachusetts

**Society News**—Dr. Thomas F. Abercrombie, Atlanta, Ga., was elected president and Dr. Alphonse Lessard, Quebec, Canada, vice president of the Conference of State and Provincial Health Authorities of North America at the annual meeting in Washington, D. C., June 6. Dr. Albert J. Chesley, St. Paul, was reelected secretary. The conference adopted a resolution expressing the opinion that a health officer or any physician connected with a health department should not allow his name or influence to be used in promoting the sale of any drug, remedy or proprietary food product. The western section of the American Congress of Physical Therapy, the Pacific Physical Therapy Association and the Los Angeles County Medical Association sponsored a postgraduate seminar on physical therapy at the Mayfair Hotel, Los Angeles, June 21, in which guest speakers were Drs. Disraeli W. Kobak, Chicago, on "Electrophysiology," "Present Status of Ultra-violet Therapy" and "Evaluation and Technique of Various Methods of Producing Artificial Fever," and Bernard L. Wyatt, Tucson, Ariz., "Newer Aspects in Treatment of Arthritis." The thirteenth annual scientific and clinical session of the American Congress of Physical Therapy will be held in Philadelphia, September 10-13.

### FOREIGN

**Madame Curie Dies**—Mme. Marie Sklodowska Curie, co-discoverer with her husband of radium, died of pernicious anemia at a sanatorium near Sallanches, France, July 4, aged 66. It was said that her long exposure to radiation probably hastened her death. Madame Curie was born in Warsaw, Poland, Nov. 7, 1867, and received her early scientific training under her father. After taking a degree in science at the University of Paris, she was married in 1895 to Prof. Pierre Curie. They began research on radioactivity in 1896 immediately after the property had been discovered in uranium by Becquerel. In 1898 they isolated radium from pitchblende. The Royal Society of England awarded the Curies the Davy medal in 1903, and the same year the Nobel prize in physics was awarded to them jointly with Becquerel. The French Academy of Sciences had previously honored them with the La Caze prize of 10,000 francs. In 1906 Professor Curie was killed in an accident and Madame Curie succeeded him as professor of physics at the university, the first woman to hold such a position there. In 1911 she received the Nobel prize in chemistry in recognition of her research. The University of Paris later created the Radium Institute and placed Madame Curie at the head of the research department, known as the Curie Laboratory, which she directed actively until a few weeks before her death. During the World War, Madame Curie

organized a radiologic service for treatment of wounded at the front. The distinguished scientist twice visited the United States. In 1921 she came to receive a gram of radium, valued at \$100,000, presented to her by President Harding on behalf of American citizens, in 1929 she returned to accept a check for \$50,000, presented for her friends by President Hoover in a ceremony at the National Academy of Sciences. The latter fund she gave to her native city of Warsaw for promotion of research on radium. In 1922 the Academy of Medicine in Paris elected her a member and the following year the French government voted her a pension of 40,000 francs a year. It was said that she lived humbly in Paris, using her income for the rental of radium. Among honors conferred on Madame Curie in recent years were the Cameron Prize of the University of Edinburgh and a gold medal conferred by the International Congress of Radiology at its Paris meeting, an honorary membership in the Sociedad Española de Física y Química, all in 1931.

## Government Services

### Trade Commission Charges Misrepresentation in Bayer Aspirin Advertising

The Federal Trade Commission has filed a complaint charging misrepresentation in connection with the sale of acetylsalicylic acid tablets against the Bayer Company, Inc. New York. The commission alleges that the company's advertising tends to mislead buyers into believing that 'Bayer aspirin' is the only genuine acetylsalicylic acid, intimating that the product sold by its competitors is not aspirin, is not as beneficial as the Bayer product, and is counterfeit or spurious. According to the complaint, Bayer advertising has proclaimed that its tablets will quickly relieve any and every pain and that any user may safely take as many tablets as necessary to relieve pain or to cure disease or sleeplessness. Relying on medical opinion, the commission stated that there are persons who cannot take such tablets safely even in small or moderate doses, others who cannot take more than the usual or prescribed dose and others to whom excessive use would be dangerous and even fatal. The commission pointed out that at most acetylsalicylic acid may be used to relieve pain resulting from the ailments mentioned in the company's advertising, but it is not adequate treatment for the underlying pathologic condition and will not relieve, check, remove or cure it. The commission recounts the fact that acetylsalicylic acid was first imported into the United States from Germany in 1899, when the name "aspirin" was registered as a trademark. A United States patent was obtained in 1900 and the product was first sold in powdered form to druggists, physicians and manufacturing chemists but to the public only on prescription. About 1904 the German company authorized chemists to prepare it in tablet form, but, according to the commission's complaint, "in no case did the name of the respondent or its predecessor appear upon the containers." The chemists sold it under their own names, it was said. Bayer first sold the tablets to the public in 1915 but in 1917 the patent expired and the right to use the name "aspirin" became free to all. In 1918 the patent office canceled the trademark registered in 1899.

### Examinations for Appointment to Army Medical Corps

The War Department announces that examinations will be held September 24-28 for candidates who wish to qualify for appointment in the U. S. Army Medical Corps. General requirements for eligibility for appointment are that the candidate must be a male citizen of the United States between the ages of 23 and 32, must be a graduate of an acceptable medical school, must have a commission in the Medical Reserve Corps and must be physically fit. Candidates must also have had at least one year's hospital training subsequent to the completion of four years' instruction in a medical school or its equivalent in professional experience. The Medical Department has experienced an unusually large number of separations from the service during the past few months and the list of qualified candidates on the examinations held in March has been exhausted. Appointees from the forthcoming examinations will be ordered to the Medical Field Service School, Carlisle Barracks, Pa., for the basic course of instruction Jan. 1, 1935. Applications for authority to take the examination should be forwarded to the Adjutant General War Department Washington, D. C.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

June 16, 1934

### Voluntary and Municipal Hospitals

The great development in recent years of municipal (tax-supported) hospitals has been described previously. At a conference of voluntary hospitals in London, Sir George Newman, chief medical officer of the Ministry of Health, read a paper on Cooperation Between Voluntary and Municipal Hospitals. Referring to hospital accommodation in England and Wales, he said that there were about 1,850 hospitals with 215,000 beds consisting of 860 municipal hospitals with 143,000 beds provided by local authorities and about 1,000 voluntary hospitals with 72,000 beds. These totals included 130 hospitals and sanatoriums for tuberculosis provided by local authorities and 135 voluntary hospitals with 9,000 beds for tuberculosis. In addition to these totals the local authorities provided 172 hospitals with 139,000 beds for lunacy and mental deficiency and 1,310 hospitals with 194,000 beds for infectious diseases. Would it be wise to put all hospitals on a municipal basis of rates and taxes and allow the voluntary hospitals to disappear or would it be better to combine the two into one cooperative system? He strongly favored the latter. It would be more economical in the long run. There was now a legal obligation on the local authorities for cooperation with the voluntary hospitals, but in some areas this was not effective. Further organization was necessary for this purpose. Health officers reported that the desire for cooperation was widespread but that there was some indication of fear on the part of the representatives of voluntary hospitals that local authorities intended to compete unduly with these. A cooperative system of hospitals was likely, if properly organized, to be more economical in the long run than a tax-aided state system without the voluntary element, and it provided for their peculiar English genius for practical compromise between collectivism and individualism. It was satisfactory that forty-six county councils and sixty-eight county boroughs had already provided the means of mutual cooperation. In the discussion that followed Lord Riddell pointed out that the London Voluntary Hospitals Committee had done a great deal of useful work and established friendly relations with the county council, which controls the vast municipal hospital system of London.

### The Prevention of Accidents in Mines

In the house of commons the labor party tried to blame the government for accidents in mines. Between 1928 and 1932 there were 277 fire-damp explosions, causing the deaths of 315 men and injuring 538. It was asserted that these explosions were due to imperfect ventilation and violation of the regulations. The mines act provides that miners should be withdrawn when more than 25 per cent of gas is present but a labor member alleged that he had worked for hundreds of hours in the pit with 5 per cent of gas. Mr. Brown, secretary of the mines department, replied that there was no infallible cure for explosions in mines. The deaths over the last sixty years showed a large and progressive reduction. In the decade 1873-1882 the annual average was 65 per hundred thousand employed but in the decade 1923-1932 only 6. In the latter decade the average number of persons killed annually by explosions was 52 and the average killed underground from all causes was 933. The deaths from explosions were thus 5.5 per cent of the total deaths underground. In regard to nonfatal accidents the annual average from explosions was 100, of which some were slight, and from all causes underground 150,000. In the last hundred years no subject had received greater care and

thought or had more research done on it or had received more attention at the hands of those responsible for administering the law than the question of explosions. A big reduction in the number of deaths had taken place, mainly from the application of stone dust in the mines. He could not agree with the statement that if there was enough ventilation there would be no explosions. In the opinion of his advisers there were times and circumstances when it was impossible to prevent an accumulation of gas. In a period of ten years there had been 132 deaths and 154 injuries from shots fired. The number of explosions causing injuries, however slight, was forty-seven, but the number of shots fired in mines where there could have been explosions was some 300,000,000. Research work had resulted in many improvements to reduce the number of accidents. Some explosions occurred from natural causes, others from lack of proper ventilation or from bad distribution of air. There was always the problem of human fallibility. In that connection he might point out that between 1924 and 1933 there had been forty-seven deaths and fifty-nine cases of injury due directly to smoking and the presence of matches in mines. A labor member refused to accept these figures, but Mr. Brown felt bound to accept them, as they came from his advisers. He also insisted that the inspection of mines was adequate. The Safety in Mines Research Board was working actively not only in carrying out research but in preparing technical papers for technicians. Attention was being given to protective equipment to avoid the large number of accidents to hands, eyes, feet and heads, and experiments were being made with special types of gloves, goggles, boots and hats. A motion for the reduction of the vote for \$1,000,000 for the salaries and expenses of the Mines Department (the usual mode of censure) was rejected.

#### Conditions Under Which Advice on Birth Control May Be Given at Public Clinics

The question of giving advice on birth control at clinics provided under the public health acts has given rise to controversy. Three years ago the Ministry of Health issued a memorandum stating that certain clinics "will be available only for women who are in need of medical advice and treatment for gynecological conditions, and that advice on contraceptive methods will be given only to married women who attend the clinics for such medical advice or treatment, and in whose case pregnancy would be detrimental to health." In 1932 the departmental committee on maternal mortality and morbidity published its final report, in which it emphasized the importance of the avoidance of pregnancy by women suffering from organic disease, such as tuberculosis, heart disease, diabetes and chronic nephritis, in which child bearing is likely seriously to endanger life. The committee considered that advice on contraceptive methods should be readily available for such women. The Ministry of Health has now issued a circular to the effect that this advice shall be available to married women suffering from sickness, physical or mental, which is detrimental to them as mothers or renders pregnancy detrimental. The decision as to what is detrimental to health is to rest with the physician in charge of the clinic.

#### Checking Illicit Drug Traffic

The advisory committee of the League of Nations on opium and other narcotics has adopted a revised text of a narcotics convention, asking governments to provide legislation for severer treatment of drug traffickers and dealing with the "master mind behind the traffic which is often to be found in a country other than that in which the trafficking is taking place. The drug situation is now as follows. On the one hand the progressive shrinking in the volume of legitimate trade in opium coca leaves and manufactured drugs still continues. On the other hand supplies for illicit traffic in

manufactured drugs are more and more being drawn from clandestine manufacture, which continues to increase. The committee is pursuing the twofold objective of confining production and manufacture to the amount required for legitimate needs and to ensuring, through the strict application of the conventions, that the amounts so produced and manufactured in the legitimate trade do not escape into illicit traffic. It is also combating, with all the means at its disposal, the illicit traffic. As supplies are becoming more and more drawn from clandestine sources, the task becomes more difficult.

#### PARIS

(From Our Regular Correspondent)

May 23, 1934

#### Changes in Symptoms of Acrodynia

Mr. Pehu of Lyons gave recently a discussion of acrodynia before the Academy of Medicine. He raised the question whether acrodynia today does not present different symptoms from the disease as observed last century. In 1828 the disorder took almost the form of a pandemic. It appeared suddenly and disappeared after a few months. The disease showed no predilection for children and it seems to have been contagious. Acrodynia, as known today, has continued for more than thirty years. It is not epidemic, is but slightly contagious, and affects chiefly children from 1½ to 5 years of age. There is, then, a resemblance between the two disorders but not a complete identity. During an interval of eighty years, the disease has undergone a number of changes. In support of his contention, Pehu gave detailed observations on the focus of acrodynia in the department of Saône-et-Loire, where forty-six cases were diagnosed from January 1925 to March 1934. The disease appears to be confined to the northeast part of the department. The cases almost always develop singly in each locality, although they are but a short distance apart. One cannot, however, speak of contagion proper. The annual number of cases ranges between three and five, with two maximums in 1930 and 1934 respectively. The cases occurred chiefly in children from 2 to 3 years old (twenty-one cases out of forty-six), no cases have been observed in adults or in children under 13 months. The symptoms are about as usual, although the evolution is long, extending over several months. The mortality is 10 per cent and results mainly from complications. Poliomyelitis is frequent in the same region. A more complete knowledge of this peculiar disease would be obtained if the practitioners who encounter it would make detailed observations.

#### Frequency of Tuberculosis in the Sexes

Prof. Leon Bernard and Mr. G. Poix have published a statistical research that reveals that tuberculosis in France, as in most countries, is more frequent in men than in women. The ratio is not the same at all ages, and one observes some differences from foreign countries. In France the mortality in females is higher than in males between the ages 5 and 25, after which it drops in females below that in males. In Switzerland, Italy and the Scandinavian countries, the mortality is higher in women than in men, whatever the age. After age 25, for each hundred deaths in males the number of deaths in females ranges from 73 to 79. After age 30, the excess of deaths in males becomes more marked. The inequalities in the mortality of the sexes is due to various factors but particularly to the work of women in factories. The greater frequency of tuberculosis in males explains why more requests for admission to sanatoriums are received from men than from women. These observations have a practical slant in the organization of the crusade against tuberculosis. In France there are only 9,393 sanatorium beds reserved for tuberculous men as against 10,404 beds for women whereas the proportion should be just the reverse. Bernard concludes that it is time to reorganize

the tuberculosis services throughout the country. He urges the public authorities to take more accurate account of the real needs of the situation when they create new sanatoriums or render financial aid to them. In other words, a more rational and methodical plan should be adopted.

#### Foreign Mental Patients in France

The minister of public health has published a report on the number of foreign mental patients being cared for at present in France in the psychopathic hospitals, at the expense of the community or the government. The number cared for by virtue of reciprocity treaties with certain foreign countries is 1,435 out of a total of 3,250, or a little less than one half (Italians, 476, Poles, 605, Belgians, 117, Swiss, 27, Luxemburgers, 24, Spaniards, 107, Yugoslavs, 19, Austrians, 8, Hungarians, 6, Netherlands, 15, Norwegians, 18, Swedes, 4, citizens of the principality of Monaco, 2, and Greeks, 15). The other foreigners cannot claim the right to treatment other than on the basis of their own resources but they are usually admitted for reasons of humanity or because the cost of exportation would be greater than the cost of treatment. The tendency of large countries is to refuse admission to foreign mental patients in their territory and to accept only their nationals if the country from which they have come will take charge of their repatriation. This is a manifest abuse of privileges, which is harmful to France, which of all countries has the most foreigners in its territory, among which there are many who are rejected by their own country.

#### BERLIN

(From Our Regular Correspondent)

May 21, 1934

#### The Congress of Internal Medicine

The Deutsche Gesellschaft für innere Medizin held its annual session in Wiesbaden, April 9-12. Chairman Schittenhelm of Kiel emphasized that the society would serve the nation best if it would bring its investigations and its activities into harmony with the ideals of the new state. The training of the coming generation imposes new tasks in which the universities will play a more important part than they have in the past.

#### A DISCUSSION OF HEREDITY

Eugen Fischer of Berlin presented a paper on "Modern Theories of Heredity and Their Application to Man." It may be stated that the new mendelism, which has been found valid for many animal species, must be accepted also for man. In 1910 through research it was established that the chromosomes contain the fundamental principle that lies at the basis of hereditary transmission. The hereditary qualities are not fixed to a single pair of genes but to several pairs placed one after another in the form of a series. The theories pertaining to heredity in man rest today, in many respects, on a firmer basis than many other terms used in medicine for example, the theory of hormones. The theories with regard to heredity throw light on many pathologic questions and open up many diagnostic possibilities. Race research is still undergoing many rapid changes. Conceptions that formerly were regarded constant are now considered variable. It is regarded today as highly probable that the hormones are influenced by the genes, in which connection a distinction is made between genes easily changed and those changed with difficulty. Fischer thinks that racial differences have been brought about by mutations. Since physical qualities have not been found to be reliable as racial characteristics, Fischer is inclined to attach more importance to psychic qualities. Such problems show the need of a race psychology. The first step would be to create a race psychiatry. Taken in the most general sense, disease and the transmission of racial characteristics have nothing in common. The high incidence of some diseases in certain races might be due to

close inbreeding, but a marked tendency of a race toward the development of certain mutations may be in evidence. Fischer regards it as certain that the mental capacity and performance of the races vary to a certain extent. The specific culture of a people depends obviously on the racial qualities of its individual members. The physician must be thoroughly familiar with matters of heredity in order to be able to counsel patients with regard to propagation. He must be a judge with respect to hereditary pathology in particular in order to take a just stand toward the new law pertaining to sterilization.

Von Verschuer of Dahlem discussed the pathology of heredity. The gene (aside from the blood groups) is disturbed by environmental influence and by other genes. The best method for the delimitation of environment and hereditary characteristics and aptitudes is research on twins. Since enzygotic twins show a far reaching agreement in their hereditary qualities, diverse qualities in them must be due primarily to environment. But sometimes even in enzygotic twins an apparent disagreement is manifest, for example, owing to a more or less wide interval between the appearance of pathologic symptoms in the one twin and in the other (for instance, in tuberculosis), or owing to the fact that the symptoms are more marked in one twin than in the other. Frequently in schizophrenia the more intelligent twin exhibits graver symptoms. A hereditary quality is conditioned by the principal gene and the secondary genes. A secondary gene may, however, be the principal gene for some other characteristic.

For the necessary clarification of these problems, all opportunities for the securing of statistical material must be used. Bureaus of hereditary hygiene and clinics dealing with heredity are needed. Thorough research on whole racial groups must be carried out. Otto Naegeli of Zurich presented the clinician's attitude toward the subject, dealing with the hereditary pathology of internal and nervous diseases. He discussed the question as to the hereditary transmission of acquired characters. All hereditary diseases are intimately associated with changes in the genes, which, it seems, can be brought about only by mutations. No proof has been adduced that acquired characters are susceptible to hereditary transmission. Further research will doubtless increase the number of hereditary changes and of hereditary diseases in man up into the thousands. Man as a new creation on earth is still passing through a mutation phase, in which new genes frequently appear. These hereditary factors may constitute unimportant variants, or they may become of great significance in the central nervous system. On the other hand, there is no fundamental difference between abnormality and disease, for example, in diseases of the blood. Under this head may be mentioned the carriers of certain hereditary diseases, who themselves, while not manifestly ill, are frequently not entirely normal, for example, women who transmit hemophilia but who themselves have slight disturbances of coagulation. The conception of genotypical variants as evidence of degeneration must be categorically denied. The term "degeneration" has a wide range of meaning and is frequently used in an absolutely erroneous manner, which then leads to false conclusions.

Dr. W. Gross of Berlin, the director of the Aufklärungsamt für Bevölkerungspolitik und Rassenpflege, discussed "Hereditary Biology in Relation to World Views of the National Socialists." He mentioned that it was the first time that political problems had been brought into the discussion at this congress, usually given to consideration of purely scientific questions. It is the task of political leaders to map out the routes and objectives, whereas it is the task of science to furnish to political leadership the equipment for laying the substructure. But it can never be the task of science to form world views in the wider sense and to exert a controlling influence over the mental attitude of a whole people. The impulses that have been



set forth by science during the past fourteen years have not had a favorable influence on the world views of the German people

Weitz of Stuttgart brought out the frequent occurrence of acquired cardiac defects in certain families. Evidence of pathologic hereditary trends may be found in vasoneurotic persons. Varices and status varicosus (telangiectasia and the like) often give evidence of dominant hereditary transmission, some renal disorders may be hereditary, for example, cystic kidneys. In pulmonary tuberculosis it is difficult to distinguish between hereditary and exogenous influences.

Luxemburger of Munich said that psychiatric hereditary research constitutes a special field of investigation, the fundamental basis of which is formed by studies on hereditary prognosis. The difficulty lies in the fact that in most hereditary psychic defects there is no evidence of a dominant hereditary transmission. The disorders in this field that are most important from the standpoint of heredity, such as schizophrenia, manic depressive insanity and epilepsy, follow the laws of recessive hereditary transmission, so that not only the actual patients but also healthy persons who present a latent predisposition must be excluded from hereditary succession. The first important question is the detection of the probable hereditary carriers, the second is the early recognition of the pathologic condition and the elaboration of the prepsychotic type.

With the aid of numerous family trees, Hanhart of Zurich demonstrated the hereditary transmission of predisposition to idiosyncrasies with a special reference to bronchial asthma. The hereditary factor is the increased sensitization, the result of certain allergens. The hereditary process is of the dominant type, but sex fixedness cannot be demonstrated. Likewise migraine is a common manifestation in persons with hereditary idiosyncrasies.

With reference to pathologic hereditary units, there is a dangerous tendency to apply mendelian laws, since the hereditary units of man have not yet been adequately studied. Attempts at elucidation must be kept within bounds and not anticipate progress of knowledge. More research is needed as a basis for more definite conclusions. Further communications brought out that hereditary predisposition to diabetes is causally connected with the genotype. There are hereditary thrombotic conditions which can be more closely delimited by the functioning of the blood platelets. With respect to myotonia congenita, the hereditary process was followed in one family through seven generations, with evidence of dominant hereditary transmission.

#### LOCALIZATION PRINCIPLE IN THE NERVOUS SYSTEM

The second topic, "The Significance and Scope of the Localization Principle in the Nervous System," was presented by Forster of Breslau. He emphasized that one can make an exact topical diagnosis solely with clinical methods, iodized poppy-seed oil and roentgenograms may sometimes deceive. In the discussion, Tonnis and H. R. Muller of Wurzburg stated that a differential diagnosis in brain tumors can be made in two thirds of the cases, and in a further 20 per cent by means of roentgen rays. In fact Tonnis was able with the aid of encephalography and arteriography, to reach a diagnosis in 95 per cent of the cases, confirmed through later operations.

Papers on the problems of circulation followed. Jacobi of Bonn pointed out that patients with heart defects and decompensated circulation are highly sensitive to pneumothorax, whereas compensated patients react the same as healthy persons. Bruns of Königsberg discussed the influence of respiratory disturbances on the lungs and the circulation. Oehme of Heidelberg reported that his experiment with irradiation of the hypophysis in exophthalmic goiter proved unsuccessful. The paper by Butenandt of Danzig concerned "The Physiology and Chemistry of the Sex Hormones." The subdivision of the

gonadotropic effective principle into two different substances has not been experimentally proved. The gonadotropic hormones, as Aschheim and Zondek have found, are present in abundance in the urine of gravidae, they are biologically identical with the hormone of the prehypophysis, but they take their origin from the placenta. Gonadotropic substance is not present in the hypophysis of the pregnant woman. The chemical composition of the gonadotropic hormones is not yet known. The testicular hormone is excreted in the male urine, Butenandt isolated it therefrom in a crystallized condition in 1931. Also the follicular hormone has been isolated in a crystal form. It is demonstrable in the blood and the urine of the sexually mature woman, in the placenta, in the urine of sexually mature stallions, and even in bituminous substances, but the corpus luteum hormone has been found thus far only in the corpus luteum. The follicular hormone promotes not only the growth of the genital tract but also, quite generally, the growth of plants. In pregnancy it brings about a loosening of the symphysis and a pigmentation of the linea alba. Furthermore, it effects a reconstruction of the uterine mucosa in the proliferative phase, whereas the corpus luteum hormone then launches the secretory phase of the uterine mucosa. The sex hormones function according to mutual laws, probably under the guidance of a special brain center. In a woman who had been subjected to bilateral ovariectomy, normal menstruation was effected by the administration of 250,000 mouse units of follicular hormone (1 million international units) and later of from 30 to 50 units of corpus luteum hormone.

R. Schroder of Kiel discussed "Normal and Pathologic Ovarian Function." Only disturbances of ovarian activity as such can be directly influenced by hormone therapy. For the treatment of disturbances due to muscular changes, other measures should be adopted. In menstruation occurring after three weeks, the corpus luteum phase is shortened, if the interval is prolonged, damage to the follicular function results. In connection with suppression of the menses, there is frequently an increased excretion of hormones, doubtless as the result of subliminal hormone production. Associated with persistence of the follicle, and likewise with long continued administration of the follicular hormone, one may observe hemorrhages, extending over several weeks, which have no connection with the menses. Concerning the quantity of hormones in the circulating blood, no definite statements can be made, likewise little is known about the qualitative changes occurring in the hormones. The corpus luteum hormone has been found effective in habitual abortion.

Siebek, a collaborator of Schroder, then discussed "The Therapeutic Uses of Sex Hormones." Unsuccessful results are due to false indications and incorrect dosage, and, to some extent, to the fact that one expects folliculin to accomplish what only the corpus luteum hormone can effect. In point of fact, often enormous quantities are indicated—much greater than are practical for the present.

According to Burger of Bonn, the chemical changes occurring in the human organism in old age are due to increasing loss of fluids and the resulting increase in the dry residues of the tissues—which may lead to the formation of precipitates and to nutritional difficulties.

Further communications dealt with diverticulosis of the intestines, the action of extract of the suprarenal cortex and the like. Professor Schottmüller of Hamburg was elected president for the ensuing year.

#### Twin Births in Germany

According to recent statistics, there were 13,248 twins in Germany, about half of them being in Prussia. The Palatinate has three survivors from a set of quintuplets, Rhineland and

Hesse have each one set of living quadruplets. The remaining multiple births are distributed rather evenly over the cities and rural districts. There appears to be no foundation for the assertion that multiple births occur more frequently in any one German tribe or in any particular class of the population.

## PRAGUE

(From Our Regular Correspondent)

June 2, 1934

### Congress of Dermatologists

The Congress of Slavic Dermatologists in Prague, May 19-21, was the third reunion of this organization, the first having been held in Belgrade and the second in Warsaw. The congress was presided over by Prof. F. Samberger of the university of Prague. It was organized by the Federation of Slavic Dermatologists, to which now belong national committees in Bulgaria, Czechoslovakia, Poland and Yugoslavia, the Russians being the only Slavic nation which has abstained from participation. The congress dealt with three topics. The first report presented observations on intradermal reactions presented by Dr. L. Popoff of Sofia. Tuberculosis of the skin was the second point of discussion. The third report, presented by Prof. R. Lesczinski of Lwow, dealt with the relationship of the reticulo-endothelial system to the skin. Besides the main topics, free lectures and some thirty other communications were presented. The organization is growing and is establishing slowly a reputable tradition. The kinship of the languages of the Slavic nations is a strong bond which facilitates enormously the exchange of scientific information among the Slavic physicians, who in spite of using their own language in their meetings make themselves understood.

### Dental Clinics

A national organization for the dental care of school children was organized in Czechoslovakia about a year ago. Systematic work on the protection of the teeth of school children was started in Prague in 1907 but remained limited to this city. Later other cities followed with the erection of dental clinics for school children, but there was no institution for central direction of this work. At present about forty dental clinics are functioning in connection with the work of the Junior Red Cross. It is estimated that about 150,000 school children obtain dental care in these clinics, which of course represents a small proportion of the 2,000,000 school children in the state. The main effort of the organization tends toward the foundation of new school dental clinics. In some places as many as 97 per cent of the school children have left the school with a perfect condition of the teeth. Experiments are also conducted with mobile dental clinics for children in rural territories. The program concerns prophylactic care, which is mainly educational, and the nutrition of the child. The rapid development of the organization in spite of the difficult times was made possible through the help of the Central Insurance Body.

### Birth Control

The Federation for Birth Control was recently founded in Prague. Some years ago this movement had only a few promoters. The propaganda for the legalization of abortion of the last few years visualized the amount of suffering that results from undesired pregnancies and made the public realize that there was a way to prevent it. The federation was organized mainly on the initiative of women's societies and the organizations of social workers. A deputation presented recently to the minister of health a memorandum in which the attention of the public authorities was called to the fact that the prevention of conception has become in Czechoslovakia a lucrative branch of quackery. The assistance of public authorities was solicited for educational propaganda against this

mischievous help was asked for the erection of consultation stations for mothers giving advice in all matters pertaining to matrimony. The first station of this kind was opened recently in Brno with the assistance of the Red Cross. The main difficulty that this type of work encounters is the resistance of the Catholic Church, to which belong the majority of the population. The Czechoslovakian Church declared itself ready to support consultation stations for the promotion of hygiene in matrimonial life provided they are conducted by medical specialists. The official organizations for child welfare stand aloof from the new organization, maintaining that the preservation of children's lives is their main concern.

### Increase in Number of Physicians

The rapid increase of physicians in Czechoslovakia is causing medical organizations to worry. Recently a comparison was brought to light between the number of physicians practicing in Czechoslovakia in 1930 and in 1933. It appears that there was an increase of 20 per cent of physicians within this time. The greatest increase could be observed among the dental surgeons. In 1930 there was one practicing physician to 2,046 inhabitants, in 1933 there was one to only 1,689. If the number of physicians continues to increase at the same rate there will be within about eight years one physician to 1,200 inhabitants, which is considered the limit at which physicians can make a living under the present conditions. The demand for the restriction of medical students is being expressed with a strong emphasis.

### Congress of Socialistic Physicians

An international congress of socialistic physicians was held in Brno, May 21, with representatives from London, Oslo, Budapest, Zurich, Copenhagen and Stockholm. There is a tendency among a number of physicians of Europe to organize themselves with political parties, including those with socialistic tendencies. Especially among the young physicians there can be observed a tendency to engage in political activities. Such a movement is noticeable in Czechoslovakia, and this country was selected for this international congress. The request of the communistic physicians to be admitted into this organization was refused by the congress. This group of physicians in Czechoslovakia has been able to found its own monthly periodical.

### Birthday of Weigner the Anatomist

The sixtieth birthday of Dr. Charles Weigner, professor of topographic anatomy, was celebrated recently. Professor Weigner is one of the dominant personalities of the Czech Medical Faculty of Prague. Under his teacher Prof. J. Janosik he began as a medical student his work on the anatomy of the nervous system, which he pursued for ten consecutive years. In 1901 he began lecturing at the faculty of medicine and was appointed professor in 1906. In 1918 he obtained the chair of topographic anatomy, and in 1928 he succeeded Professor Janosik as the head of the Anatomical Institute of the Charles University in Prague. He has written some 180 scientific papers. The most important part of his work deals with anatomy, which has a direct bearing on practical medicine, especially surgery. With Prof. L. Syllaba he pursued studies on the correlation of physical observations to morbid conditions of the internal organs. His further work was concerned with the topography of the brain and skull, especially with regard to brain surgery. He started early to write a handbook of topographic anatomy, which is in its second edition. He has a profound influence on the growing generation of the medical profession and he is among the most diligent and popular teachers. He has never confined his efforts to the medical faculty. He became the organizer of the movement for scientific direction of physical education. He organized courses for

teachers of physical education and grouped around himself the most important workers from this field. After the World War he played also a role for a time in politics. His work in popular education regarding the knowledge of the human body and of physical education is based on his conviction that modern science must not remain enclosed within the walls of the university but that its chief function is to provide service to the broadest masses of the population.

#### Biologist Dies

The founder of Czech medical biology, Prof. Vladislav Ruzicka, died recently in Prague, at the age of 64 years. His whole career was connected with the Czech medical faculty of Prague. He made fundamental observations on chromatin. According to him, the external conditions in which the ovum develops determine the constitution of the individual, which is the only feature that can be inherited. This constitution is a certain morphochemical structure of living matter which possesses the ability to reproduce this type of structure. World wide recognition was accorded to his theory of the causes of aging. Practically all his work after 1917 was concentrated on this problem. He recognized that in the course of life there proceeds a densification of living matter which can be demonstrated by physicochemical methods. He called the densification of colloids in the living matter hysteresis of the protoplasm, and this term was accepted by the biologists of the world. Although the center of Ruzicka's activity lay in laboratory work, he was at the same time a prominent teacher and organizer. He accomplished the erection of a new institute of medical biology in the medical faculty of Prague, of which he became the first chief. He organized also the Czechoslovak Eugenical Society, of which he was the first president. Owing to his activities, a number of eugenic stations were organized. His international reputation found its expression in the fact that with Pearl and Lohner he became the editor of the *International Archives of General Biology*. He was a member of the International Committee of Eugenics in London and, since 1930, vice president of the International Federation of Eugenic Organizations. In 1930 he served as a dean of the Medical Faculty of the Charles University of Prague. His pupils hold chairs of medical biology on all the Czech medical faculties of Czechoslovakia.

#### Restriction of Foreign Physicians

The question of foreigners trying to obtain permission to practice medicine in Czechoslovakia is becoming acute. After the war, emigration from Russia brought to Czechoslovakia many foreign students, later there was an influx of Jewish students from Poland, Rumania and Hungary. At present, only citizens who hold a medical diploma from a Czechoslovakian university have the right to practice in the country. It was thought that the lack of citizenship would prevent foreign students from establishing themselves for practice after graduation. Nevertheless in the course of their studies most of them became acquainted with local conditions, found access into Czechoslovakian families, and through their support obtained citizenship in many cases. This question has again attracted general interest as the new regime started in Germany. Many young emigrants, especially of Jewish origin, came to Prague asking for admission into the faculties of medicine. A recent meeting of all the chambers of physicians dealt with this problem and elaborated a memorandum addressed to the government. The document recommends that university authorities be strict in interpreting the preliminary qualifications of those who ask for registration. It favors the introduction of a clause in the diploma specifying that the graduate shall not be admitted to practice even if he obtains citizenship in Czechoslovakia.

## Marriages

DAVID KENNETH LEIBY, New Hope, Pa., to Miss Winifred Lawson Rainford of Philadelphia, June 29.

CHARLES EDWARD DOWMAN JR., Atlanta, Ga., to Dr. CORDELIA KOCH of Towson, Md., June 14.

AUBREY H. WILLIAMS, Fort Wayne, Ind., to Dr. A. BERNICE MORRIS of New Haven, June 12.

WILLIAM M. ROBINSON, Richmond, Va., to Miss Bluma Dolinsky of Chicago, May 27.

HERSCHEL STRATTON MURPHY to Miss Helen Moore, both of Roselle N. J., June 30.

## Deaths

Frederick C. Ainsworth, Major General, U. S. Army, retired, Washington, D. C., University of the City of New York Medical Department, 1874, entered the army as an assistant surgeon in 1874, promoted to major surgeon in 1891, colonel in 1892, brigadier general in 1899, major general in 1904 and the adjutant general in 1907, retired in 1912 at his own request after thirty years' service, aged 81, died, June 5, of bronchopneumonia and arteriosclerosis.

Frank Roy Morton, Chicago, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901, past president and secretary of the Chicago Medical Society, fellow of the American College of Surgeons, chief surgeon to the Standard Oil Company of Indiana, on the staff of the Henrotin Hospital, aged 53, died, June 16, in Joliet, Ill., of coronary thrombosis.

Carl John J. Holman, Los Angeles, Rush Medical College, Chicago, 1899, fellow of the American College of Surgeons, at one time member of the Minnesota State Board of Medical Examiners, one of the founders of the Mankato (Minn.) Clinic formerly on the staff of St. Joseph's Hospital, Mankato, an honorary member of the Blue Earth County (Minn.) Medical Society, aged 64, died, May 30.

Martin Van Buren Godbey, Charleston, W. Va., Maryland Medical College, Baltimore, 1905, fellow of the American College of Surgeons, member of the state board of health, 1909-1913, served during the World War, at one time member of the state legislature, formerly physician in charge of the McKendree (W. Va.) Hospital, No. 2, aged 54, died, April 26, of heart disease.

Charles Carroll Geer, First Lieut., U. S. Army, retired, Greenville, S. C., Bellevue Hospital Medical College, New York, 1895, veteran of the Spanish-American War, entered the regular army as an assistant surgeon in 1901 and retired in 1904 for disability in line of duty, aged 63, died, May 18, of cerebral hemorrhage and arteriosclerosis.

James Norman McCoy, Vincennes, Ind., University of Indianapolis Medical Department, 1896, member of the Indiana State Medical Association, member of the American Roentgen Ray Society, served during the World War, formerly secretary of the county board of health, aged 60, died suddenly, April 16, of angina pectoris.

Frederick Walker St. Clair, Indiana, Pa., University of Pittsburgh School of Medicine, 1913, member of the Associated Anesthetists of the United States and Canada, past president and secretary of the Indiana County Medical Society, county coroner, served during the World War, aged 48, died, June 6, of malignant endocarditis.

Francis Joseph Broghammer, Superior, Wis., Marquette University School of Medicine, Milwaukee, 1913, past president and secretary of the Douglas County Medical Society, served during the World War on the staff of St. Mary's Hospital, aged 45, died suddenly, May 29, of heart disease.

Kim Devol Curtis, Phoenix, Ariz., Baltimore Medical College, 1907, member of the Arizona State Medical Association, at one time on the staff of the State Hospital, No. 2, St. Joseph, Mo., aged 49, on the staff of the Arizona State Hospital where he died suddenly, June 1, of cerebral hemorrhage.

Ludwig Schoenthal, New York, Medizinische Fakultät der Universität Frankfurt-am-Main, Frankfurt-on-Main, Germany, 1923, associate in clinical pediatrics, Cornell University Medical College, associate attending pediatrician to the New York Hospital, aged 34, died, June 15, of staphylococcal septicemia.

Lester Hall Hummel, Salem, N J, Baltimore Medical College, 1897, member of the Medical Society of New Jersey, member of the board of education and board of health, on the staff of the Salem County Memorial Hospital, aged 61, died June 7, of myocarditis and cerebral hemorrhage

Theodore Breck, Brecksville, Ohio, Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1894, aged 66, died, June 13 in the Glenville Hospital, Cleveland, of complications following an operation for appendicitis

Walter B Foss • Ashley, Pa, College of Physicians and Surgeons, Baltimore, 1887, for many years bank president and member of the board of health of Ashley aged 74 died, May 6, in the Wilkes-Barre (Pa) General Hospital, following an operation

Paul Hays Fithian, Danville Ill, College of Physicians and Surgeons, Keokuk, Iowa, 1890 Rush Medical College, Chicago, 1891, member of the Illinois State Medical Society, aged 68, died, May 22, in Kankakee, of cerebral hemorrhage

John Otis Garfield Niles • Everett, Mass Harvard University Medical School, Boston, 1914 aged 54, died, June 5, presumably of heart disease, while swimming near his summer home on Plum Island

Emil Albert Ruka • Muscoda, Wis Rush Medical College, Chicago, 1915 served during the World War, aged 43 died, May 29, of internal hemorrhage caused by carrying a patient up the stairs

James Wilson Clements, Subigna, Ga Medical College of Virginia, Richmond, 1864, member of the Medical Association of Georgia, Confederate veteran, aged 94, died, June 5, of acute gastritis

Blanche Alpine Denig, Oakland, Calif Woman's Medical College, Chicago, 1891, member of the Massachusetts Medical Society, aged 72, died, May 21, of coronary occlusion and arteriosclerosis

Finley D Blackwell, Hochheim, Texas, Tulane University of Louisiana Medical Department, New Orleans 1898, aged 59, died, May 28, in a hospital at Cuero, of acute nephritis

John Henry Franklin • Guadalupe, Calif University of California Medical Department, San Francisco 1906, aged 54, died, April 24 in Santa Maria, of cardiorenal vascular disease

Julius Arthur Bullard, Montrose Pa Hahnemann Medical College of Philadelphia, 1872, aged 83, died, May 25, in Miami, Fla, of coronary thrombosis and arteriosclerosis

Henry Peter Hansen • Burns Wyo, Drake University College of Medicine, Des Moines, 1907, aged 48, died, April 28, of hemorrhage and hypertrophic biliary cirrhosis

James Hodgen Burkhead, Middleboro Mass, College of Physicians and Surgeons Baltimore, 1907, aged 53, died, May 13, of cholangitis and embolism

Ellsworth Martin Burke • Havre, Mont, University of Louisville (Ky) School of Medicine 1921, aged 42, died, May 28, of hypertensive heart disease

Jonathan Evans Clark, Ringgold Ga, Chattanooga (Tenn) Medical College, 1900, aged 84, died, May 9, near Boynton, of pernicious anemia

Victor Charles Doherty, Detroit, University of Michigan Medical School, Ann Arbor, 1898, aged 58, died suddenly, June 10, of coronary occlusion

William McGlasson Corey, Erlanger Ky Eclectic Medical Institute, Cincinnati, 1886, aged 68, died, May 29, of angina pectoris and arteriosclerosis

Orlando G Gibson, St Louis Homeopathic Medical College of Missouri, St Louis, 1897, aged 61, died suddenly, May 30, of heart disease

Ulysses Eugene Hartley • St Louis, St Louis University School of Medicine, 1918, aged 42, died, June 6 of poison, self-administered

Willard Fiske, Lancaster Texas, University of Tennessee Medical Department, Nashville, 1884, aged 83, died, May 19, of cerebral hemorrhage

William Spankie, Wolfe Island Ont Canada, Queen's University Faculty of Medicine, Kingston, 1885, aged 74, died, May 27, in Kingston

Henry A Denson, Bennett, N C Central College of Physicians and Surgeons, Indianapolis, 1887, aged 80, died, June 2, of uremia

Lonzo Abner Duck, Webster Groves, Mo St Louis College of Physicians and Surgeons 1903, aged 55 died May 18, of heart disease

## Correspondence

### A METHOD FOR THE PRESERVATION OF CLEANLINESS ON PLASTER-OF-PARIS CASTS

*To the Editor*—Members of the profession who use to any extent plaster-of-paris casts universally find that sooner or later the plaster becomes soiled This is true especially with children, who during their activities ruin the clean appearance of the cast as it was originally applied Parents as well as the patients themselves are constantly asking to have a new cast or the old one cleaned in order to make a more presentable appearance Cleaning is, of course, practically impossible and one is loath to apply new casts

This problem was recently solved for me by a patient I have investigated the literature and have been unable to find the method described, although it is so simple that I would hardly feel fair in calling it original

A cast had been applied to this man's hand, wrist and forearm for the care of a fractured carpal scaphoid bone Shortly after the application he left for a month's vacation in Bermuda On his return he told me that in order to keep his cast presentable he had applied quick-drying white lacquer This left a glossy, smooth coating, which could be easily washed without injury to the cast Once, because of chipping of the paint, he applied a new coat

The simplicity of the procedure makes the method a valuable adjunct for the care of any cast It can be applied any time after the plaster is dry and should prove useful to any one doing fracture surgery

PAUL W GREELEY, M D, Winnetka, Ill

### PNEUMOTHORAX IN PNEUMONIA

*To the Editor*—A number of Eastern hospitals have lately reported experimentation with pneumothorax in pneumonia In 1915 and 1916 I had some correspondence with the late Dr John B Murphy when he was pioneering in the pneumothorax treatment of tuberculosis

I made the suggestion to him at that time that the same treatment be applied in early unilateral lobar pneumonia The following reasons were offered

First Rest to the involved lung

Second Relief of pleural pains, minus opiates Under date of April 15, 1916, Dr Murphy wrote me

I have referred it to my associate Dr Kreuscher who has charge of the pneumothorax department of my clinic I have given instructions that it be done as soon as possible and will be pleased to report to you Thanking you for the suggestion and with best wishes I am

Yours very truly,

J B MURPHY

In view of the fact that Dr Murphy died in August 1916, this work was not carried on as had been planned

THOMAS J WEST, M D, Pasadena, Calif

### STAPHYLOCOCCUS TOXOID IN PUSTULAR DERMATOSES

*To the Editor*—The communication from our Canadian colleague Dolman in THE JOURNAL, May 19, criticizing the report of Kindel and Costello on their observations of the effect of staphylococcus toxoid on pustular dermatoses is evidently based on a misunderstanding He fails to appreciate the background for the study and report of Kindel and Costello

Clinical departments in teaching institutions of medicine in the United States, as elsewhere, are continually being impounded by pharmaceutical manufacturers to try this or that

product recommended in various clinical conditions. The reason for this is self evident.

In Dr. Howard Fox's department of dermatology in the New York University and Bellevue Hospital Medical School it has always been the policy to give drug manufacturers a respectful hearing and, when the representation warranted, to assign interested members of the staff to make short but properly controlled clinical studies to secure first hand knowledge in respect of the claims that are made. Dr. Fox has rightly felt that teachers in medicine should be in the vanguard of those acquainted with newer methods in diagnosis and therapy and active participants in the controversial phase through which these newer things must of necessity pass.

Kindel and Costello's report is based on the use of a toxoid made by a single but reputable manufacturer of biologicals. Their deductions are sound. What Dr. Dolman fails to appreciate is that Kindel and Costello are directing their charge of overenthusiasm not at our Canadian colleague but at the inarticulate many who have endorsed to this manufacturer the very product Kindel and Costello used.

HERMAN SHARLIT, M.D., New York

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### TANNING OF SKIN

*To the Editor*—Please tell me what truth there is in such remarks as "Vinegar dabbed on the skin before going out for a sunbath will hasten a quick tan and prevent peeling" or "Olive oil will do the same thing." Are there any substances which if applied before the patients sun themselves will hasten a tan or prevent peeling? Please omit name and address.

M.D. California

**ANSWER**—Vinegar evaporates in the sunlight and has no effect on tanning or peeling. Nonvolatile oil on the skin interferes to some extent with the absorption of light and therefore protects against sunburn and the subsequent peeling. Nothing will hasten tanning; it depends on the ability of the pigment-producing cells in the skin to react evenly to the stimulus of light. Most skins of dark complexion have this ability, but some blondes lack it and burn without subsequent tanning or freckle as a result of exposure to light. Such skins cannot be changed; they must be protected from strong sunlight in such reactions are to be avoided.

Tanning without the discomfort of sunburn or the inconvenience of peeling can be acquired only by careful dosing of sunlight, short exposures at first, gradually lengthened.

### POSSIBLE SENSITIZATION TO NAIL WHITE

*To the Editor*—A patient tells me that every time she uses Cutex nail white (a substance that is spread under the nails) she has a severe diarrhea lasting several days. Is the diarrhea caused by the nail white? Please omit name.

M.D. New York

**ANSWER**—No analysis of this product has been made by the laboratory of the American Medical Association and the manufacturer has not responded to a request for information regarding its constituents. The "nail white" is a suspension of an insoluble white powder in a highly perfumed volatile base. On application to the skin, the base evaporates promptly and leaves the powder adhering to the skin.

Assuming that the cosmetic preparation is really responsible for the attacks of diarrhea, two possibilities suggest themselves: that one or more of the constituents of the preparation are absorbed and produce a toxic effect or that the patient is hypersensitive to one or more of the constituents. A third possibility is that the patient is a malingerer who takes some cathartic at the time she uses the "nail white" in the attempt to make a case against the manufacturers.

The first possibility is a far fetched one. If any of the ingredients of this preparation were so toxic, how could any one be found willing to make it?

The second is a real possibility. Sensitization to a degree sufficient to produce a prompt diarrhea is not hard to imagine. As the constituents of the preparation are not known, it is impossible to determine by skin tests or inhalation tests to just what substance the patient is sensitized. Tests can be made with the whole preparation but, in view of the third possibility, should be made in the hospital with the patient under the strict surveillance of a nurse trained in this sort of work. Hysterical patients, who constitute the majority of malingerers, are sly and can deceive most physicians and nurses.

The treatment of the case is easy. Let the patient be satisfied with soap and water cleansing. The water used in washing dishes and clothes is said to be particularly efficacious.

### GASTRIC LAVAGE

*To the Editor*—Please recommend adequate equipment for stomach washing at home in cases in which poison has been swallowed stating definitely the sizes of tubes to be used at different ages. What position is best for a small child undergoing this treatment? Please omit name.

M.D. New Jersey

**ANSWER**—A stomach tube, if it is available, or a soft rubber catheter may be used to wash the infant's or child's stomach. The catheter or tube is connected to one-fourth inch plain rubber tubing with a glass connecting tube. A funnel is inserted into the upper end of the tube. An additional opening may be cut into the catheter about half an inch above the original eye, or a tube may be used in which the lower end is entirely open. The catheter or stomach tube used for the washing should be the largest size that can be readily passed through the esophagus into the stomach. It has been suggested that the catheter selected should be about the size of the child's index finger. A French size 18 catheter or, in older children, one of size 20 to 26 on the French scale may be employed. The soft rubber stomach tubes 5 feet long may be obtained in the instrument shops, plain, with a funnel or with bulb and funnel attached, with the lower end open and an additional eye. These sizes vary from 22 to 32, French scale. It is obvious that the size of the catheter to be used depends on the weight and development of the infant or child; consequently the size of the tube required will vary in individual cases. When the lavage is to be performed, the child should be securely wrapped in a sheet so as to fasten the arms to the sides of the body. The child should be firmly held in the attendant's lap or may be placed on a table, lying on the side. In this position, with the help of one or two assistants, the patient may be held securely and the treatment completed.

### HYPERTENSION AT BIRTH—FETAL KIDNEY—CONGENITAL IMPERFORATE URETHRA—AMNIOTIC FLUID

*To the Editor*—A case of congenital polycystic kidneys in an infant aged 6 months with hypertension and the finding post mortem of marked hypertrophy and dilatation of the left side of the heart presented for discussion at a recent clinical pathologic conference has stimulated several questions to which I cannot seem to find satisfactory answers. 1. Has hypertension been found present at birth? 2. Do the fetal kidneys excrete urine during intra uterine life? 3. Are there cases of congenital imperforate urethra on record? If so, what are the pathologic changes in the kidney and the bladder? 4. What is the source of the amniotic fluid?

WILLIS P. BAKER, M.D. Santa Ana, Calif.

**ANSWER**—1. There is no available material to substantiate an opinion regarding hypertension at birth. It is present possibly in cases of congenital polycystic kidneys.

2. Almost all investigators agree that the fetal kidneys are capable of excreting urine, especially in the later months of pregnancy. Undoubtedly the waste matter of metabolism of the fetus is carried away by the fetal circulation to the placenta and then is absorbed into the maternal circulation and excreted through the maternal kidneys. Consequently there is no need for renal function in the fetus. The fact that a new born child will pass urine immediately after birth and the presence of casts in the urine at birth would denote renal activity. The presence of urine-like fluid in the cysts of polycystic kidneys at birth and the presence of hydronephrosis in cases of imperforate urethra also suggest renal activity of the fetus.

3. There are cases of congenital imperforate urethra on record. This condition may be associated with various conditions. There may be distention of the bladder and ureters and hydronephrosis. Urine may be discharged through the urachus or, in cases in which the urachus is not wholly patent, fluid may collect, forming single or multiple cysts of the urachus which at times contain large quantities of urine. If the normal exit of the urine is obstructed the remnant of the urachal tube

may carry on the function of a urinary fistula. Occasionally, bladder diverticula have been observed in these cases. Ectrophy of the bladder may be an associated malformation. If, in the male, the imperforation is at the distal end the entire urethra may be dilated into a sac. Owing to the length and the relation to the internal generative organs, malformations are more frequently seen in the male urethra than in the female urethra.

4. Amniotic fluid is normally derived from the fluids of the mother that have been modified by the secretory action of the epithelial lining of the amnion. The fetal kidneys probably take little or no part in its production, under normal circumstances. Hydramnios is occasionally seen in cases of fetal abnormality, such as hemicephalus or spina bifida. In these conditions the excess fluid is thought to be a result of excessive urinary secretion due to stimulation of unprotected nerve centers. More frequently, hydramnios is associated with obstruction to circulation within the cord or the fetus. Histologic changes interpreted as manifestations of secretory activity have been observed in the amniotic epithelium. A great part of the amniotic fluid may represent a transudation through the surface of the fetus and the vessels. There is evidence to support the belief that a considerable amount of amniotic fluid is swallowed by the fetus and absorbed through the digestive tract.

#### NASAL AND PHARYNGEAL SECRETION IN TUBERCULOSIS

*To the Editor*—Will you kindly tell me why a patient with advanced tuberculosis but practically without active symptoms should have a deficiency of lacrimal and mucous membrane (nose and mouth) secretion. The patient is thin but takes an adequate amount of fluid and a general diet though not adequate for gain in weight. Few drugs are taken including acetylsalicylic acid an occasional cough sedative and dilute hydrochloric acid. At present small doses of insulin are being tried in an effort to improve the weight. The dryness of the mucous surfaces is so marked as to cause definite discomfort and this has extended over a long period of time. Will you suggest some measure that will improve the condition? Please omit name and address. M D Virginia

**ANSWER**—As a rule in tuberculosis there is no involvement of the lacrimal apparatus or of the secretion of the lacrimal gland of the nasal or the oral mucosa. It is possible, however, that the dryness of the mucous membrane is due to a marked anemia or to a dehydration of the individual from some cause other than tuberculosis. Careful blood examination is therefore advisable. Sometimes the use of slightly acidulated water, that is to say, water to which a few drops of lemon juice have been added, will often stimulate the flow of saliva and so relieve the dryness of the mouth. In the nose, the use of a few drops of a bland oil such as white liquid petrolatum is efficacious. At times, from three to five drops of saturated potassium iodide solution by mouth three times a day will increase the nasal and pharyngeal secretion.

#### TREATMENT OF GINGIVITIS

*To the Editor*—Can you suggest treatment for a case of refractory gingivitis in a boy of 3½? About a year ago swelling and ulceration of the gums with fever developed suddenly. A microscopic examination for Vincent's angina was negative. Another examination about two months ago was negative. The mother has used an assortment of local applications including mercurochrome boric acid hexylresorcinol S T 37 hydrogen dioxide and methylene blue prescribed by the attending physician and two dentists. The child was born by cesarean section and was bottle fed. His development has been normal and his diet has been well supervised. He is apparently quite normal in every way except that cod liver oil in any form and viosterol have always nauseated him. At present the lesions have caused recession of certain portions of the gum nearly to the roots of the teeth. At times there is almost complete healing and then the process flares up with no relation to the current medication. The tongue always has a light white coating. Citrus fruits and tomato juices now irritate the gums. About two years ago the father had all his teeth extracted for pyorrhea. He insists now as then in using his own and the baby's eating utensils interchangeably. Is it possible that the child has pyorrhea? Please omit name. M D Nevada

**ANSWER**—In this case, as in almost every case of refractory disease, a personal examination of the patient is important. Without that opportunity the diagnosis is merely speculative. It is assumed that the condition is not due to Vincent's infection or a dietary deficiency since these have apparently been considered. One should make sure that the oral hygiene has been not only stressed but also properly executed. Too often the simplest requirements are overlooked. The mouth should be freely irrigated and kept as clean as conditions will permit.

Next a thorough examination of the blood should be made. Blood diseases are responsible for many baffling oral lesions. The disease known as agranulocytic angina closely resembles Vincent's infection. The blood picture shows a marked reduction in leukocytes and an extremely low percentage of granulo-

cytes. The principal clinical symptoms are ulcerations of the mucous membranes, most frequently in the mouth and pharynx, fever and occasionally jaundice.

If it is certain that the local treatment has been carried out in a satisfactory manner and that there is no blood disease, an allergy expert should be consulted. The interchanging of eating utensils will not transmit pyorrhea, however, the practice is obnoxious for other reasons. It is unlikely that the child has pyorrhea.

#### PERNICIOUS ANEMIA WITH NERVE INVOLVEMENT

*To the Editor*—I am writing to ask whether there is any additional treatment you would suggest for pernicious anemia. The patient is a woman aged 49. She weighs 205 pounds (93 kg) and her height is 5 feet 11 inches (180 cm). The onset of the disease was in December 1931. She received inadequate treatment and several relapses occurred. I first saw the patient in September 1933. The blood count showed red blood cells 3,720,000 hemoglobin 62 per cent (Sahli) white blood cells 7,500 a few poikilocytes and cells of various sizes. At this time she was taking fifteen capsules of Extralin daily. She complained of numbness soreness in the extremities difficulty in walking and various areas of anesthesia in the lower extremities. I began giving injections of 3 cc of Lederle solution liver extract parenteral refined and concentrated into the gluteal muscle every three days. She also took four Lederle iron ammonium citrate capsules daily. The red blood cells rose to 4,340,000 the hemoglobin was 80 per cent in November. November 20 I began giving her 3 cc of Lederle solution liver extract parenteral refined and concentrated intramuscularly daily for five days then every two days for seven injections. The red blood cells rose to 4,920,000 the hemoglobin was 90 per cent. Since then I have been giving her intramuscular injections twice weekly of 3 cc of either Lederle solution liver extract parenteral refined and concentrated or solution liver extract Lilly using a 2 inch needle. The red blood cells have risen to 5,160,000 and the hemoglobin to 90 per cent. There are variations however and at present the red blood cells are 4,710,000 and the hemoglobin is 90 per cent. For three weeks I gave her concentrated liver extract Armour one tablespoonful three times a day with the intramuscular treatment twice weekly but no improvement resulted. The patient feels better and stronger but does not seem to respond to oral or parenteral treatment. Apparently oral administration of liver extract is ineffective for she had taken Extralin for many months along with the parenteral treatment. Dilute hydrochloric acid was given only for symptoms as indicated. Kindly outline additional treatment. Please omit name and address. M D Pennsylvania

**ANSWER**—From the description of the case presented one cannot positively rule out the diagnosis of multiple sclerosis, particularly in view of the loss of sensation in various areas of the lower extremities. Multiple sclerosis is not infrequently accompanied by a moderate degree of anemia, generally of the hypochromic type. In multiple sclerosis the anemia should respond to the treatment outlined, whereas the involvement of the cord would probably be affected very little.

Also in an entirely resistant case one must keep in mind the possibility of the presence of a cord tumor or syringomyelia which may produce changes not unlike those described and may either be a complication of pernicious anemia or be associated with an anemia from loss of blood as an incidental finding.

Assuming that the case is one of pernicious anemia, it is possible that improvement may be hindered by complicating diseases. The common complications are disturbances of the gallbladder, genito-urinary system (such as cystitis generally associated with pyelitis), severe constipation and excessive weight. The latter condition may aggravate disturbances of locomotion. In the presence of complications the intensive treatment outlined might well improve the blood but be insufficient to cause definite improvement in those disturbances associated with spinal cord damage.

Damage to the cord that has persisted for a considerable period of time with inadequate treatment of the anemia is often difficult to control and only a minimal amount of improvement may be expected.

Treatment should consist of sufficient amounts of liver substance to maintain the red blood cell count at a level well above 5,000,000 and this can best be done by means of the intramuscular injections of the concentrated solution of liver extract. It is well to continue the use of the iron unless the hemoglobin level reaches a high point.

In addition, the locomotor disturbances may be improved by exercises, under the direction of a physical therapist trained in this field to retrain the muscle function and to improve the patient's balance.

Complications should be treated and the weight should be reduced.

Under such therapy, improvement may occur only during an interval of several weeks or months and the amount of improvement that may be expected is inversely proportional to the amount and duration of the cord damage as influenced by inadequate treatment.



## BRONCHIECTASIS

To the Editor—Please advise what to do with a patient presenting the following history. A man aged 50 had syphilis for about twenty six years and has taken treatment several times during this period. He uses tobacco but no alcohol. About fifteen years ago he contracted influenza and developed a bronchiectasis that is gradually becoming worse. On account of the constant cough he is compelled most of the time to sleep sitting in a chair. Up to three weeks ago he felt very well but the bronchiectasis commenced to give more trouble and he has developed a headache that is aggravated by coughing. Would you advise treating this man for syphilis? Also outline just what treatment you think necessary. I am able to control the cough with codeine but it causes nausea and makes him feel very uncomfortable. The Wassermann reaction is two plus. He has been this way for years and no amount of treatment has made it change. There are no other symptoms of syphilis except the slight headache and that is not constant. Coughing always produces this headache. Please advise what you think is the best treatment for this man. Please do not mention name.

M D Oklahoma

ANSWER—In the treatment of bronchiectasis, promotion of peroral drainage is of paramount importance and may be obtained either by bronchoscopic aspiration practiced weekly or more often, or by postural drainage carried out two or three times daily, the patient choosing periods when he has the greatest inclination for coughing. The use of opiates is as a rule to be interdicted, because of their inhibitory effect on coughing, the most effective natural means of eliminating retained infected secretions, and because they tend to thicken the bronchial secretions by inhibiting the cellular activity. It has been suggested by the Jacksons that the internal administration of alkalis may relieve coughing more effectively than sedation.

Additional information is essential before determining whether or not this patient should receive antisyphilitic treatment. A two plus Wassermann reaction if repeatedly obtained indicates the presence in the serum of small quantities of reagin and presumably points to the persistence of the syphilitic infection. It has been shown that intermittent treatment, such as this patient apparently received, is more likely to be associated with Wassermann fastness than if the treatment had been continuous, and, if carefully sought for, definite lesions particularly in the cardiovascular or central nervous symptoms, bones or viscera may be revealed. Careful physical, roentgen and fluoroscopic examinations of the heart and aorta, spinal puncture, neurologic and ophthalmoscopic examination, study of the visual fields and close inspection of and if necessary roentgenograms of the bones for periosteal thickening are indicated. Subsequent treatment is dependent on the results of such studies. J Earle Moore's *Modern Treatment of Syphilis*, recently published by Charles C Thomas, Springfield, Ill., presents in an excellent manner methods for treating the various forms of syphilis and may be highly recommended for its practical appeal.

## X-RAYS FOR PRURITUS ANI

To the Editor—In *Queries and Minor Notes* in *THE JOURNAL*, February 24, page 638, in reply to M D Ohio suffering from pruritus ani, you say that x-rays will stop anal itching in about a month and with absolute safety. Leaving out the safety question which is debatable, any proctologist of experience will tell you that when x-rays do help (they are not successful in all cases) they relieve only for a period of several months to return later with a vengeance at which time owing to previous treatment with x-rays it becomes refractive to treatment and well nigh incurable.

MICHAEL CANICK M D Brooklyn

ANSWER—When x-rays are employed with proper judgment for the relief of pruritus of the anal region there should be no danger of untoward effects of any kind. A series of four weekly treatments of 90 roentgens each most certainly will not cause radiodermatitis or lead to sequelae such as atrophy, telangiectasia or keratoses. This amount will produce relief in many instances. If not, the treatment should not be continued because, when four such treatments fail to effect the desired result, additional roentgen treatment is also likely to fail. When relief is obtained, such relief may be permanent or temporary. When the remission lasts many months a recurrence is often relieved by a second series of three or four roentgen exposures of approximately 90 roentgens each. Immediate recurrence or repeated recurrences, or recalcitrant cases are unsuitable for roentgen therapy. In such instances persistent roentgen treatment may lead to injury of the local tissue. There is some clinical evidence to support the belief that injudicious roentgen therapy may cause the disorder to become more refractory, even though the amount administered was too small to injure the tissues detectably. On the other hand there is no definite proof that such cases might not have been equally resistant without roentgen treatment. Irritating topical remedies should be avoided during the administration of even the small doses of x-rays mentioned. The mechanism

by which radiation causes relief in favorable cases of so called essential pruritus ani is not well understood. The action may be physical or psychic or both.

Pruritus ani has, apparently, a variety of possible causes. The itching may be due to a recognizable dermatosis. In the so-called essential cases the pruritus may be evoked possibly by some rectal or intestinal abnormality, diabetes or a psychic disturbance. Certainly one should investigate for the cause and when found an attempt should be made to eradicate it. Roentgen treatment is simply one of a number of therapeutic measures that may be employed in an attempt to obtain relief from itching that at times is distressing and not infrequently for which no definite cause can be discovered.

## CHRONIC CARBUNCLES

To the Editor—A man aged 34 came to me three months ago complaining of several red swollen and painful areas on each thigh. These proved to be carbuncles and were incised and drained. New carbuncles however would appear as the older ones healed. This condition prompted a complete examination. The past history revealed nothing of note, the patient having always been healthy. He is a clerk in a haberdashery. The physical examination is entirely negative, the tonsils are out and a recent roentgen examination shows that the teeth are in good condition. There is a slight sensitiveness to palpation in the right lower quadrant of the abdomen. Repeated complete urinalyses are negative. Kahn and Wassermann reactions on the blood are negative. February 5 a blood count showed hemoglobin 92 per cent, red blood cells 4,970,000, white blood cells 7,800, polymorphonuclears 75 per cent, lymphocytes 24 per cent and mononuclears 1 per cent. A smear from one of the carbuncles showed staphylococci. After several weeks of treatment by incising and draining, ultraviolet rays, local application of bacteriophage, oral administration of tonics, a diet rich in vitamins and nourishing foods and plenty of fresh air, the patient improved and the carbuncles disappeared. Stannoxyl (a combination of metallic tin and its oxide) was prescribed also but its value is questioned. After a quiescent period of six weeks the carbuncles have reappeared and are now on both the lower and upper extremities. In general I am using the same line of treatment but the condition of the patient does not improve. Your advice and suggestions regarding the treatment of this case would be greatly appreciated. Please omit name.

M D Michigan

ANSWER—Carbuncles are usually large and single. Small ones sometimes occur in series as described in this case, but unless deep infiltration and multiple openings exuding pus develop this classification should not be employed. Syphilis may be suspected, in spite of the negative reactions. Series of gummas are sometimes seen, a number of them developing into large abscesses, but they do not cause much pain. A therapeutic test with mercury and iodides for two weeks should show decided improvement if the condition is of syphilitic origin.

Assuming that the staphylococci found are the guilty factors, the problem of stimulating resistance to them is sometimes a difficult one. Local foci of infection should be eliminated if possible. In the case in question nothing is said of the nose and nasal sinuses. The possibility of a chronic appendicitis is suggested. A careful search should be made for such foci of infection.

In addition to examinations of the urine for sugar, the blood sugar and sugar tolerance should be investigated and appropriate treatment given if they are not normal. Tauber (*Arch Dermat & Syph* 27:198, 1933) reported good results from increase of sugar in the diet and intravenous injections of dextrose in a series of cases in which the blood sugar was normal or subnormal.

Autogenous vaccines should be used. There is serious doubt of the specific action of vaccines in these cases. They may act merely as a mild form of foreign protein therapy. The endermic injection of toxins made by the Besredka method may be tried. Other forms of foreign protein therapy, such as sterile milk, iodized casein, even intravenous injection of typhoid vaccine sufficient to cause a febrile reaction, may be justified.

An ounce of fresh yeast in a little seltzer water a half hour before each meal is a time-honored remedy.

Finally, a long rest and outdoor life with change of scene are recommended.

## INDUSTRIAL HAZARD FROM ALUMINUM PAINT

To the Editor—May I have any information that is available relative to the danger to health that may result from working with so-called aluminum paint? What are the symptoms and measures for combating it?

M D Nebraska

ANSWER—Metallic aluminum dust is comparatively harmless. Its deposition along the respiratory tract may induce minor irritation, possibly lymphatic blocking within the lungs, and in time an increased amount of noncharacteristic fibrosis. A few instances have arisen in which claims have been made that lead as an impurity in this type of metallic paints has

caused lead poisoning. It is not known that any such cases have been proved decisively. The vehicle in which the metallic aluminum is suspended is likely to be a mixture of various acetates and higher alcohols. Such substances lead to low grade irritation to the eyes, respiratory tract, and the skin. Various painters are known to dilute aluminum paint with such substances as turpentine, leptyne, and various petroleum derivatives. This possibly is technically undesirable in that discoloration of the aluminum may arise. Whenever such dubious and uncontrollable practices are carried out, naturally some additional hazards may arise.

#### BLOOD FLOW THROUGH KIDNEY

*To the Editor*—I would appreciate any information you can give me on the methods for determining the volume of blood flowing through the kidney per minute. I am particularly anxious to know whether there is a method that has as its base the systemic blood pressure. Please omit name.

M D Alabama

*ANSWER*—We presume that the inquirer has in mind the determination of the rate of blood flow through the kidney of man. There is no method that will permit such a study. The study of rate of blood flow passing through the kidneys of experimental animals, while the rate of urine formation is being studied simultaneously, is an old and well established one. It consists in enclosing the kidney in a suitably constructed plethysmograph (called an oncometer), which in turn is connected by rubber tubing to a delicate recording manometer or piston recorder. Even under laboratory conditions in which the oncometer is used a study of the blood pressure gives no idea of the rate of blood flow through the kidney, since changes in the blood flow through the kidney can occur without a change in the general arterial blood pressure; conversely the blood flow through the kidney may vary little, if at all with an increase or decrease in the blood pressure. A schematic account of the use of the oncometer will be given on request.

#### HAZARDS TO HEALTH IN WELDING INDUSTRY

*To the Editor*—A man seen at 4 30 p m complained of coughing, dyspnea and nausea. The temperature was 100 F, the pulse 96 and the respiration rate 26. Moist rales could be heard scattered through both lungs. The patient had a persistent cough and was expectorating a mucopurulent material with a greenish color. He stated that he began welding galvanized iron in an unventilated room at about 12 o'clock. He was using an acetylene torch. About 3 o'clock he was having very marked difficulty in breathing, felt nauseated and was coughing almost constantly. A fellow workman opened a window and fanned him after which he was removed to his home and a physician was called. The following day the patient's temperature was 99.6 F in the morning but dropped to normal and remained so thereafter. The respiration rate and pulse were normal. Examination of the blood showed a total white count of 14,500 with 85 per cent polymorphonuclear leukocytes and 15 per cent lymphocytes. Urinalysis was negative except for plus 1 albumin and the presence of acetone. The patient was still complaining of some dyspnea and an occasional moist rale could be heard through both lungs. On the second day the temperature, pulse and respiration rate were normal and the patient felt well. This case would have been diagnosed influenza without question had the patient not been exposed to the fumes described. Could this condition have resulted from the inhalation of such fumes? Please omit name.

M D Virginia

*ANSWER*—This entire condition might have resulted from the inhalation of welding vapors, but an associated and antecedent infection of the respiratory tract undoubtedly contributed to the condition. The extent to which occupational factors may have influence is now indicated. In burning the galvanized coating off the iron, zinc fumes are produced. Inhaled zinc fumes readily bring about an acute condition representing one form of "metal fume fever." In doing this work with an acetylene torch it is possible that hydrogen arsenide (arsine) may have been present as an impurity in the acetylene. This is not very probable. If present, this toxic agent would have caused general malaise, difficulty in breathing, vertigo, gastrointestinal disturbances and nephritis, among other ailments. Also, the remote possibility exists that hydrogen phosphide (phosphine) might exist in the acetylene as an impurity. This substance in a mild case would occasion about the same manifestations as those attributed to hydrogen arsenide.

Respiratory disorders among welders are quite common. The fumes to which they are exposed, while not invariably leading to characteristic occupational diseases, so irritate the respiratory tract as to promote or accelerate ordinary bacterial invasions. It is quite within reason to attribute the case described in the query chiefly to bacterial action but to recognize that it probably was set in motion and aggravated by the well known injurious fumes arising from welding work and particularly from welding work on galvanized surfaces.

#### CEREBROSPINAL SYPHILIS

*To the Editor*—I have a patient a man aged 45 who shows a four plus Wassermann reaction although treated with full courses of arsenic, mercury and bismuth compounds and the iodides. The lesion was localized as a meningeal syphilis, the chief sign being a unilateral ptosis of the eyelid. Under treatment the ptosis disappeared and the patient's general health is much improved. The initial treatment was given four years ago. Would you advise fever therapy, malaria or vaccine? The general constitutional condition is good.

H H Wright M D Keene, Ont

*ANSWER*—It would seem that the major criterion of the patient's condition as regards the nervous system, for which fever treatment has the most favorable results, would be indicated by the condition of the cerebrospinal fluid. It would be wise, therefore, to do a lumbar puncture. If the spinal fluid is normal and the patient is free from symptoms, there would seem to be relatively little reason for fever therapy. If, on the other hand, the cerebrospinal fluid is positive, in spite of the amount of treatment that he has had it would then be wise to give either malaria or some treatment with trypanamide, if malaria is not chosen. In the absence of central nervous system activity, it is questionable how much either trypanamide or fever will do in changing the blood Wassermann reaction.

#### INTERPRETATION OF KAHN TEST

*To the Editor*—A man aged 37 contracted syphilis in 1927. During the next three years he received infrequent treatment. In 1930 his blood Wassermann reaction was 4+ positive. For the next two years he received regular treatment consisting of courses of arsphenamine followed by compounds of bismuth and mercury with rest periods. In February 1933 the blood and spinal fluid Wassermann reactions were negative. He has received no treatment since but blood Wassermann tests have been made every three months. The last report was Wassermann negative, Kahn 3 plus positive. The test was repeated with the same result. Does this indicate a relapse and should the patient receive further treatment? His physical examination is otherwise negative. Please omit name.

M D Ohio

*ANSWER*—The positive Kahn reaction does not necessarily indicate a relapse. It may be that if a Kahn test had been made in February 1933 the result would have been positive also at that time. The Kahn test, being more sensitive than many Wassermann technics, is often positive in treated cases that give negative Wassermann reactions. But these negative reactions, after months or years, often become positive again. Further treatment appears to be indicated although this step must necessarily be a matter for decision by the physician who knows the physical status of the patient.

#### EFFECT OF CONSTITUTION, DIET AND INTERNAL SECRETIONS ON DEVELOPMENT OF TEETH

*To the Editor*—Can you tell me where I can obtain information about preventive work in tooth development with regard to the position of the teeth? There is a great deal written about tooth straightening in orthodontic literature but little about etiology or correction. I feel that a pediatrician would be able to prevent a great deal of the orthodontic work that is now necessary if he had the knowledge. Dr. Corman O. Edwards of Oakland, Calif., furnishes a device that may be attached to the bottle for treatment of micrognathia and results with this were described in the *American Journal of Diseases of Children*. This seems to me to be a step in the right direction, and I should like more information on the same subject.

G L Johnson M D Englewood N J

*ANSWER*—No doubt ultimately the pediatrician will play a very important part in the prevention of irregularities of the teeth. This, however, will not be possible until the internist establishes quite definitely what part diet, heredity and endocrine secretions play in the general metabolism and particularly in the development of the skeletal system. Dietary deficiency diseases are certainly important factors in the causation of irregularities of the teeth. But even when there is present a well balanced diet as it is understood today, irregularities develop. This suggests the conclusion either that diet does not control everything in the development or that diet is not yet fully understood.

Dr. Hugo R. Rony of the Northwestern University Medical School recently read a paper before the Chicago Dental Society on endocrine disturbances and their effects on the development of the system. This paper which will soon be published in the *American Dental Journal*, is a report of extremely unusual experimental work that is being done now. With reference to nutrition and endocrine secretions, he states: "In the first place the growing organism must be supplied with all the necessary food factors both in amount and quality, enough proteins, fats, carbohydrates and minerals must be available not only for actual consumption but also for deposition into the growing tissues. Furthermore certain vitamins must be taken in sufficient amounts. Also the tissues must be in a healthy condition, congenital or acquired disturbances of the gastro-intestinal tract

of the blood circulation, etc., infectious diseases with toxemia, etc., will injure the growing tissues and inhibit their growth. These conditions being adequate, growth is controlled largely by the endocrine system."

The endocrine glands that exert the greatest influence on growth and development are the pituitary, thyroid, sex and parathyroid glands. In summarizing, Dr Rony states "It appears that the anterior lobe of the hypophysis controls directly by the growth hormone or indirectly by the thyrotropic and sex hormones practically all growth phenomena in the developmental period of life."

Thus, from the information available to date, it appears that hereditary influence and endocrine secretions play by far the more important role in the development of the normal individual. Diet and local disturbances as causes of irregularities have been overestimated in their importance. But until further work is done and the relative importance of each factor is quite well established, it will not be possible basically to change the treatment from the present orthodontic one.

#### CUPS TO REPLACE PADS FOR MENSTRUATION

To the Editor—The enclosed material about the Sanway Cup was turned over to me by one of our nurses for comment and I must say that I am unfavorably impressed by it. I should appreciate your reactions to this sort of thing. It seemed to me extremely undesirable to use such a contraption as well as entirely unnecessary. May I have your opinion relative to the use of Hy Kup described in the enclosed circular?

ELIZABETH C UNDERHILL M.D. South Hadley, Mass

ANSWER—1 Some patients have said after about six months' use that these cups are less troublesome and more satisfactory than vulvar pads. They cannot be used in virgins because an intact hymen will not permit the admission of such cups. They most likely will not remain in place in women with pronounced cystoceles and rectoceles, and they will not be suitable for women who have a profuse flow of blood with clots unless the cup is emptied frequently. The cup may be used to good advantage by such women as professional dancers or swimmers, provided, of course the hymen has been broken.

2 Instruments that act as a vaginal plug must inevitably retain at least part of the menstrual blood. They are likely to be insanitary and would predispose to infection.

#### POSTOPERATIVE IRRADIATION OF CARCINOMA OF BREAST

To the Editor—Please furnish me with the technic for postoperative irradiation of carcinoma of the breast. In this particular case there are a few nodes in the axilla and several small recurrences in the old scar. Please omit name.

M.D. South Dakota

ANSWER—The technic for postoperative irradiation of carcinoma of the breast varies markedly in the hands of different radiologists. It also varies depending on whether radiation is administered prophylactically or in the presence of disease. In the particular case mentioned, the technic depends on the extent to which the disease is disseminated. A localized recurrent nodule or group of nodules is treated most effectively by the insertion of removable platinum radium needles. When the recurrences are more extensive and more widespread, external irradiation with x-rays or radium is most efficacious. The external irradiation is frequently combined with interstitial irradiation with considerable advantage. The technic of irradiation is dependent on so many different factors that it is quite impossible to generalize and it is necessary to determine a plan of irradiation for each individual case.

#### CATARACT OPERATION IN EXOPHTHALMIC EYE

To the Editor—Does an exophthalmic eye possess any additional surgical problems when an operation for senile cataract is necessary? Please omit name.

M.D. Michigan

ANSWER—If a high degree of exophthalmos is present, it is somewhat more difficult than usual to sterilize the conjunctival sac adequately before operation. There is also the added danger of pressure by the lids on the eyeball. This should be combated by an external canthotomy immediately before the Graefe incision. Sutures are used either corneal (Liegard) or conjunctival, in order to prevent subsequent gaping of the corneal wound. Again, owing to the protrusion of the eyeball, there may be a light lagophthalmos. This must be determined before operation and if possible the lids must be closed by sutures which are put into position before the operation on the eyeball is started. It stands to reason that, if the exophthalmos is due to hyperthyroidism the operation should be performed during a remission of the toxic condition. In other respects the lens may be extracted exactly as in a normal eye.

## Council on Medical Education and Hospitals

### COMING EXAMINATIONS

AMERICAN BOARD OF OPHTHALMOLOGY Chicago Sept 8 Application must be filed sixty days prior to date of examination Sec, Dr William H Wilder 122 S Michigan Blvd Chicago

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY Written (Group B candidates) The examination will be held in various cities of the United States and Canada Nov 3 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh

CALIFORNIA Los Angeles July 23 26 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

CONNECTICUT Endorsement Hartford July 24 Sec Dr Thomas P Murdock 147 W Main St Meriden

NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

NEVADA Reciprocity Carson City Aug 6 Sec Dr Edward E Hamer Carson City

SOUTH DAKOTA Rapid City July 17 18 Dir Division of Medical Licensure Dr Park B Jenkins Pierre

WASHINGTON Basic Science Seattle July 16 17 Medical Seattle July 19 21 Dir Department of Licenses Mr Harry C Huse Olympia

### Arizona April Examination

Dr J H Patterson, secretary, Arizona State Board of Medical Examiners, reports the written and oral examination held in Phoenix, April 3-4, 1934. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. One candidate was examined and passed. Three physicians were licensed by reciprocity and one physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad (1933)
Rush Medical College		
School	LICENSED BY RECIPROCITY	Year Grad with Reciprocity (1917) California (1929)* California (1903) N Carolina
Chicago College of Medicine and Surgery		(1917) California
University of Illinois College of Medicine		(1929)* California
University of North Carolina School of Medicine		(1903) N Carolina
School	LICENSED BY ENDORSEMENT	Year Grad of (1928) N B M Ex
Harvard University Medical School		(1928) N B M Ex
* Granted temporary permit. License will be issued when basic science examination is completed.		

### Wisconsin Reciprocity Report

Dr Robert E Flynn, secretary, Wisconsin State Board of Medical Examiners, reports 5 physicians licensed by reciprocity at the meeting held in Milwaukee, April 5, 1934. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad with Reciprocity (1923) Illinois (1931) Mississippi (1900) Illinois (1931) Penna (1899) Penna
General Medical College Chicago		(1923) Illinois
University of Illinois College of Medicine		(1931) Mississippi
Hahnemann Med Coll and Hospital of Philadelphia		(1900) Illinois
University of Pennsylvania School of Medicine		(1931) Penna
Woman's Medical College of Pennsylvania		(1899) Penna

### California February-March Examination

Dr Charles B Pinkham, secretary, California State Board of Medical Examiners, reports the written examination held in Los Angeles, Feb 27-March 1, 1934. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Sixty-four candidates were examined. 56 of whom passed and 8 failed. The following schools were represented:

School	PASSED	Year Grad (1933)	Per Cent (1933)
University of Arkansas School of Medicine		(1933)	84 1
College of Medical Evangelists		(1933)	84 3
86 6 86 9 88 3 (1934) 84 7			
University of California Medical School (1932)	87 4	(1933)	86 4
University of Colorado School of Medicine		(1933)	82 9
George Washington University School of Medicine		(1933)	86 1
86 6 87 8			
Northwestern University Medical School		(1932)	86 9
91 6 (1934) 88 4			
Rush Medical College		(1933) 84 2	88 6
University of Illinois College of Medicine (1933)	89 7	(1934)	80 3
Indiana University School of Medicine		(1931)	82
State University of Iowa College of Medicine		(1933) 81 8	83
University of Kansas School of Medicine		(1933)	86 4
University of Michigan Medical School		(1932)	86 3

University of Minnesota Medical School	(1933)	87 9	* 91 2
Washington University School of Medicine	(1933)	85 9	87 6
Creighton University School of Medicine	(1932)	86 4	
University of Nebraska College of Medicine	(1933)		81
Columbia Univ. College of Physicians and Surgeons	(1933)		89 4
Cornell University Medical College	(1933)		88 7
Ohio State University College of Medicine	(1933)		87 1
University of Cincinnati College of Medicine	(1933)		86 2
University of Oregon Medical School	(1933)		83 6
84 6 85 1 85 4 89 6 90 1			
Jefferson Medical College of Philadelphia	(1933)		90 2
Temple University School of Medicine	(1932)		85 4
Medical College of the State of South Carolina	(1933)		86 9
Meharry Medical College	(1932)		85 3
Marquette University School of Medicine	(1933)		87 1
University of Wisconsin Medical School	(1933)		85 1
University of Toronto Faculty of Medicine	(1906)		80 1
McGill University Faculty of Medicine	(1932)	82	
Friedrich Wilhelms Universität Medizinische Fakultät	(1933)	85	88
Berlin Prussia Germany	(1924)	81 7	†
Schlesische Friedrich Wilhelms Universität Medizinische Fakultät Breslau Prussia Germany	(1926)		76 3†
School	Year	Per	
	Grad	Cent	
American Medical Missionary College Chicago	(1902)		63
Bennett Medical College Chicago	(1915)		65 3
University of Illinois College of Medicine	(1931)		71 6
Hahnemann Med. College and Hospital of Philadelphia	(1902)		57 2
Université de Strasbourg Faculté de Médecine	(1900)		57 8†
Johann Wolfgang Goethe Universität Med. Fakultät Frankfurt am Main Prussia Germany	(1926)	52 9	†
University of Santo Tomas College of Medicine	(1924)		68 6

\* This applicant has received an M.B. degree and will receive an M.D. degree on completion of internship  
† Verification of graduation in process

## Book Notices

**Rose and Carless' Manual of Surgery.** Fourteenth edition revised by Cecil P. G. Wakeley D.Sc. FRCS. FRS. Surgeon Kings College Hospital and John B. Hunter M.C. V. Chlr. FRCS. Surgeon Kings College Hospital. American (fourteenth) edition edited by W. T. Coughlin B.S. M.D. F.A.C.S. Professor of Surgery and Director of the Department of Surgery St. Louis University School of Medicine. Cloth. Price \$9. Pp. 1468 with 676 illustrations. Baltimore: William Wood & Company 1933.

Beginning with its first edition, which appeared in 1898, the Rose and Carless manual has justly been considered as a standard textbook on surgery. Its popularity with teachers and students is attested by the fact that it has passed through thirteen editions. Because of certain differences in the curriculums here and in England the present edition has been especially revised and rearranged. The general aim has been to present to the student the principles and science of surgery rather than its practice and art. Because of recent advances, some of the chapters had to be entirely rewritten and much new material had to be added. The chapter on thoracic surgery is entirely new, the subject of fractures is enlarged by the inclusion of Bohler's method of treatment, the newer methods of roentgenologic study of the urinary tract were added. The curtailment of chapters on bacteriology, immunity and inflammation is an advantage, as these subjects are more properly treated elsewhere in the curriculum. The publishers are to be congratulated on the appearance of the new volume, which is a great advance on the preceding edition. This was accomplished by printing it on a highly surfaced paper with a resulting clearer print and illustrations. From a pedagogic point of view the volume is abreast of the times and the subject matter is logically arranged and ably presented. It will undoubtedly continue to be one of the standard textbooks on surgery.

**Zur Kenntnis der Hirnveränderungen bei der normalen Altersinvolution.** Von Nils Gellerstedt Med. Lic. Inaugural Dissertation zur Erlangung der medizinischen Doktorwürde. Uppsala: Aus Uppsala Lakareförenings Förlagshandlingar N. F. Band XXXVIII. Haft 56. Paper. Pp. 408 with 74 illustrations. Uppsala: Almqvist & Wiksells Boktryckeri A. B. 1933.

Neurofibrillary cell changes with formation of so called senile plaques ("drusen"), accumulation of catabolic products in the ganglion cells changes in the myelin nerve fibers and other less striking phenomena are considered typical of involutional insanities (senile and presenile). The specificity of such changes may be questioned, since Gellerstedt was able to demonstrate similar changes in what may be called normal senility. He came to such a conclusion after a careful microscopic study of the brains of fifty persons of the average age of 65 and

contrasted the resulting observations with those from similar studies in "pathologic" senility and young individuals who had died from somatic disorders, accidents or some psychic disorders. The facts obtained were carefully tabulated, subjected to a critical study and richly illustrated by photomicrographs and colored drawings. The book gives an excellent review of the condition of the central nervous system in old age, but in some of his views the author was evidently too greatly influenced by German neuropathologists. For instance, the author is of the opinion that the brain changes in senile states are for the most part of vascular origin, the result of arteriocapillary fibrosis, which secondarily causes parenchymatous and other types of lesions—a view that is hardly acceptable.

**Our Mysterious Life Glands and How They Affect Us. A Popular Treatise on Our Glands and Their Secretions—What They Do to Us How They Affect Our Health Growth Appearance Temperamentality and Character Including the Vitamins.** By William J. Robinson Ph.D. M.D. Consultant to the Department of Genito Urinary Diseases and Dermatology, Bronx Hospital. Cloth. Price \$2.50. Pp. 291 with illustrations. New York: Eugenics Publishing Company Inc. 1934.

The physician who undertakes to reduce a scientific subject to a form for popular consumption by lay readers encounters a great deal of difficulty. By adhering strictly to his science he risks the loss of popularity, and if he strives for the popularity his science suffers. In his new book, Robinson turns a versatile pen to a profound subject with the purpose of bringing lay readers down to the present. "Our Mysterious Life Glands" is not so mysterious in the relating as in the announcing. The physiology of these organs is told in a stereotyped way and their dysfunctions are sketchily related. The sex glands naturally come in for more detailed exposition and there is a wealth of descriptive matter draped around the gonads, for instance, homosexuality, sterility, impotence and the present status of rejuvenation. The author is severely critical of those who have ventured into the speculative field of the relation of the glands to personality. Plainly he does not believe in such adventuring. He thinks it is not scientific, and this may be true. It diverts the mind of the lay readers from the parts in which they are naturally interested and causes more or less mental confusion. The dangers are recited with much display of the first person singular. The author does not believe, for instance, that the endocrine glands, although their potency is admitted, can ever make a wise man out of a fool, but he ignores the reciprocal that the glands have not infrequently made fools out of wise men.

**Lehrbuch der operativen Geburtshilfe für Ärzte und Studierende.** Von Prof. Dr. Georg Winter und Prof. Dr. Josef Halban. Vorstand der Gyn. Abt. des Krankenhauses Wieden in Wien. Unter Mitwirkung von Prof. Dr. W. Benthin und Prof. Dr. H. Naujoks. Second edition. Paper. Price 40 marks. Pp. 556 with 294 illustrations. Berlin & Vienna: Urban & Schwarzenberg 1934.

In the preparation of the present edition the services of Halban were enlisted, and this able obstetrician and gynecologist has made many valuable contributions to the book. The number of pages has been increased and fifty-four illustrations have been added. As was mentioned in the review of the first edition (THE JOURNAL, Jan. 28, 1928, p. 316), the book is an enlargement of the chapter on the same subject written by Winter for Halban and Seitz's monumental *Biologie und Pathologie des Weibes*. In the first part of the book there is a discussion on general technic, including asepsis and antiseptic, the preparation of the patient and physician, anesthesia and instruments. Operations are divided into those performed during pregnancy during labor and during the puerperium. There is also a chapter on the management of injuries fetal as well as maternal. The names of the authors are a sufficient guaranty that the contents are readable and instructive, because both men have had as extensive an experience in obstetrics as any authorities in the world. The illustrations are abundant and instructive but in a large number of operations are pictured performed with ungloved hands. A disproportionately large number of illustrations (32 out of a total of 282) are devoted to destructive operations on the child. All forms of cesarean section are described, but the transperitoneal operation is the one of choice. The use of the Kielland forceps is described and illustrated in detail. Unlike American publishers, the German and Austrian publishers issue books both bound and

unbound. The latter are usually held together by a paper cover. The copy reviewed was so poorly glued that it fell apart during the first few minutes the book was being read. The difference in cost between the bound and the unbound book is 3 marks and, based on the total cost, 43 marks, is small compared to the discomfort of trying to read and keep permanently a mass of loose pages. Furthermore, the price of the book is too high. However, for those willing to be extravagant the book is decidedly worth while owning.

**Your Germs and Mine. The Story of Good and Bad Microbes.** By Berl ben Meyr. Cloth. Price \$2.75. Pp. 389 with 34 illustrations. Garden City: Doubleday Doran & Company Inc. 1934.

The book is broader in scope than its title promises. It deals primarily with germs, but only as a starting point for an excellent discussion of personal and community hygiene as these concern themselves with communicable diseases. A good discussion of useful germs is the principal feature of the book. The chapters on milk and water are exceptionally clear and comprehensive. The discussion of immunology is refreshingly conservative as regards some of the immunizing procedures that are of more or less doubtful value. The author has been able to infuse human interest into his style without sacrificing accuracy and to speak his mind plainly about some of the modern shortcomings of individuals and communities with respect to health without at the same time becoming sensational. He might profitably have enlarged on the subject of ringworm, instead of hooking a sentence or two about it on a chapter where it does not logically belong and then leaving the reader up in the air as he turns the page to find a new chapter heading and nothing much about ringworm except that it is sometimes confused with the ground itch of hookworm infestation. This book should make excellent supplementary reading for high school or college students for whom a general knowledge of bacteriology is desired but for whom no great amount of technical detail is necessary. It would also give any citizen an excellent idea of the reason for having a health department in a city and also why it is important to have, not a health department in name only, but one in fact. Other authors might have chosen somewhat differently in deciding on what diseases to treat at length and what to touch on briefly in the "omnibus chapter," but that is and must remain a matter of opinion. The book is well made, adequately illustrated and well indexed.

**Schlafmittelmissbrauch.** Von Dr. Kurt Pohlisch. Privatdozent an der Universität Berlin und Dr. Friedrich Panse. Oberarzt an den Wittenauer Heilstätten. Boards. Price 9.60 marks. Pp. 170 with 2 illustrations. Leipzig: Georg Thieme 1934.

The abuse of hypnotics in Germany has grown tremendously in recent years and is increasing. Among hospital patients in Berlin, chronic intoxication from hypnotics almost equals that from chronic alcoholism. The authors speak mainly of their own cases and of cases from the German literature. Relatively few cases from foreign literature have been included. Their study is important, because the drugs studied have a wide use also in America. They divide their investigation into a study of single excessive dosage from 1925 to 1932, and chronic intoxication or habituation mainly from 1903 to 1932. The first group almost exclusively comprises cases of attempted suicide. In the second group the abuse of the drugs had lasted one or more years, usually with marked psychic effects. In both groups the results of the hypnotic studied are given in statistical form for each year and summarized for the total period. The age of habitues varied from 15 to 75, but by far the greater number were between the ages of 20 and 50 years and about 70 per cent of these were psychopathic cases. A study of the symptom complex of single dose abuse of the various hypnotics in relation to their chemical constitution is based on 707 cases of intoxication. The authors discuss all the well known and a number of relatively new preparations such as evipan. Under the habitual use of large doses they omit chloral hydrate, paraldehyde, amylene hydrate and the sulphur-containing hypnotics, because they discussed these in 1928. They discuss the use of veronal, luminal, phanodorm, somnifen, dial, alional, veramon, the adalin group, bromural and combinations of two or more of these with other preparations. Many clinical cases with histories and symptoms are cited.

The authors discuss the genesis and development of the chronic abuse of hypnotics, using statistical, psychologic and clinical-pathologic methods. Their main conclusions are that 1. Neurosis is an important genetic factor, as is also alcoholism and morphinism. However, the psychically robust may also be victims. 2. All hypnotics are habit forming, and their habitual use demands an increasing dosage. 3. Habitues may take hypnotics day after day without sleep development. 4. Instead of sleep, symptoms may develop which vary in different persons, also with different preparations somewhat as follows—agreeable fatigue, lazy euphoria, sleepy indifference, pleasant sleepy stupor, and occasionally, especially with phanodorm, drunken-like cheerfulness. 5. From continued use there gradually develops a clinical picture that resembles the psychic condition of chronic alcoholism.

The authors finish with advice on the prevention of the abuse of hypnotics which is universally applicable. Patients that most need these drugs are the type most likely to misuse them. Consequently physicians should bear this in mind when they prescribe hypnotics. Again, the prescription should be limited to about five doses. Original packages and prescriptions that contain more than this number may lead to habit formation. They point out that with the increase in the number of hypnotics on the market there is a corresponding increase in habitues. There are too many hypnotics available. The book presents a strong argument against self medication and against the promiscuous advertising of a valuable but dangerous group of drugs. The results of this important study should be available to the public as well as to the physician.

**Handbuch der experimentellen Pharmakologie.** Herausgegeben von A. Heffter. Fortgeführt von W. Heubner. Professor der Pharmakologie an der Universität Berlin. Band III Teil 2. Allgemeines zur Pharmakologie der Metalle Eisen, Mangan, Kobalt, Nickel. Paper. Price 96 marks. Pp. 621 1502 with 66 illustrations. Berlin: Julius Springer 1934.

The completion of another section of this monumental work on experimental pharmacology is a notable event of world wide significance and it will be particularly welcomed by those to whom the *Handbuch* has become an indispensable basis and guide in their work. It may seem still more notable to the uninitiated that it requires almost 900 closely printed pages to do justice to the pharmacology of the "iron group," which includes merely the four metals iron, manganese, cobalt and nickel, and, of course, the discussion of iron occupies over two thirds of the book, or 600 pages. Likewise welcome is the announcement that the other two sections of the third volume will soon be ready for publication, and, last but not least, that the index, the lack of which greatly lessened their value to the possessors of the previous volumes of the series, is in active preparation. To cull from the mass of facts presented by the book only a few of general interest, it may be noted that iron plays the important part in life processes that it does not because it is abundant in the earth's crust—silicon and aluminum are much more important quantitatively—but because of the following combination of properties, which no other metal displays: (1) water solubility, (2) possibility of formation of colloidal protein compounds without denaturing of either the protein or the iron, (3) ease of oxidation from bivalent to trivalent iron, (4) ease of reduction from trivalent to bivalent iron, and (5) the difference in the pharmacologic action of these two oxidation stages, of which the one is the inactive passage form while the other makes the life processes of the cells possible. The ferrous salts, like all bivalent metals, have little affinity for anions, they are rather poorly hydrolyzed and they have but little tendency to the formation of complexes. The ferric salts are strongly hydrolyzed, are always acid because they unite with the hydroxyl ions of water, and have a tendency to the formation of complex compounds, many of which are colloidal. Ferric salts are protein precipitants, while ferrous salts are not or when they do precipitate the combination is reversible, the protein not being denatured. It is only in its ferrous form, therefore that iron is absorbable. Ferric salts must be reduced in the stomach to ferrous salts before they can be absorbed and, because of limited stay in the stomach only a small portion of the ferric salt is thus converted. Hence ferrous salts are absorbed to a much greater extent and are much more valuable as hematincs than the ferric salts.

**The Road to Adolescence** By Joseph Garland M.D. Physician to Children's Medical Department Massachusetts General Hospital. Cloth Price \$2.50 1 p. 298 with 11 illustrations. Cambridge Harvard University Press 1934

This is a logical, sensible and sympathetic discussion of adolescence. The book contains a simple discussion of heredity, environment, growth and development, anatomy, care of the body, nutrition and diet, recognition and care of sickness, vaccines and serums, first aid, relationship of home, school and camp special problems in education and, under the title "As the Twig is Bent," a philosophy of home life which every parent ought to read. The author emphasizes that the plasticity of children's minds is not the plasticity of inanimate material but of living tissue. Good reading is suggested, play and discipline are helpfully discussed, and so is sex instruction.

The book is exceptionally well written, as would be expected by any reader familiar with the author's previous work *The Youngest of the Family*. Among numerous books on health which pour from the presses of the publishers, this one stands out as a work of exceptional merit. Though it is written for parents, no mistake would be made by physicians, teachers, social workers and juvenile court officers in reading and digesting it.

**Lehrbuch der Inneren Medizin** Von G. v. Bergmann (mit F. Stroebe) R. Doerr H. Eppinger und anderen. Band I und Band II. Second edition. Paper. Price 45 marks. Pp. 914 with 144 illustrations. Pp. 794 with 146 illustrations. Berlin Julius Springer 1934

That within the space of only three years a new edition of this two volume practice of medicine totaling about 1700 pages should be required speaks for its well deserved popularity. This is not merely a reprint but is enlarged and has been partly rewritten. Thus, a chapter on the general and special pathology of the diaphragm by Hans Eppinger has been added, which even though short brings into clear view existing knowledge of diaphragmatic disease, mostly of recent origin and largely the result of roentgen investigation. While one cannot help feeling almost sorry for the medical student who must find his weary way through the intricate patterns laid down in this book—many of them in fine print—one also feels that when he has done so and has mastered its contents with German thoroughness he has achieved a complete and scientific understanding of the medicine of today.

**The Professional Training of the Hospital Dietitian** By Helen Clarke Ph.D. Teachers College Columbia University. Contributions to Education No. 602. Cloth. Price \$1.50. 1 p. 96. New York Bureau of Publications Teachers College Columbia University 1934

This is the report of a survey and study of training for hospital dietitians as offered by schools of collegiate rank in 1931-1932. The survey included visits to twenty-five hospitals, and the report contains well compiled summaries of all types of instruction for dietitians in the United States. It also includes chapters on the hospital dietitian, the dietitian intern, college curriculum for hospital dietitians and college subjects and trends in academic training. Appended is a well prepared list of colleges, universities and technical schools that give work for prospective dietitians, with information concerning each school. There is also an outline of courses approved by the American Dietetic Association and a list of courses approved for dietitian interns. The work of institutions was judged by curriculums suggested by the American Dietetic Association.

**Mat i Ditya Mother and Child** Paper. Price 5 rubles. Pp. 30 with illustrations. Leningrad All Union Society for Cultural Relations with Foreign Countries Jointly with the Crèches Board of the Leningrad Public Health Department 1933

As an instrument of propaganda, this production is interesting. The large size of the pages 12 by 17 inches the profusion of photographs, which constitute, with their brief legends, the entire pamphlet, and the good quality of the photography indicate the practiced propagandist. It is hard to appreciate how any thinking person could be caught by such palpable bait. The elaborate preparations for the care of the expectant mother for the parturient woman and for the puerperium, plus the mass production methods for the care of the infants, are stressed. Legalized abortion is portrayed. Nothing is said

about the equivocal position of women in a society where divorce is as easy as saying good morning, or about the crowded living quarters, inadequate food and forced labor, for which the elaborate vacation homes would seem but sorry recompense. To the socialistically minded traveler in Russia, who gets his impressions from what officials say, in towns where he does not stay long enough to investigate conditions for himself, this pamphlet might be convincing. It is claimed on the closing page that "the position of women in Soviet Russia is at the present time such that it can be considered ideal (perfect) from the point of view of the most advanced countries."

**Recent Advances in Vaccine and Serum Therapy** By Alexander Fleming F.R.C.S. Professor of Bacteriology in the University of London and G. F. Petrie M.D. Bacteriologist in charge Serum Department Lister Institute Elstree. Cloth. Price \$4. Pp. 463 with 5 illustrations. Philadelphia P. Blakiston's Son & Company Inc. 1934

There has been a growing demand for an authoritative and concise treatise on the subject of vaccine and serum therapy, and this volume is a timely addition to the recent advances series. The book covers the general considerations on the production and use of serotherapy, the specific use in various diseases, including those due to filter-passing viruses, specific and nonspecific vaccine therapy and active immunization. While many critical readers will not be prepared to accept some of the statements in regard to the success of vaccine therapy in some diseases, the author of this section carefully distinguishes between clinical and experimental evidence. The book is well balanced in fundamental information and clinical application, and the reader will find it authoritative and clearly presented. It is recommended for both the student and the practitioner of medicine.

**The Mammalian Red Cell and the Properties of Haemolytic Systems** By Eric Ponder. Volume VI. Protoplasma Monographien. Herausgegeben von R. Chambers usw. Cloth. Price 22.50 marks. Pp. 311 with 52 illustrations. Berlin Gebrüder Borntraeger 1934

The author is well prepared to present this subject by virtue of his extensive researches. It is not a book of applied data and such subjects as the chemistry of hemoglobin and its role in respiration, the clinical significance of changed permeability of the red cell, and other subjects have been purposely omitted. The treatment is entirely in an academic manner, and while this textbook contains valuable data its use will be almost confined to reference purposes. The book covers the number, dimensions, shape, structure, chemical composition and metabolism of the mammalian red cells. Permeability and the phenomenon of osmotic hemolysis and the properties of simple hemolytic systems are next discussed. Various forms of hemolysis are considered as well as the fundamental factors governing their behavior. There is an extensive and well selected bibliography for the reader who wishes to go beyond the confines of the book. The facts presented are critically assessed and clearly presented. A vast amount of material is excellently correlated and summarized. The chief value of the monograph will be as a work of reference, for which it should serve a valuable purpose.

**Constructive Eugenics and Rational Marriage** By Morris Siegel M.D. Cloth. Price \$2.50. Pp. 196 with 12 illustrations. Toronto McClelland & Stewart Ltd. 1934

While one may sympathize with the earnest purpose of the author to improve the quality of the race and may agree with him in his basic hypothesis that a constructive program of eugenics is needed and that rational marriage is earnestly desired, one cannot share all his opinions. There is nothing essentially new in his proposal that there shall be more extensive study of family pedigrees. One may perhaps be pardoned for entertaining doubts as to the practical nature of his suggestions for constructive eugenics. He seems to desire a return to the nineteenth century method of having prospective mates chosen by the parents of the young couple and believes that such arranged marriages are more selective and rational than those which are entrusted to the young people themselves. The value of a federal or, in Canada, a dominion, eugenic bureau may well be doubted, though in theory it looks like a means of getting a start on a universal study of family



pedigrees The book offers little or nothing that is new, and the subject has been covered so much better in other works that the addition of this book to a health library would not seem to be a necessity

Contribución al estudio anatómico clínico del cáncer del pulmón comi enzo clínico por una ósteo artropatía hipertrofiante pneumica Por el Dr Pedro A Castillo profesor de clinica medica Trabajo de la Catedra de Clinica Medica Publicado en la revista Vida nueva en los numeros de abril y mayo de 1933 Paper Pp 247 with 89 Illustrations Havana [n d]

This monograph, based on seven personal cases, is a study of the clinical manifestations and pathologic observations The author emphasizes the fact that symptoms are often late, are varied, and include those of toxic absorption His careful study of his own material makes this a worthy contribution to the subject of carcinoma of the lung, which is attracting increasing attention by its apparent marked increase in incidence

## Medicolegal

**Malpractice Sloughing of Tissue Following Subcutaneous Injection of Dextrose Solution**—The plaintiff, a woman approximately 65 years of age, was operated on by Dr Ward, July 27, 1928, for appendicitis The operation revealed that the appendix had ruptured and that the plaintiff was "in the last throes of peritonitis" Following the operation, in order to save the life of the patient, a saline solution containing 10 per cent dextrose was injected into the patient's thighs Owing to the toxic condition of the plaintiff, the intravenous method of injection could not be used, it was concluded, since her circulation was failing and since such injections would overload "the already poisoned heart" Following the injections, there was a sloughing of the tissues at the places where the injections were made Thereupon the plaintiff sued the Hahnemann Hospital, the extern at the hospital who administered the injections, a nurse who assisted him with the injections, Dr Ward, and Dr McGavack, the attending physician who administered the anesthetic A non-suit was granted as to the nurse The jury rendered a verdict for the hospital and the extern but gave judgment against Drs McGavack and Ward, who thereupon appealed to the district court of appeals, first district, division 2, California

The main question before the court was whether the evidence was sufficient to sustain the verdict against the physicians There was no evidence, said the court, that the diagnosis made by the physicians was not entirely correct The paramount duty of the physicians under the circumstances was to endeavor to save the life of the patient There was no evidence to challenge the judgment of the physicians in determining that an injection of a solution containing 10 per cent dextrose was essential to accomplish that purpose There was no evidence to show that in the condition in which they found the plaintiff a 10 per cent solution could have been injected in the veins without defeating that purpose Under these circumstances, said the court it certainly was not malpractice to save the patient's life, even though this was accomplished by the subcutaneous injection of a solution containing a higher percentage of dextrose than is ordinarily so injected, and even though sloughing resulted at the point of injection It is a matter of common knowledge, said the court, that the selection of a method of treatment is a matter of judgment and opinion on which members of the medical profession will often honestly differ There was no suggestion that the defendant physicians did not possess the requisite skill nor that they did not exercise their best judgment It was contended, however, that in the selection of the method of treatment the physicians were required to keep within recognized and approved methods' No witness for the plaintiff, said the court stated what were the recognized or approved methods for the treatment of the plaintiff's condition following the operation On the other hand, several medical experts testified for the physicians that the method of treatment selected was the recognized and approved method of treatment for the condition existing Even assuming

said the court, that the medical testimony offered by the plaintiff was in conflict with the opinions of the several medical experts called by the defendant-physicians, the case presented was one showing that the medical experts were at variance in their opinions Under such circumstances, the court continued, the defendant-physicians could not be held liable if they acted within the reasonable limit of either opinion In *Dahl v Wagner*, 87 Wash 492, 151 P 1079, the court said

It has been the uniform holding of this court that where doctors of equal skill and learning being in no way impeached or discredited disagree in opinion upon a given state of facts the courts cannot hold a defendant in a malpractice suit to the theory of the one to the exclusion of the other It is enough if the treatment employed have the approval of at least a respectable minority of the medical profession who recognized it as a proper method of treatment

To hold otherwise, said the California court, would confine physicians in their selection of methods to the use of those methods if any, which have the universal approval of all the members of the profession New or different methods, having the recognition and approval of a minority, including many of the most able practitioners, could never be employed without the risk of a charge of malpractice resulting therefrom The progress of the medical profession should not be obstructed by placing such an unreasonable limitation on the selection of methods of treatment

The judgment of the trial court was therefore reversed, with directions to enter judgment in favor of the physicians—*Callahan v Hahnemann Hospital et al (Calif)*, 26 P (2d) 506

**Insanity Criteria of Criminal Responsibility**—The appellant, Cole, was convicted of murder and appealed to the Supreme Court of Mississippi He contended, among other things, that the trial court committed error in stating in the presence of the jury that

I hold as a matter of law that the only absolute defence of insanity known in the State of Mississippi is paranoia That is just real flat insanity not temporary so if you are pleading insanity the only insanity I recognize is paranoia That is real insanity not just a lapse of memory or just a sudden forgetting of anything just real insanity, known as paranoia in the medical profession

This statement of the trial court was erroneous, said the Supreme Court The true test of a defendant's criminal responsibility is stated in *Grisson v State*, 62 Miss 167, as follows

The test with us in this class of cases is the capacity to distinguish between right and wrong and we know no difference in this regard between total and partial insanity If the disease goes to the extent of breaking down the distinction between a knowledge of right and wrong it is immaterial whether the sufferer be totally or only partially insane on other subjects Irreconcilable conflict in the language of the instruction is created by the insertion of the words if the accused killed the deceased with malice There can be no such thing as malice without mental accountability and this cannot coexist with an incapacity from mental disease to distinguish between right and wrong

The judgment of the trial court was reversed and the case remanded—*Cole v State (Miss)*, 150 So 757

## Society Proceedings

### COMING MEETINGS

American Association of Railway Surgeons Chicago August 20 22  
Dr Louis J Mitchell 21 East Van Buren Street Chicago Secretary  
American Public Health Association Pasadena Calif Sept 3 6 Dr  
Kendall Emerson 50 West 50th Street New York Executive Secretary  
Idaho State Medical Association Lewiston Sept 7 8 Dr Harold W  
Stone 105 North Eighth Street Boise Secretary  
Minnesota State Medical Association Duluth July 16 18 Dr E A  
Meyerding 11 West Summit Avenue St Paul Secretary  
National Medical Association Nashville Tenn August 13 18 Dr C A  
Lanon 431 Green Street South Brownsville Pennsylvania General  
Secretary  
New Mexico Medical Society Las Vegas July 19 21 Dr L B  
Cohenour 219 West Central Avenue Albuquerque Secretary  
Pacific Coast Oto Ophthalmological Society Butte Mont July 16 18  
Dr F C Cordes Fitzhugh Building San Francisco Secretary  
Pacific Northwest Orthopedic Association Seattle Sept 1 Dr J C  
Brugman 1215 Fourth Avenue Seattle Secretary  
Western Branch of American Public Health Association Pasadena Calif  
Sept 3 6 Dr W P Shepard 600 Stockton Street San Francisco  
Secretary  
Wyoming State Medical Society Casper July 16 17 Dr Earl Whedon  
50 North Main Street Sheridan Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Cancer, New York

21 1252 (May) 1934

- \*Cyclomastopathy. Physiopathologic Conception of Some Benign Breast Tumors with an Analysis of Four Hundred Cases. R L Oliver and R C Major. Baltimore—p 1.  
Further Evidence in Support of the Somatic Mutation Hypothesis of the Origin of Malignancy. M R Curtis, W F Dunning and F D Bullock. New York—p 86.  
Cancer Cells in the Blood Stream. E H Pool and G R Dunlop. New York—p 99.  
Three Tumors of the Thyroid. C W Lester. New York—p 103.

**Cyclomastopathy**—Oliver and Major present a study of the case histories and pathologic material of 400 cases of clearly benign tumors of the breast, previously classified in their laboratory under fibro adenoma, intracanalicular myxoma and cystic adenoma. The authors believe that the tumors mentioned are not true neoplasms but are localized masses of hypertrophied and hyperplastic breast tissue, with or without involution. The term cyclomastopathy is offered as a designation for the entire group of breast lesions which present excessive connective tissue or epithelial proliferation, or both, in response to growth stimuli or as a manifestation of abnormal involution following normal response. The term eccyclomastoma is offered as a designation for localized areas of cyclomastopathy which give rise to palpable masses or to symptoms. The peak of age incidence for all cases is reached between the age of 20 and 25 years. Women who have borne children outnumber those without children, two to one. Eccyclomastoma has a predilection for the upper, outer quadrant of the breast. A lump in the breast is the predominating symptom, occurring in 83 per cent of cases. Pain occurred in 35 per cent and pain appearing or becoming intensified at the time of the menstrual period occurred in 15 per cent. The average duration for all cases was thirty-six months, for the fibro-adenoma group, forty-four months, and for the intracanalicular myxoma group, thirty-one months. There was no significant racial difference. Movability of the mass was described in 56 per cent. In 1575 per cent of the total number of cases the masses were multiple, involving one or both breasts. In 57 per cent the mass occurred in a generally lumpy breast. Dimpling of the skin was observed in eleven cases and retraction of the nipple in nine cases. In cases in which a preoperative diagnosis was made the lesion was considered benign in 94 per cent. The operation of choice was simple excision with a zone of surrounding breast. When the size of the mass demanded it or when the diagnosis of malignant growth or of possible malignant process was made, amputation or the complete operation was done (12 per cent). The results of 188 followed for more than one year after operation are tabulated.

#### American Journal of Clinical Pathology, Baltimore

4 247 320 (May) 1934

- Pathology of Psittacosis. Discussion with Case Report. A G Foord. Pasadena Calif—p 247.  
\*A Study of Hyperpyrexia Reaction Following Intravenous Therapy. H M Banks. Indianapolis—p 260.  
Reticulocyte Counts in Healthy Children. E E Osgood, R L Baker and Mable M Wilhelm. Portland Ore—p 292.  
Carcinoids of the Appendix. A V St George. New York—p 297.  
\*Method of Diluting Antigen in Relation to the Wassermann Reaction. J A Kolmer and Carola E Richter. Philadelphia—p 301.  
Clinical and Pathologic Findings Following Warfare Gassing. P B Matz. Washington D C—p 309.

**Hyperpyrexia Following Intravenous Therapy**—Banks points out that the reaction that follows the intravenous administration of solutions is an entity characterized by a prompt

rise of temperature in extremely high degree and usually associated with a severe rigor lasting from twenty to thirty minutes. This clinical picture is not to be associated with shock and is entirely distinct from it. Intravenous reaction has a definite, specific, etiologic factor. This factor is the introduction of dead or living products of bacterial growth or cultures of *Pseudomonas scissa* or *ureae* into the blood stream of the patient. These organisms were isolated in pure culture from the offending solution, reprojected into the same person and produced the same clinical picture. It was not possible to recover the organism from the blood stream of the individual suffering from a reaction, even though cultures were made at various times during the rigor. The pyrogenic substance may be used as a therapeutic agent to produce hyperpyrexia.

**Diluting Antigen for the Wassermann Reaction**—Kolmer and Richter believe that the manner or method of diluting extract for the Wassermann test has a slight but definite influence on antigenic sensitiveness. Turbid emulsions of antigens secured by slow or gradual dilution with sodium chloride solution are more antigenic than opalescent emulsions prepared by rapid dilution. Turbid emulsions of antigens prepared by adding extract drop by drop to the sodium chloride solution, with constant shaking, are more antigenic than turbid emulsions prepared by adding small amounts of the solution to the antigen with constant shaking. There is no detectable influence in the manner of diluting the Kolmer antigen on the hemolytic properties of this extract. Turbid emulsions of antigens prepared by slow dilution are sometimes slightly more anticomplementary than opalescent emulsions prepared by rapid dilution. In the Kolmer modification of the Wassermann test it is recommended that the antigen be diluted by adding it drop by drop to the required amount of sodium chloride solution with constant shaking to secure the maximum of turbidity as originally described in this method.

#### American J Digestive Diseases and Nutrition, Chicago

1 161 220 (May) 1934

- Chronic Ulcerative Enteritis. P Corr and W C Boeck. Los Angeles—p 161.  
Gastric Secretion Following Irradiation of Exposed Stomach and Upper Abdominal Viscera by Roentgen Rays. A M Snell and J L Bollman. Rochester Minn—p 164.  
Single Gastric Polyp. Report of an Instance. M G Vorhaus and A E T Rogers. New York—p 169.  
Recurrent Hiatus Hernia. Syndrome of Von Bergmann. F Cunha. San Francisco—p 170.  
Investigation Concerning Certain Substances Reported to Affect the Motility of the Gallbladder. W L Voegtlin and A C Ivy. Chicago—p 174.  
Antipeptic Influence of Gastric Mucin. E A Zaus and L S Fosdick. Chicago—p 177.  
Mortality in Diabetic Children. H J John. Cleveland—p 180.  
Effect on Gastric Juice Secretion of Various Cooked Preparations of Haddock (*Melanogrammus aeglefinus*) and of Lobster (*Homarus americanus*). A Alley. Montreal—p 182.  
Ray's Contribution to the Diagnosis of the Acute Abdomen. W H Stewart and H E Illick. New York—p 185.  
Chronic Ulcerative Colitis. Trends in Its Present Day Management. J A Barger. Rochester Minn—p 190.  
Diverticulosis and Diverticulitis of the Small Intestine. I Abell. Louisville Ky—p 193.  
\*Congenital Pericolic Membrane Syndrome Often Misnamed Chronic Appendicitis. Preliminary Report of Observations. W H Bueermann. Portland Ore—p 196.  
Acute Liver Degeneration. Treatment by Cholecystogastrostomy with Discussion of Clinical Pathologic and Physiologic Accompaniments. C G Heyd. New York—p 203.  
Diverticulitis of the Colon (with Abscess Formation) Initiated by Trauma from an Enema Tip. J M Lynch and M P Cowett. New York—p 207.  
Historical and Biologic Evolution of Human Diet. S S Altshuler. Detroit—p 215.

**Congenital Pericolic Membrane Syndrome**—Bueermann discusses a symptom complex simulating chronic appendicitis, for which appendectomy has often been performed with a persistence of pain referable to the right side. The author has five axioms to be substantiated before one may assume that a clinical entity due to the presence of harm producing pericolic membranes and bands exists. Assuming that the usual differential diagnostic factors have been ruled out: 1. There must be a definite anatomic basis in or about the right half of the colon to produce the symptoms that persist after appendectomy for chronic appendicitis. 2. If anatomic in nature, there must be an abnormal situation present such as constriction or rotation, in order to produce an altered physiology of the functions of

the colon 2 If the syndromes of "chronic appendicitis" and congenital pericolic membranes and bands overlap, the syndrome arising from the presence of constricting, congenital pericolic membranes remains as a relatively pure clinical syndrome when only the appendix has been removed 3 If the syndrome arising from the presence of constricting pericolic membranes still is present after appendectomy, correction of the causative factor by sectioning the constricting membranes and bands should relieve the patient 4 If the symptoms considered indicative of congenital pericolic membranes can be classed as a "syndrome," it should be recognizable as such in all age groups 5 If abnormal attachments of pericolic membranes are congenital in nature, familial or hereditary tendencies can be demonstrated in a reasonable number of patients, i. e., the same syndrome should occur in the parent and the child in a certain proportion of subjects A number of instances of father-and-son, and mother-and-daughter similarities have been analyzed In none of these instances had the similarity been recognized until the symptom complex had been outlined The "exercise symptom" relationship then became apparent only in those definitely affected, even to nonrelief by appendectomy The author terms this symptom complex the "pericolic membrane symptom"

### American Journal of Orthopsychiatry, Menasha, Wis

4 193 322 (April) 1934

- Therapeutic Work with Children Statement of a Point of View F H Allen Philadelphia—p 193  
Experiments on Sucking Reflex and Social Behavior of Dogs D M Levy New York—p 203  
Evaluation of Classification in Prisons J L McCartney Portland Ore—p 225  
Franzi Herta Fuchs translated by S Biddle Philadelphia—p 233  
Reliability of Observation in Psychiatric and Related Characteristics C R Doering and Alice F Raymond Boston—p 249  
Weight and Skeletal Build A Rejoinder C Rosenow New York—p 258  
Personality Differences Among Stutterers as Indicated by the Rorschach Test H Meltzer St Louis—p 262  
Life Experience as Therapeutic T Burling Chicago—p 283  
The Rorschach Method and Personality Organization III Psychologic and Social Personality S J Beck Boston—p 290

### American Journal of Physiology, Baltimore

108 265 508 (May 1) 1934 Final Index

- Hemoglobin Production Factors in the Anemic Horse Liver G H Whipple and F S Robschett Robbins Rochester N Y—p 270  
Hemoglobin Production Factors in Normal Liver of Domestic Animals Horse Liver Rates High and Beef Low F S Robschett Robbins and G H Whipple Rochester N Y—p 279  
Some Properties of the Cord Potentials Evoked by a Single Afferent Volley J Hughes and H S Gasser New York—p 295  
Response of the Spinal Cord to Two Afferent Volleys J Hughes and H S Gasser New York—p 307  
Study of the Pituitary Factor Increasing the Ovarian Weights of Immature Rats When Injected in Combination with Pregnancy Urine S L Leonard New York—p 331  
Sources of Energy in Muscular Work Performed in Anaerobic Conditions R Margaria and H T Edwards Boston—p 341  
Observations on Epinephrine Oxidation and Stabilization A D Welch Toronto—p 360  
Effect of Sleep on Human Basal Metabolism with Particular Reference to South Indian Women Eleanor D Mason Madras India and F G Benedict Boston—p 377  
Reactions of the Rat Uterus Excised and in Situ to Histamine and in Anaphylaxis Caroline Tum Suden Boston—p 416  
Relation Between Blood Pressure Blood Urea Nitrogen and Fluid Balance of the Adrenalectomized Dog W W Swingle J J Pfiffner H M Vars and W M Parkins Princeton N J—p 428  
\*Observations on Nervous Control of Ileocecal Sphincter and on Intestinal Movements in an Unanesthetized Human Subject H L White W R Rainey Betty Monaghan and A S Harris St Louis—p 449  
Absorption of Isotonic Fluids from the Subarachnoid Space O A Mortensen and L H Weed Baltimore—p 458  
Relation Between Circulatory Rate and Absorption in the Gut E Gellhorn and D Northup Chicago—p 469  
Ascites and Other Effects of Large Saline Injections D A Collins Minneapolis—p 476  
Reactive Hyperemia Relation of Duration of Increased Blood Flow to Length of Circulatory Arrest M L Montgomery J M Moore San Francisco and J S McGuinness Cincinnati—p 486  
The Influence of the Thyroid on the Action of Gonad Stimulating Hormones C F Fluhmann San Francisco—p 498

**Observations of Intestinal Movements**—White and his associates observed the proximal colon, ileocecal sphincter and terminal ileum in an unanesthetized human subject No definite antiperistalsis was seen in the proximal colon The ileocecal sphincter was relaxed much of the time The relaxed sphincter may respond to a peristaltic wave in the distal ileum with an

immediate or with a delayed contraction or series of contractions, or it may show no response The sphincter may show rhythmic activity in the absence of ileac peristalsis Rhythmic segmentations of the ileum persist during the passage of a peristaltic wave The wave of peristaltic contraction is not preceded by a wave of inhibition Many of the peristaltic waves of the terminal ileum die out shortly before reaching the sphincter The sphincter is consistently relaxed by epinephrine, its activity may be somewhat increased by pilocarpine Solution of pituitary produces some increase in activity of the colon and a diminution in the tone and rhythmic activity of the ileum, peristalsis of the ileum may be either increased or decreased

### Anatomical Record, Philadelphia

59 135 272 (May 25) 1934

- Histologic Distribution of Fats in the Liver Kidney Trachea Lung and Skin of the Rat at Various Postnatal Stages H G Rice and C M Jackson Minneapolis—p 135  
Panniculus Carnosus in an Octodont Rodent R K Enders Swarthmore Pa—p 153  
\*Stimulation of Mammary Gland Development in the Pregnant Rat Under Conditions of Experimental Hyperthyroidism C K Weichert and R W Boyd Cincinnati—p 157  
Dissections of Human Seminiferous Tubules F P Johnson Portland Ore—p 187  
Studies on Amphibian Metamorphosis XIV Transformation of Dermal Plicae into Tympanic Membrane Following Heteroplastic Transplantations O M Helff New York—p 201  
Observations on Transplanted Immature Ovaries in the Eyes of Adult Male and Female Rats L Goodman Boston—p 223  
Role of Lipoid in Renal Tubule of the Cat in Uranium Nephritis W Modell and Janet Travell New York—p 253

**Stimulation of Mammary Gland Development**—Weichert and Boyd compared the mammary glands of pregnant rats fed 0.5 Gm of desiccated thyroid daily, beginning with the first day of pregnancy with normal controls Although some stimulation of the mammary gland is recognized in the animals fed thyroid even on the fifth day of pregnancy, an extraordinary increase of mammary tissue occurs between the seventh and ninth days From the ninth day until the end of pregnancy the series of animals fed thyroid showed a marked difference not only in the amount of mammary tissue but in the earlier appearance of secretion in the alveoli The authors suggest that under conditions of heightened metabolism resulting from thyroid feeding the normal estrin level may be lowered, thus removing the inhibitory effect of the estrin on the hypophysis, at least to a degree That organ may thus elaborate its hormones to a greater extent than normal The corpus luteum and hypophyseal hormones are therefore in all probability present in relatively greater concentrations than in the normal animal, the mammary glands responding to the altered conditions by exceptionally rapid development

### Canadian Public Health Journal, Toronto

25 155 204 (April) 1934

- Alberta State Health Insurance Report A C McGugan Edmonton Alta—p 155  
Lighting and Atmospheric Conditions in an Ontario Public School D L MacLean and Ruth C Partridge Toronto—p 161  
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**Iowa State Medical Society Journal, Des Moines**

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- \*Observations on Cytology of the Secretions in Allergy of the Nose and Paranasal Sinuses F K Hansel St Louis—p 357
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- Studies in Hay Fever Clinical Observations Including a Botanic and Air Survey of the Utah Region C E Barrett Salt Lake City—p 406
- \*Castor Bean Dust Sensitization R H Bennett and E Schwartz Brooklyn—p 427

**Cytology of Secretions in Allergy**—It has been the experience of Hansel that whenever marked hyperplasia and polyposis develop the membranes tend to become infected and invaded by bacteria. The neutrophilic response in the secretion in addition to the eosinophilic response is an indication of this infection. That bacteria may be present first in the mucous membrane and be the primary cause of the precipitation of an allergic condition is suggestive in some cases. He has observed cases in which the manifestations of allergy in the nose were precipitated by an acute upper respiratory infection of acute sinusitis yet these cases did not appear to be different from the other pure allergic types. Polyposis developed in some of these cases. A pure eosinophilic response in the secretions indicates an allergic process of an atopic nature and this reaction is maintained by the ordinary allergens. The

persistence of neutrophils in large numbers in addition to a certain number of eosinophils has, according to the author's experience, substantiated the belief of the existence of chronic infection. Repeated respiratory infections in cases of polyposis seem to play a part in increasing the edema, but the primary cause of polyposis appears to be allergic edema. In many cases in which there were repeated infections over a period of many years, polyposis has never occurred. There was no definite relationship between the onset of the nasal manifestations of allergy with acute infections of the upper respiratory tract and the eventual development of polyposis in the author's series of cases. In a proportion of cases of polyposis the nasal manifestations of allergy began primarily as hay fever or pollinosis.

**Castor Bean Dust Sensitization**—Bennett and Schwartz discuss the cases of two persons who acquired a sensitiveness to the dust of the castor bean, characterized by sneezing, coryza, itching of the eyes, cough, wheezing respiration, and in addition in the second case urticaria of the face, neck and hands. Exposure to castor bean dust caused allergic symptoms, while avoiding it afforded complete relief. Testing intracutaneously with castor bean dust extract in the following dilutions produced the following reactions: 1 100,000, 4-plus, 1 1,000,000, 4-plus, 1 10,000,000, 3-plus, 1 100,000, 3-plus, and the second patient gave a 3 plus reaction to a dilution of 1 1,000,000. Although other extracts of powerful allergens, such as horse dander, horse serum, rabbit epithelium, cottonseed, pollens and fish, are used in tests in high dilution, castor bean extract requires still higher dilutions for testing in order to avoid constitutional reactions.

**Journal of Biological Chemistry, Baltimore**

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- Chemistry of the Lipids of Tubercle Bacilli XVIII New Synthesis of Phthiocol the Pigment of the Human Tubercle Bacillus M S Newman J A Crowder and R J Anderson New Haven Conn—p 279
- Effect of Nutritional Hypoproteinemia on the Electrolyte Pattern and Calcium Concentration of Serum D C Darrow and M Katherine Cary New Haven Conn—p 327
- The Fasting Ketosis of Monkeys I T E Friedemann Chicago—p 335
- Presence of Cholesterol in Feces R Schoenheimer New York—p 355
- Studies on Enzyme Action XLVII Lipase Action of Serum Grace McGuire and K G Falk New York—p 373
- Id. XLVIII Lipase Actions of Horse Serum K G Falk and Grace McGuire New York—p 379
- \*Cholesterol Content and Antirachitic Activation of Milk Constituents S Ansbacher and G C Supplee Bainbridge N Y—p 391
- Inactivation of Pepsin Trypsin and Salivary Amylase by Proteases H Tauber and I S Kleiner New York—p 411
- Stability of Carotene in Olive Oil R G Turner Detroit—p 443

**Cholesterol Content of Milk Constituents**—Ansbacher and Supplee found the cholesterol content of butter oil to vary between 0.24 and 0.34 per cent. The cholesterol content of butter oil is greatly reduced by heat in the presence of incorporated air. The study of the distribution of cholesterol in milk showed that about 18 per cent of the total cholesterol of milk is associated with the proteins. The butter fat carries a greater amount of cholesterol than any other milk constituent. When calculated to the dry basis, the lactalbumin has the next highest cholesterol content, which is several times greater than that of the other milk proteins. The cholesterol content of lactalbumin appears to be more uniform than that of other milk constituents. The fatty matter associated with the proteins of milk contains a relatively constant and uniform amount of cholesterol, which is many times greater than that of butter fat. Oxidation of butter oil by heat in the presence of incorporated air diminishes, or even completely destroys, the provitamin D. The cholesterol associated with the milk proteins contains matter that can be activated antirachitically. Lactalbumin after momentary periods of exposure to ultraviolet rays shows a substantial vitamin D potency. The fatty matter of milk prosthetically bound with the proteins is indicated as being of possible significance in accounting for the clinical merits of irradiated milk.

## Journal of Pediatrics, St. Louis

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- The Thymus Gland and Thymic Symptoms Investigation of One Thousand and Seventy Four New Born Babies A. Capper and R. A. Schless, Philadelphia—p. 573
- \*Bulbar Poliomyelitis and Its Treatment E. Smith and H. I. Fineberg Brooklyn—p. 590
- Congenital Heart Disease Pulmonary Stenosis of Inflammatory and Developmental Origin Complicated by Rheumatic Heart Disease and Subacute Bacterial Endocarditis S. D. Leader and M. A. Kugel, New York—p. 595
- Maladaptation as a Factor in Etiology of Neurosis W. W. Barber Denver—p. 604
- Benign or Functional Albuminuria in Children Further Studies J. K. Calvin Chicago—p. 611
- \*Use of Copper and Iron in Treatment of Secondary Anemia in Children J. F. Cason Durham N. C.—p. 614
- Diabetes Mellitus in Children Alvah L. Newcomb Chicago—p. 617
- \*Bacillus Enteritidis Meningitis in an Infant of Fifteen Months J. O. Vaughn Santa Monica, Calif.—p. 631
- Convulsions in Children H. Hosen New Orleans—p. 636
- Esophageal Varix Report of Case in a Three and One Half Year Old Child Not Dependent on Liver Cirrhosis E. Friedman, Denver—p. 641
- Hypothyroidism and Cretinism in Childhood II. Capillary Permeability I. P. Bronstein and Margaret E. Milliken Chicago—p. 648
- Effect of Cooking on Digestibility of Cereals J. R. Ross and Lida M. Burrill Toronto—p. 654
- The Discard of the Cradle J. Zahorsky St. Louis—p. 660
- Chickenpox in an Eight Day Old Infant W. B. Henderson Chicago—p. 668

**Bulbar Poliomyelitis and Its Treatment**—Smith and Fineberg present the clinical signs and symptoms of unilateral and bilateral paralysis of the palate in acute anterior bulbar poliomyelitis. Their experience with 1,325 cases of poliomyelitis, of which 29 per cent were bulbar, convinces them that lumbar puncture is unnecessary and definitely contraindicated in bulbar poliomyelitis in which paralysis is self evident. When the diagnosis is doubtful and a lumbar puncture is essential, a small amount of fluid should be withdrawn slowly, because when the subarachnoid pressure is suddenly released by lumbar puncture the pressure within the cord is similarly released. The spinal cord bulges instantly, the capillaries dilate and blood rushes into them. With the sudden onrush of blood, oozing takes place from the finer blood vessels and additional capillary ruptures in the bulb are liable to occur and in many instances probably do occur. When the bulb is the site of hemorrhage, edema results, the vital centers are strangulated and death is sure to follow. Lumbar puncture does not benefit the patient but subjects him to the danger of hemorrhage into the bulb. The use of the respirator is definitely contraindicated in these cases. It is indicated in intercostal, diaphragmatic and abdominal muscle paralysis, in which prolonged artificial respiration is required. Paralysis of the respiratory center, when and if it occurs, is part of the vasomotor collapse and a phase of the terminal picture. All drugs that depress the respiratory center are contraindicated. Atropine sulphate, when given in large doses, is a depressant of the respiratory center and therefore its repeated use is inadvisable. Patients who are unable to swallow because of partial or of complete palatine paralysis should be put to bed in a prone position on a hard mattress. Usually there is a marked flow of mucus from the mouth and nose. Most of the secretions are removed in this manner, but a considerable amount of the mucus may remain in the pharyngeal space and stagnate behind the posterior pillars. To diminish the possibility of aspiration pneumonia and catarrhal or purulent otitis media, suction should be instituted by gently introducing a suction catheter into the mouth and throat. From 3 to 4 ounces of tap water, at body temperature is introduced by rectum every four hours by means of a funnel and catheter during the first day. On the next day, in addition to this, hypodermoclyses of a 5 per cent solution of dextrose in physiologic solution of sodium chloride are started. Two daily hypodermoclyses and instillations of water by rectum are continued as long as nausea persists. The restlessness and nausea correspond to the period of elevated temperature. Nasal gavage is not begun until the elevation of temperature has subsided. The amount of fluid in the first gavage should not exceed 2 ounces. The amounts are gradually increased until a maximum of 8 ounces every four hours is reached. The gavage diet consists of 8 ounces of milk, 2 ounces of sugar and one egg. As soon as the palate begins to move the patient is

placed in a supine position without a pillow, and a semisolid diet is given. The head is then slowly elevated from day to day until the child is able to take nourishment without any difficulty.

**Copper and Iron in Treatment of Secondary Anemia**—Cason used copper and iron in the treatment of six children suffering from secondary anemia due to malnutrition or infections, whose hemoglobin varied from 40 to 74 per cent. They were given from 5 to 10 cc (according to their ages) of a solution containing 0.5 Gm of cupric sulphate and 10 Gm of ferric ammonium citrate per hundred cubic centimeters of 25 per cent solution of aromatic elixir (U. S. P.), three times a day. Six children whose secondary anemia was similar to that of the first group and whose hemoglobin on admission averaged 63 per cent were given cuprous and ferrous glutamate. This material was made up in capsules, each of which contained 30 mg of cuprous glutamate and 750 mg of ferrous glutamate. The dosage was three capsules daily. The hemoglobin content of these children was determined at intervals for an average of four weeks by the Sahli method and recorded on a percentage basis, 16 Gm of hemoglobin per hundred cubic centimeters of blood being regarded as 100 per cent. The children treated with the cupric and ferric compound and those given the cuprous and ferrous compound showed the same rate of increase in their hemoglobin content, 46 per cent each week.

**Bacillus Enteritidis Meningitis**—Vaughn reports a case of meningitis caused by *Bacillus enteritidis* of Gärtner in an infant, aged 15 months, in whom the colitis found at necropsy, with the history of diarrhea preceding the onset of meningeal symptoms suggests that the portal of entry of infection was the intestinal mucosa. The positive blood culture warrants the assumption that the meningeal involvement was metastatic through the blood stream. *Bacillus enteritidis* was found in the mastoid antrum although the tympanic membranes showed no evidence of middle ear infection during life.

## Journal of Pharmacology &amp; Exper. Therap., Baltimore

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- Study of Cyclopropane Anesthesia with Especial Reference to Gas Concentrations, Respiratory and Electrocardiographic Changes M. H. Seavers, W. J. Meek, E. A. Rovenstine and J. A. Stiles Madison Wis.—p. 1
- Effect of Posterior Pituitary Preparations on the Blood Flow of the Normal Intact Dog E. M. K. Gelling Baltimore J. F. Herrick and H. E. Essex—p. 18
- Action of Crystalline Thevetin, a Cardiac Glucoside of *Thevetia nerifolia* K. K. Chen and A. L. Chen Indianapolis—p. 23
- Studies of Morphine, Codeine and Their Derivatives. IV. Hydrogenated Codeine Isomers N. B. Eddy Ann Arbor Mich.—p. 35
- \*Low Oxygen Tensions and Temperatures on Actions and Toxicity of Dinitrophenol M. L. Tainter San Francisco—p. 45
- Interaction of Acetylcholine and Epinephrine on Isolated Small Intestines of Various Animals F. Bernheim Durham N. C.—p. 59
- Interaction of Acetylcholine, Epinephrine and Certain Other Drugs on the Isolated Small Intestine of the Rat F. Bernheim Durham N. C.—p. 68
- Studies of Phenanthrene Derivatives. II. Monosubstitution Products. First Variations. Effect of Muzzling the Hydroxy Group of 2 or 3-Hydroxyphenanthrene N. B. Eddy Ann Arbor Mich.—p. 75
- Effects of Morphine and Its Derivatives on Intestinal Movements. II. Effect of Morphine on Pressures Developed by the Intestinal Musculature H. Krueger Ann Arbor Mich.—p. 85
- Role of Acetylcholine in Bladder Contractile Mechanisms and in Parasympathetic Ganglions V. E. Henderson and M. H. Roepke Toronto—p. 97
- \*Aspirin and Calcium Aspirin Their Action on Growing Bone N. Mutch London England—p. 112

**Dinitrophenol**—Tainter observed that rats in which metabolism was increased by the administration of dinitrophenol or thyroïd were found to be more susceptible to lowered oxygen tensions in the respired air than were normal rats. For the same degree of metabolic stimulation, dinitrophenol had an effect on the sensitivity to oxygen lack similar to that of thyroïd, hence dinitrophenol cannot serve in an oxygen sparing capacity in the intact organism. Inhalation of pure oxygen markedly reduced the toxicity of dinitrophenol for rats, as indicated by mortality curves. The administration of oxygen may therefore be of value as an antidote in cases of clinical overdosage with dinitrophenol. Dinitrophenol failed to cause its usual metabolic stimulation in rats, guinea pigs and pigeons kept at atmospheric temperatures of from 2 to 6 C., as indicated by oxygen consumption or body temperature changes,

and it caused fewer fatalities. This abolition of metabolic action was not due to impaired absorption of the drug from the subcutaneous tissues, since the same peculiarity was observed with intraperitoneal injections. The author discusses the various possible explanations of this phenomenon and suggests that, since low temperatures decrease the toxicity of dinitrophenol, the use of ice packs or other cold applications to the skin in addition to inhalation of oxygen is worthy of trial in cases of clinical poisoning or overdosage with the drug.

**Action of Acetylsalicylic Acid on Growing Bone**—Mutch performed experiments on rats in which relatively large doses of acetylsalicylic acid (equivalent on a per kilogram basis to ten times the maximal official British Pharmacopoeia dose) given daily for a month did not cause any decalcification of the bone as judged by roentgen translucency. Acetylsalicylic acid broadens the calcified zone in ossifying cartilage. This effect is due to the acetylsalicyl radical rather than to the acidic nature of the drug. The addition of calcium to the molecule to form the calcium salt protects young animals from the harmful action of the drug on growing bone. Calcium acetylsalicylic acid taken by mouth raises the proportion of calcium in the blood serum. Repeated slightly toxic doses of calcium acetylsalicylic acid interfere less with the growth of young rats than do equivalent amounts of acetylsalicylic acid itself.

### Kentucky Medical Journal, Bowling Green

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- Management of Incomplete Abortion T. K. Van Zandt Louisville—p. 230  
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Office Treatment of Eye Injuries by Family Physicians with Some Suggestions as to What to Do and What Not to Do R. W. Bledsoe Covington—p. 259  
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### Laryngoscope, St. Louis

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- Sinus Thrombosis I. An Obscure Case of Sinus Thrombosis with Unusual Complications M. J. Gerstley New York—p. 349  
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Id. III. Parapharyngitis Following Infection of the Lower Jaw After Tooth Extraction S. Knopf New York—p. 356  
Id. IV. Cases of Jugular Thrombophlebitis Following Infections of the Face and Throat J. W. Babcock New York—p. 360  
Treatment of Lateral Sinus Phlebitis Thrombosis and Otitic Septicemia with Nonspecific Immunotransfusions M. S. Ersner and D. Myers Philadelphia—p. 363  
\*Gross Pathologic Changes in Mastoids on Various Days Following the Onset of Acute Suppurative Otitis Media A. P. Tibbets Washington D. C.—p. 369  
Otitic Generalized Infection Origin Management Outcome A. Kovacs Milwaukee—p. 373  
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The Rationale of Surgical Treatment for Ozena Presentation of Cases Operated by the Author's Method A. Wachsberger New York—p. 394  
Systemic Complications in Sinusitis N. Sattel New York—p. 398  
I. Squamous Cell Carcinoma of the Uvula Soft Palate and Tonsils  
II. Acute Mastoiditis Lateral Sinus Thrombosis Abscess of Internal Jugular Vein Operation and Recovery C. Kaplan Brooklyn—p. 407  
Tonsil Tissue as a Hemostatic H. H. Amenden Concord N. H.—p. 415

**Pathologic Changes in Mastoids**—To visualize what takes place within the mastoid on successive days following the onset of acute suppurative otitis media Tibbets analyzed his observations in twenty five cases that came to operation. He observed that in acute mastoiditis marked pathologic changes may be present in the mastoid as early as the third

day following the onset of an acute suppurative otitis media. The rapidity of bone destruction depends to a great extent on the age of the patient, being more rapid in the young. In his series, four out of five complications occurred in patients having sclerotic mastoids. This type of mastoid can be detected roentgenologically and would seem to be an indication for early operation. Some patients with acute labyrinthitis, Gradenigo's syndrome and meningeal irritation may recover without other intervention than the simple mastoid operation. A sudden decrease or cessation of discharge from the middle ear, in the presence of a free opening in the drum and with an exacerbation of clinical symptoms, nearly always means complete blocking of the mastoid antrum, which can be relieved only by operation. In patients who continue to show signs of mastoid involvement as late as the eighteenth day following the onset of an acute suppurative otitis media, even without marked evidence of bone destruction, there exists a sufficient pathologic condition within the mastoid to make a satisfactory recovery without operation seem extremely doubtful.

### Medical Annals of District of Columbia, Washington

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- Neuropsychiatric Aspects of Female Endocrinology N. D. C. Lewis Washington—p. 89  
Lead Encephalopathy Report of Case A. Schneider Washington—p. 94  
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Fundamentals of Internal Medicine Diseases of the Heart W. M. Yater Washington—p. 100

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- Expert Medical Testimony in Nervous and Mental Cases W. E. Miller Washington—p. 119  
\*Division and Ligation of Superior and Inferior Thyroid Arteries in Treatment of Angina Pectoris Report of Case E. Horgan and J. A. Lyon Washington—p. 123  
The Child and the Ophthalmologist F. D. Costenbader Washington—p. 127  
Prostatic Abscess Complicating Diabetes Mellitus and Septicemia Report of Case A. Kemble Washington—p. 130  
Fundamentals of Internal Medicine Diseases of the Heart W. M. Yater Washington—p. 132

**Division of Thyroid Arteries in Angina Pectoris**—In studying a group of patients from five to ten years after thyroidectomy had been performed on account of persistent or recurrent hyperthyroidism, Horgan and Lyon observed that the patients who had had a subtotal thyroidectomy with ligation of both superior and both inferior thyroid arteries did not show any evidence of hyperthyroidism and that the tachycardia or auricular fibrillation had ceased. They conclude that stopping the effects of hyperthyroidism was not entirely due to removal of the major portion of the thyroid, but that the division and ligation of the superior and inferior thyroid arteries cut the pathway of stimuli from the sympathetic nervous system to the thyroid and consequently prevented regeneration of the tissue that was allowed to remain, thus avoiding overactivity of the remaining tissue by stimulation. The effect of this operative procedure was also shown to lower the basal metabolic rate, to lower the circulatory demands and to lighten the work of the heart. Because the results of this operation had been so striking, the authors used a similar method in a case of congestive heart failure and angina pectoris that is, cutting off most of the blood supply and cutting the pathways of stimuli to the thyroid by dividing both superior and both inferior thyroid arteries at one operation. The patient has been relieved of anginal failure and has enjoyed relatively active life for four months.

### Nebraska State Medical Journal, Lincoln

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Newer Conceptions of Blood Pressure Readings with Relationship to Body Surface and Weight A. C. Stokes Omaha—p. 182  
Influence of Heredity in Transmission of Ocular Defects C. M. Swab Omaha—p. 184



**New England Journal of Medicine, Boston**

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- Study of Two Hundred and Thirty Six Compound Fractures Treated at the Massachusetts General Hospital E M Daland, Boston—p 983
- \*Leukoplakia Buccalis and Keratosis Labialis S H Sturgis and C C Lund Boston—p 996
- Operative Surgery in the Pulmonary Tubercular T H Washburn Holden, Mass—p 1006
- Bronchoscopy in the Sanatorium G A Rice Holden Mass—p 1008
- Bilateral Pneumothorax G Nadeau Rutland Mass—p 1012
- Evolution of Pneumothorax Therapy A Laroche Rutland Mass—p 1013
- Thyroid Diseases T H Lahey Boston—p 1016
- Prevention of Litigation Requires Early and Thorough Examination and a Correct Diagnosis H F Stoll Hartford Conn—p 1022
- Acromioclavicular Dislocation and Its Repair F J Cotton and G M Morrison, Boston—p 1025

**Leukoplakia Buccalis and Keratosis Labialis**—From a study of 520 cases of leukoplakia buccalis and keratosis labialis Sturgis and Lund believe that the lesions are definitely pre cancerous. Bad dental hygiene and the use of tobacco are both almost universal and equally important as etiologic factors in leukoplakia and keratosis of the mouth and lip. Syphilis is found in about 30 per cent of patients with leukoplakia of the tongue, but it is of minor importance in all other buccal locations of this lesion. In the series of cases studied, the location of the lesion appears to have no prognostic significance. Similarly, the duration of the lesion before treatment has apparently no definite bearing on the results of treatment. The size and extent of the lesion seem definitely to influence the prognosis on the basis of treatment received between 1918 and 1926 at the clinic of the Huntington Memorial Hospital. Extensive leukoplakias involving wide areas of the buccal mucous membrane do not respond well to irradiation. If the lesion persists after all the irritating factors are removed the patient must be kept under constant observation, and prompt electrosurgical excision should be done of any areas showing suggestive evidence of cancer.

**New York State Journal of Medicine, New York**

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- Ameliasia Survey of One Thousand and Thirty Two Stool Examinations S M Creswell and C E Wallace Tacoma Wash—p 165
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**Oklahoma State Medical Assn Journal, McAlester**

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- Nonspecific Protein Therapy C H Haralson Tulsa—p 156
- The Present Status of the Vitamins D J Underwood Tulsa—p 158
- Relief of Prostatic Hypertrophy and Bladder Neck Resection by the Transurethral Method W J Wallace Oklahoma City—p 162
- Chronic Gonorrhea in the Male S F Wildman Oklahoma City—p 165
- Subphrenic Abscess Following Appendiceal Abscess Nather Ochsner Method of Drainage with Case Report B W Ward Tulsa—p 167

**Philippine Islands Med Association Journal, Manila**

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- Relation of Health Service to Physical Education and Athletics in Foreign Schools and Universities S A Francisco Los Baños—p 165
- Treatment of Malaria P F Russell New York—p 182

**Philippine Journal of Science, Manila**

53 211 378 (March) 1934 Partial Index

- The Nutritive Value of the Mountain Apple *Eugenia Malaccensis* or *Jambosa Malaccensis* C D Miller, Ruth C Robbins and K Haida Honolulu H I—p 211
- Solar Ultraviolet Radiometry IV Ultraviolet of Sunlight in Manila W D Fleming, Manila—p 339

**Psychoanalytic Quarterly, Albany, N Y**

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- Mental Processes in Thyrotoxic States Therese Benedek, Leipzig Germany—p 153
- Polysurgery and Polysurgical Addiction K A Menninger, Topeka Kan—p 173
- Thalassa Theory of Genitality S Ferenczi—p 201
- Outline of Clinical Psychoanalysis O Fenichel Oslo Norway—p 223
- Contributions to Problem of Humor A Winterstein Vienna Austria—p 303

**Public Health Reports, Washington, D C**

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- Silicosis R R Sayers—p 595
- Clonorchiasis in Hawaii Report of Cases in Natives of Hawaii C H Binford—p 602

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- Incidence of Illness Among Male Industrial Employees in 1933 as Compared with Earlier Years D K Brundage—p 615
- Production of Dibenzanthracene Tumors in Pure Strain Mice H B Andervont—p 620

**South Carolina Medical Assn Journal, Greenville**

30 65 98 (April) 1934

- Cancer of the Colon and Rectum J S Horsley Richmond Va—p 69
- Significance of Hemoptysis P P Vinson Rochester Minn—p 72

30 99 120 (May) 1934

- \*Symptoms Suggestive of Duodenal Ulcer Arising from Hookworm Infection J H Gibbs Columbia—p 102
- Diagnosis and Surgical Treatment of Malignant Lesions of the Large Bowel F W Rankin, Lexington Ky—p 110

**Symptoms in Hookworm Infection Suggestive of Duodenal Ulcer**—Gibbs states that the symptoms caused by parasitic fixation in the duodenum are not typical symptoms of ulcer. The patients have a hunger pain, but they do not have the pain with the unfailing, clocklike regularity of true ulcer. The pain seems to be located quite frequently in the left upper part of the abdomen. The sufferers from duodenal ulcer, irrespective of treatment, will classically become symptom free at intervals and go for months with "perfect digestion." In the patient having intestinal parasites the symptoms continue without such periods of relief. The true ulcer patient often puts his finger on a localized point of tenderness in the right upper part of the abdomen, while the intestinal parasite victim complains of much more diffuse tenderness. The physical examination yields almost nothing of exact differentiating value. The blood picture of an eosinophilia should always suggest the possibility of an intestinal parasite and is often the lead that elicits a correct diagnosis. The number of eosinophils varied in these diseases from 2 per cent to as high as 17 per cent in the author's series, though much higher counts have been reported. Careful examination of the feces gives the most positive information. The success of a search for eggs of parasites will depend to a marked degree on the suspicion of their presence. The roentgen observations of the stomach and duodenum are to some extent similar in duodenal ulcer and in parasitic disease of the intestinal tract. The stomach is irritable and tends to empty with abnormal rapidity in both conditions. The pylorus is spastic and the duodenal cap is abnormal. However in duodenal ulcer the duodenal deformity persists in spite of every effort to overcome it, while the duodenal deformity resulting from parasitic disease can be made to disappear under fluoroscopic manipulation. The back and forth, churning movement in the duodenum associated with hookworm disease and described by Henderson is an important diagnostic criterion.

## Southwestern Medicine, Phoenix, Ariz

18 151 184 (May) 1934

- Transurethral Prostatic Resection Report of Fifty Cases D M Davis Phoenix, Ariz—p 151  
Traumatic Neurosis R T Palmer Phoenix Ariz—p 154  
Clinical Indications for Blood Transfusions J D Hamer Phoenix Ariz—p 156  
Brain Injuries G E Tarkington Albuquerque N M—p 160  
Mental Mechanisms C W Irish Los Angeles—p 164  
Food Allergy Resume of Literature Personal Observations O H Brown, Phoenix Ariz—p 168  
Ragweeds as Spring Pollinators E A Gatterdam, Phoenix Ariz—p 173

## Texas State Journal of Medicine, Fort Worth

30 160 (May) 1934

- Narcotic Drug Addiction W L Treadway Washington D C—p 7  
Polyneuritis and Deficiency Diseases E M Perry Dallas—p 16  
Consideration of Pleurisy with Effusion and Pneumothorax and Atelectasis B R Collins Wichita Falls—p 18  
Rat Bite Fever Report of Two Cases A A Chapman and J Chapman Sweetwater—p 22  
Some Recent Advances in the Management of Sterility Cases Q U Newell St Louis—p 23  
Postpartum Hemorrhage J Z Gaston Houston—p 27  
Pathology and Treatment of the Complications of Ovarian Cysts L C Armin Corpus Christi—p 30  
Intracapsular Extraction of Cataract W J Woolsey Waco—p 35  
Injuries of the Chest F P Miller El Paso—p 40

## Western J Surg, Obst & Gynecology, Portland, Ore

42 251 308 (May) 1934

- Gain of Weight in Pregnancy in Relation to Weight of New Born B J Hanley Los Angeles—p 251  
Ovarian Cysts W L A Wellbrock Rochester Minn—p 255  
Electrocoagulation of the Cervix M S Sichel Portland Ore—p 261  
Congenital Syphilis H S Campbell Los Angeles—p 263  
Spinal Versus General Anesthesia R W Binkley Selma Calif—p 268  
Dysmenorrhea Menstrual Experience as Related to Histories and Physical Measurements Ruby L Cunningham Berkeley Calif—p 274  
Acquired External Fecal Fistulas Involving the Anterior or Lateral Abdominal Wall A P Heineck Chicago—p 282  
Experimental Attempt to Produce Hepatic Damage in the Dog by Feeding of Cinchophen W C Hunter and G A C Snyder Portland Ore—p 288

## Wisconsin Medical Journal, Madison

33 325 392 (May) 1934

- Full Thickness Skin Grafts in Finger Amputations T S O Malley, Milwaukee—p 337  
Uterine Fibroids and Radium Resume of Three Hundred and Seventy Cases in Private Practice A O Olmsted Green Bay—p 340  
Use of Colloidal Phase in Urine for Diagnostic Purposes F Eigenberger Sheboygan—p 345  
\*Bacterial Endocarditis Case of Primary (?) Acute Staphylococcus Aureus Endocarditis with Recovery M M Baumgartner Janesville—p 349  
Radiation Therapy in Medical Practice III Intra Oral Carcinoma with Especial Consideration of the Coutard Method E A Pohle Madison—p 353  
Treatment of Tuberculosis in General Practice IV Tuberculous Pleurisy A L Banyar Wauwatosa—p 355  
Melanosarcoma of Iris and Ciliary Body Report of Case B I Brindley Madison—p 359

**Staphylococcus Aureus Endocarditis with Recovery**—Baumgartner reports a case of bacterial endocarditis in which the chief complaint was high fever with a temperature following a chill ranging from 103 to 104 F daily for seventeen days, fulness in the chest and a healing carbuncle on the right buttock. Five days after admission, 3 grains (0.2 Gm) of sodium cacodylate was administered intravenously, and daily injections of from 7 to 7½ grains (0.45 to 0.48 Gm) of the drug were given subsequently. Sodium cacodylate was discontinued on the twentieth day. Following this therapy the temperature never exceeded 102 F and with one or two exceptions the peak of the daily temperature dropped several tenths of a degree each day until 98.6 F was reached. Three weeks later there was an increase of 22 pounds (10 Kg), the heart was apparently normal on examination and no pathologic change was detected in the knee. Two weeks later the leukocyte count was 8800, the patient was again having trouble with the right knee and was placed on crutches. A blood culture made two weeks later was negative for any growth after an incubation period of one week. The patient has been examined at frequent intervals since with no evidence of recurrence of his trouble. One and one-half years after his illness there has been a gain in weight of 40 pounds (18 Kg) and the only cardiac abnormality demonstrated by physical examination is a faint presystolic murmur.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Dermatology and Syphilis, London

46 207 256 (May) 1934

- Tuberculin Treatment of Lupus Vulgaris R Aitken—p 207  
\*Epidemic Papulopustular Eruption of Occupational Origin Occurring in Coal Miners G B Dowling and R T Brain—p 215  
The Prognosis of Psoriasis R Hallam—p 221

## Epidemic Papulopustular Eruption in Coal Miners—

Dowling and Brain discuss an epidemic causing papulopustular eruptions, which occurred recently among colliers working in a Kent coal mine. There were no constitutional symptoms. A man who was in otherwise normal health experienced an irritation while at work and developed a widespread eruption of more or less constant distribution within a few hours. This eruption became more widespread and more irritable during the succeeding few days, whether the man remained at work or not, and then if he ceased work began to die down spontaneously. With one exception in the case of those who remained at work no remission took place, and most of those who returned to work before the eruption had cleared up promptly relapsed. Some of those who recovered have since relapsed on returning to work. The eruption consisted of closely set punctate lesions involving in every case the extensor aspects of the thighs, knees, legs, buttocks and forearms and in many cases the flexural aspects of the forearms, the waist line, the chest and the back. In almost every case the eruption was most dense on the hairy part of the thighs, knees, buttocks and forearms. The lesions consisted of discrete papules, some were almost flat, many were scaly, and a certain proportion were capped by a small crust or pustule. In patients having rather dry skins the eruption consisted of flat, dry scaly spots of eczematous type, either discrete or aggregated into irregular patches. On the nonhairy parts of the skin, such as the abdomen, chest and back, the lesions were usually small dry papules, rather like those of the follicular variety of seborrheic eczema. A biopsy examined serially showed one of the lesions to consist of a superficial staphylococcal pustule with its subcorneal colony of organisms. Direct smears and cultures from the pustules revealed the presence of *Staphylococcus albus* and occasionally *aureus*. The etiologic problem appears to have three possible solutions: (1) The atmospheric conditions prevailing in the mine at the time were noxious to the miners' skins, perhaps because the mine was closed for a few days, (2) there was some new irritating property in the coal dust which, in combination with intense sweating was capable of producing an irritant folliculitis, and (3) the condition might be due to infection in the mine with some fungus or organism.

## British Medical Journal, London

1 787 834 (May 5) 1934

- Strangulated Hernia Its Prevention and Treatment Under Local and Other Anesthetics R W Power—p 787  
Vitamins A and D Their Relation to Growth and Resistance to Disease R Sutherland—p 791  
Recent Advances in Anesthetics R Jarman—p 796  
The Nature of High Arched Palate O C O Sullivan—p 800

1 835 880 (May 12) 1934

- Chemical Transmission of the Effects of Nerve Impulses H Dale—p 835  
Disease at Its Onset with Especial Reference to Ocular Manifestations A M Ramsay—p 841  
\*Avertin Narcosis in Operations for Toxic Goiter G Keynes—p 844  
\*Electrocardiographic Changes During Brief Attacks of Angina Pectoris M K Gray—p 847  
Magnesium Deficiency in the Rat R W Brookfield—p 848  
Certain Medicolegal Difficulties Concerning Occupational Dermatitis P B Mumford—p 860

## Tribrom-Ethanol Narcosis in Operations for Goiter—

In employing tribrom-ethanol narcosis in toxic goiter operations, Keynes gave the patients one-eighth grain (0.008 Gm) two hours before and one twelfth grain (0.005 Gm) of morphine one hour before operation. Forty-five minutes before operation the patient is given 0.09 or 0.1 Gm of tribrom-ethanol solution per kilogram of body weight by rectum. The larger amount is given to the more acutely toxic patients. All the patients have been unconscious when brought to the oper-

ating table except one, who was suffering from diarrhea and was unable to retain more than a fraction of the dose. When the patient has been placed on the operating table, the mask for the administration of gas and oxygen is fixed in position, but as a rule no gas is given at this stage. The operative area is infiltrated with a 0.5 per cent solution of procaine hydrochloride in physiologic solution of sodium chloride containing 1:500,000 of epinephrine hydrochloride. The infiltration is effected rapidly with a Dunn self filling syringe. The volume of solution used is usually from 100 to 150 cc. For some of the more mildly toxic patients this combination of basal narcosis and local infiltration with procaine hydrochloride is all that is needed, but in fewer than 10 per cent is the operation completed without any gas and oxygen being given. Once the patient has been roused, gas and oxygen is begun at once. Perfect anesthesia can be maintained with a minimal amount of gas, and cyanosis can be avoided entirely. When the patient is back in bed, he usually remains quiescent for two hours or more, so that mental disturbance is eliminated at this stage as effectually as before. Under tribrom ethanol narcosis the pulse rate may rise a little with the initial disturbance and the induction with gas and oxygen, but not infrequently the pulse rate is actually lower at the conclusion of the operation than at the beginning. There is seldom any alarming rise of pulse rate during the operation. Of the author's 220 patients who have been operated on under tribrom ethanol narcosis, only three died soon afterward. One of these was a woman of 24, who was acutely ill. Of the other two patients, one had gross auricular fibrillation and died from heart failure a few hours after the operation. The other was so ill that she developed an acute thyroid crisis a few hours after the ligation of one superior thyroid artery and died.

**Electrocardiographic Changes in Angina Pectoris**—Gray presents four cases of angina pectoris having a brief attack in the consulting room. The attacks were probably induced by excitement, as there was no preceding exertion, and were relieved by rest, the longest time for complete cessation of pain having been twenty minutes. Definite changes in the ventricular complexes of the electrocardiograms were demonstrated. These changes resembled those produced by coronary thrombosis. They are not always present owing no doubt to 'silent areas' in the myocardium changes that do not affect the electrocardiogram. The author states that the positive evidence adduced in the foregoing cases and in those previously reported points toward the coronary origin of anginal pain.

### Indian Medical Gazette, Calcutta

69 181 240 (April) 1934

- Megacolon and Its Treatment by Sympathectomy. D. C. Chakrabarti—p. 181  
 Acute Perforation and Hematemesis in Duodenal Ulcer. P. N. Ray—p. 183  
 Voelcker's Method of Extraperitonealization of the Urinary Bladder: Its Usefulness in Operations for Pathologic Conditions of the Bladder and the Ureters. V. M. Kaikini—p. 185  
 Hernias of the Large Intestine with Especial Reference to Sliding. S. Dayal—p. 188  
 Notes and Observations on Infantile Biliary Cirrhosis. N. G. Pandit—p. 190  
 Studies on Action of Quinine in Monkey Malaria. R. N. Chopra and B. M. Das Gupta—p. 195  
 Place of Treatment in an Antimalarial Campaign. W. B. McQueen—p. 204  
 Nine Cases of Human Gnathostomiasis. C. Prommas and S. Daengsvang—p. 207  
 Bored Hole Latrines in the Health Unit. Partabgarh. K. Prasada—p. 211  
 Toxic Effects Produced by Combined Treatment with Atabrine and Plasmochin. R. N. Chopra and A. K. M. A. Wahed—p. 213  
 Calcareous Degeneration in a Uterine Fibroma. S. Mozumdar—p. 214  
 Cerebral Type of Malaria Lighted Up by Sudden Shock. C. Lahiri—p. 214

**Human Gnathostomiasis**—Prommas and Daengsvang add nine cases of human gnathostomiasis to the twelve cases reported previously. They have seen twenty cases clinically diagnosed as gnathostome infestation one of which was confirmed by extraction of a worm by the patient from the buccal mucosa after suffering from facial swelling for about one week, but unfortunately the patient had thrown the worm away. The disease is apparently confined to oriental countries and is especially common in Siam. It occurs in both sexes at any age (20 to 57 years). The disease is characterized by a migrating intermittent swelling of varying size which is usually

painless, but on certain occasions is more or less itchy and painful. Pain, if present, is boring or biting in character and in rare cases is severe enough to disturb sleep. The swellings did not show pitting on pressure and underwent suppuration in two cases only, probably on account of secondary infection. The regional lymph nodes are not involved, unless there is added bacterial infection. There is no definite anatomic distribution of the lesions, they are found on the abdominal wall, chest, shoulders, face, hands and feet. In one instance the parasite simulated mastoiditis (Datta and Maplestone, 1930), and in one of the authors' cases it presumably pierced through the tracheal wall, producing hemoptysis. As a rule the blood picture shows eosinophilia of varying degree, but this is not a pathognomonic feature, since it occurs in many other tropical diseases. Though nothing is known with certainty regarding the mode of infection and transmission of the parasite, recently the authors (1933) discovered the development of its larval form in a cyclops and are carrying on experiments. Of the many methods of treatment tried, none apparently surpass surgical intervention.

### Journal of Anatomy, London

68 289 432 (April) 1934

- Mechanism Controlling the Growth in Length of the Long Bones. H. Selye—p. 289  
 Innervation of Extrinsic Ocular Muscles. A. A. Tarkhan—p. 293  
 The Development of a Medial Motor Nucleus and an Accessory Abducens Nucleus in the Pig. R. F. Shaner—p. 314  
 Ganglions of the Internal Carotid Plexus. A. Gellert—p. 318  
 Contrasting Types of Australian Skulls. F. Wood Jones—p. 323  
 Variations in the Lower End of Femur from Indians. M. A. H. Siddiqi—p. 331  
 Further Observations on the Venae Cavae of Certain Mammals. K. J. Franklin—p. 338  
 Abnormality in the Venous System of the Common Frog (*Rana temporaria*). Case. A. J. Grove and G. E. Newell—p. 341  
 Sternal Gland of *Myrmecobius*. Note. E. Ford—p. 346  
 Megaloduodenum with Various Vascular Abnormalities. Case. Alfreda H. Baker and J. Kirk—p. 350  
 Persistent Thyroglossal Duct in a Rabbit. R. K. Pal—p. 354  
 Displaced and Malformed Kidney. Case. M. N. De and S. C. Sinha—p. 357  
 Concerning the Course of the Laterosensory Canals in Recent Fishes. Prehshes and Necturus. E. P. Allis Jr.—p. 361

### Journal of Laryngology and Otology, London

49 297 356 (May) 1934

- Recent Advances in the Treatment of Carcinoma of the Esophagus from the Surgical Aspect. G. Turner—p. 297  
 \*Carcinoma of the Esophagus Treated by Radiation. F. J. Cleminson and J. P. Monkhouse—p. 313  
 \*Further Observations on the Sphenopalatine Ganglion. D. Stewart and V. Lambert—p. 319

**Carcinoma of the Esophagus Treated by Radiation**—Cleminson and Monkhouse treated eighty-nine cases of carcinoma of the esophagus with radiation but the results were so disappointing that they wonder whether it is not actually harmful to treat these patients by the application of radon to the center of the growth and whether they might not live longer if their only treatment was a preliminary removal of all teeth followed by a gastrostomy. These patients do not seek advice until peripheral extension and early metastasis have made it impossible for radiation to reach the outlying parts of the growth with destructive strength. The suspicion arises that there may even be a certain danger of stimulation of the rate of growth at the periphery and that thus the end may be hastened rather than delayed. The average period of survival for the whole series was 5.6 months (for growths in the upper part 6.7 months, in the middle part 5.4 months and in the lower part 6.9 months). For the ten women it was 8.5 and for the seventy-nine men it was 5.2 months. The relation of history to the survival period suggests that a short history does not necessarily indicate that the case is more recent in the sense of being less advanced and so more amenable to treatment than one in which the history is longer. This suggestion is confirmed by a study of the survival times of patients grouped according to length of history.

**Observations on the Sphenopalatine Ganglion**—Stewart and Lambert state that cocaineization of the foramen is a quick and efficient method of producing temporary anesthesia of the nasal cavity. Afferent impulses from local lesions in the superior division of the fifth nerve may be blocked by a local

application to the sphenopalatine foramen. As a result of this, painful conditions in this region which produce referred pains at a distance can be controlled. The latter fact accounts for the control thus exercised over the pains in the ear, neck and shoulder. As the afferent path of the nasopulmonary reflex demonstrated by Brodie and Dixon is abolished by cocainization in this region, it is reasonable to expect that certain cases of reflex spasmodic asthma will be controlled in the paroxysms. The authors cannot find any evidence to support the view that there are afferent sympathetic fibers present in the nerves.

### Lancet, London

1 931 986 (May 5) 1934

- The Hormones and Their Chemical Relations E C Dodds—p 931  
International Cooperation in Public Health Its Achievements and Prospects G S Buchanan—p 935  
\*Therapeutic Action of Prostigmine E A Carmichael F R Fraser D McKelvey and D P D Wilkie—p 942  
\*Acute Perforation of Peptic Ulcers T G I James and N M Matheson—p 945  
Diabetes Mellitus in Children L Cole—p 947

1 987 1042 (May 12) 1934

- Hormones and Their Chemical Relations E C Dodds—p 987  
International Cooperation in Public Health Its Achievements and Prospects G S Buchanan—p 992  
Hernia Dislocation J W Riddoch—p 997  
Diabetes Mellitus in Children L Cole—p 998  
Pleuropulmonary Perforations Use of Gas Analysis in Their Diagnosis C A Birch—p 1002  
Percentage of Fat in Human Milk Influence of the Method of Extraction Margaret Frances Lowenfeld Sibyl Trute Widdows and Hazel H Chodak Gregory—p 1003

**Therapeutic Action of Prostigmine**—Carmichael and his associates observed the action of dimethyl carbamic ester of 3 oxyphenyl-trimethyl-ammonium-methyl sulphate (prostigmine) in forty-one patients. It was administered by subcutaneous or intramuscular injection of the solution provided in ampules by the manufacturers. Thirteen of the patients were selected from among ordinary hospital patients, because they presented no special lesion of the digestive tract that would interfere with observations on the action of the drug under approximately normal conditions. In twenty-eight instances, patients were selected because the action claimed was desired, and in sixteen of these postoperative intestinal distention was present. It was observed that the subcutaneous or intramuscular injection of the drug produces active movements (contractions and relaxations) in the colon in normal subjects, but there is no evidence that these movements are such as to produce the forward passage of the contents of the colon. Considerable variation was seen in the intensity of the response to different subjects. The drug appears to be free from side actions on the rate of the heart and blood pressure when given in doses at least double the recommended dose. In from ten to twenty minutes following its injection, abdominal pains and rumblings occur in cases of gaseous distention of the intestine and these go on for almost thirty minutes. It is necessary to give an enema to get a satisfactory passage of flatus. The authors suggest that the drug followed by solution of pituitary and then an enema, may be an effective measure for stimulating peristalsis in postoperative distention.

**Acute Perforation of Peptic Ulcers**—The observations of James and Matheson of seventy-five cases of perforated gastric and duodenal ulcers revealed that subphrenic and pelvic abscesses are the result of delay. Intestinal obstruction has been encountered on two occasions and occurred round the site of the drainage tube necessitated by gross peritoneal soiling. The occurrence of hemorrhage from a second ulcer led to a fatal termination in two cases on the tenth and twenty-fourth postoperative days respectively. In each case the perforation had occurred in the duodenum, and the bleeding was shown at necropsy to have its origin in an unsuspected gastric ulcer—in one case eroding the splenic artery. The possibility of this occurrence indicates the desirability of searching for other ulcers at the time of operation and stresses the need for prolonged and thorough after-treatment. It is often stated that bleeding ulcers do not perforate and that perforating ulcers do not bleed but the authors have seen this association in two cases. In one the perforation followed immediately on a hematemeses and in another profuse bleeding occurred from an ulcer high on the lesser curve which had been sutured ten days before.

### Practitioner, London

132 529 640 (May) 1934

- Some Common Ocular Symptoms W J Adie—p 529  
Squint and Its Treatment N B Harman—p 539  
Treatment of Conjunctivitis P G Doyne—p 551  
Causation and Operative Treatment of Detachment of the Retina J C Marshall—p 562  
Glaucoma H B Stallard—p 573  
Some Minor Cardiac Affections R O Moon—p 587  
Modern Treatment of Carcinoma of the Breast D C L Fitzwilliams—p 596  
\*Massive Diffuse Hypertrophy of the Breasts in Girls Report of Four Cases C P G Wakeley—p 608  
\*Nasal Treatment of Hay Fever C Francis—p 614  
Medicolegal Problems in General Practice V Diagnosis of Intoxication by Alcohol and Drugs A Biddle—p 619

**Massive Diffuse Hypertrophy of Breasts in Girls**—Wakeley reports four cases of hypertrophy of the breasts and states that, although numerous partial amputations have been advocated from time to time such operations should be condemned as they leave behind a mass of pathologic material which is later a source of trouble to the patient. To attempt transplantation of the enlarged and attenuated nipple to the upper part of the breast has nothing to recommend it, for the nipple is so stretched and flattened that it has lost all its contractile tissue. If the hypertrophy was a simple overgrowth of the fat and fibrous stroma without any alteration of the glandular tissue, a partial removal might be considered. This, however is not the case, as the gland substance participates in the hypertrophy and sometimes adenomas are found as well. These conditions seem to justify the removal of the whole of these useless, functionless and frequently painful breasts. The best method of removing the breasts is by transverse elliptic incisions, which are united to form a transverse scar. Bleeding can be controlled by making the upper part of the elliptic incision first. The main vessels are exposed and clamped, and when the lower part of the incision is made there is practically no bleeding. Shock is not encountered if the bleeding is minimal during the operation. Transverse wounds over the chest heal well and are not subject to keloid formation. The etiology of diffuse hypertrophy of the breasts in girls remains obscure, but there is probably some upset in the endocrine balance, as shown in the change of the clinical picture after their removal. The condition is in no way like a true elephantiasis.

**Nasal Treatment of Hay Fever**—Francis describes a treatment of hay fever by light intranasal cauterization. The procedure is as follows. A small swab of absorbent cotton is twisted on the end of a probe, dipped in a 10 per cent solution of cocaine hydrochloride and wrung out almost dry. The interior of the nose is examined, and the septum and the inferior and middle turbinates are touched lightly in rotation with the swab. The most sensitive areas are anesthetized by painting them three or four times with the solution. The areas should be touched lightly with a fine cauterizing point heated to a dull red, the heat being turned off just before the cauterizing point is applied. One or more light longitudinal burns should be made, when necessary, on the septum and inferior turbinate, and a few light touches on the anterior edge of the middle turbinate. The marks produced by the cauterizing should be nearly or entirely gone in a week or ten days. If necessary a second application is made to any remaining hypersensitive areas. There is no pain, swelling of the parts or sloughing, and no after-treatment is required. Of the author's 100 patients treated in this way, seventy-four patients obtained complete or great relief, moderate relief was evident in twenty-two and four patients obtained either slight relief or none.

### Japanese Journal of Experimental Medicine, Tokyo

12 1104 (Feb 20) 1934

- Experimental Diphtheria Paralysis and Its Causes S Hosoya E Ozawa and T Tanaka—p 1  
Studies on Botulinum Toxin First Report S Taniguchi—p 9  
Id. Second Report Toxin Produced in Buret Free Mediums and Its Characteristics S Taniguchi—p 33  
Influence of Parenteral Introduction of Liver Cell Constituents on Blood Gas III Influence of Liver Cell Constituents on Artificial Acidosis N Owada—p 49  
Id. IV Influence of Liver Cell Constituents on Artificial Alkalosis N Owada—p 77  
New Method of Staining Viruses of Variola Vaccinia and Varicella and the Nature of Cell Inclusions in Virus Diseases T Taniguchi M Hosokawa S Kuga and T Fujino—p 91  
Virus of Herpes and Zoster I Taniguchi M Hosokawa S Kuga and Z Masuda—p 101

**Annales de Médecine, Paris**

35 325 412 (May) 1934

- Periodic Accidents in Course of Tuberculosis R Burnand—p 325  
 Clinical Spirometry Testing Dyspnea Produced in Closed Space R  
 Goiffon R Parent and J Witz—p 362  
 \*Significance of Testing for Carbohydrates Especially Galactose in  
 Functional Examination of Liver I Pavel I Florian and I Rad  
 van—p 380

**Carbohydrates in Functional Examination of Liver**—Pavel and his collaborators studied seventeen patients having benign infectious jaundice to decide whether the insufficient galactose utilization of the liver is not due in part to insufficient insulin secretion. They attempted to observe the influence of insulin administration on galactose elimination in cases of catarrhal jaundice with positive galactosuria. In three cases studied they found the galactosuria influenced by insulin. The apparent deficiency of the insulin producing apparatus of the pancreas in catarrhal jaundice was corroborated by the insulin resistance of these patients. They also examined the condition of the pancreas in seventeen cases of infectious jaundice by measuring the lipase activity of the pancreatic secretion produced by milk and by measuring the urinary diastase. In fifteen of the seventeen cases they found a functional deficiency of the pancreas. This series of cases showed clinically similar syndromes but the cause was certainly not constant. Eleven patients had hypertrophic cirrhosis and six an atrophic cirrhosis. In nine of the eleven cases of hypertrophic cirrhosis the authors studied the lipase activity of the secretion produced by the pancreatic substance, and the urinary diastase. In two cases they observed the urinary diastase alone. In the group of nine cases they found the two tests of pancreatic insufficiency positive five times. In the second group of two cases they found an increase of urinary diastase once which corresponded to a pancreatic edema confirmed by necropsy. In the other observations the urinary diastase was diminished. A parallelism existed: alimentary glycosuria was positive in the cases in which the pancreatic tests were positive and galactosuria was negative when pancreatic tests had been found normal and anatomic examinations confirmed the integrity of the pancreas. Less definite were the observations in the six cases of atrophic cirrhosis. In one case the two tests were positive, in two a single test (duodenal lipase) was positive, and in three the tests were normal. Thus the results of clinical research seem to show that the functional state of the pancreatic external secretion is almost constantly affected in catarrhal jaundice, and often in the cirrheses.

**Archives des Maladies de l'Appareil Digestif, Paris**

24 337 448 (April) 1934

- Generalized Lymphosarcomatous Lymphangitis of Stomach Contribution to Study of Gastric Sarcoma A Cain P Hillemand and J Mezdard—p 337  
 \*Periduodenitis of Appendicular Origin Clinical and Roentgenologic Diagnosis S Kadrnka and P Bardet—p 354  
 \*Argentaffine Tumors of Appendix P Topa E C Craciun and D Caramzulescu—p 392

**Periduodenitis of Appendicular Origin**—Kadrnka and Bardet found that periduodenitis of appendicular origin is more frequent than usually supposed. It is more frequent, in fact, than postcalculous or postulcerous periduodenitis and is generally found in young adults. So-called essential periduodenitis must be considered only after the exclusion of disorders both near and far and especially appendicitis, even when apparently clinically cured. In such instances histologic evidence of the remains of an old appendicitis is necessary. Periduodenitis of appendicular origin generally involves the proximal part of the first portion of the duodenum and by choice the lesser curvature of the bulb. It is also frequently localized at the level of the third part in the region of the neck of the mesentery, thus producing a mesocolic form which is characterized by a non-reducible stenosis. In practice appendicular periduodenitis forms two groups that in which the dyspepsia is accompanied by the appendicular syndrome and that in which it is not. In the first form roentgenography is largely responsible for the pathologic diagnosis. In the second group clinical diagnosis is especially difficult. The authors feel that treatment should be directed both toward operative freeing of the duodenal adhesions and removing of the primary focus, i. e. the appendix.

Although good results sometimes follow appendectomy alone, a second operation is often necessary, and it seems desirable to perform the two procedures at the same time rather than run the risk of a second operation. They conclude that in view of the numerous early and late complications of appendicitis it is wise to remove this organ at the first sign of involvement and even better to remove a normal appendix than chance the complications of which periduodenitis is only one.

**Argentaffine Tumors of Appendix**—Two cases of primary tumor of the appendix are reported by Topa and his collaborators. In both instances the histologic arrangement of the cells of the stroma was more similar to that of a trabecular stomach cancer than to that of a benign process. In both instances there was an affinity of the tumor tissue for ammoniacal silver. The authors believe that appendicular neoplasms are practically always a complication of chronic inflammation. It is apparently justifiable to admit three kinds of epithelial cancer of the appendix. The first is the argentaffine epithelioma derived from the so called Kultschitsky-Schmidt-Ciaccio cells. The second group is the simple epithelioma developed from the cells common to the epithelial lining and glandular crypts. Finally there is the mucocoele (a benign tumor) which may develop from the muciparous cells. In the particular tumors cited in this paper diagnosis as to malignancy is difficult. The histologic structure and argentaffine nature of the tumors favor an attenuated cancer while the extreme rarity of postoperative recurrence is in favor of their benign nature.

**Bruxelles-Medical, Brussels**

14 863 887 (May 6) 1934

- \*Postinfluenzal Tracheobronchial Adenopathies of Secondary Infancy G Ruelle—p 863  
 Dental Manifestations of Hereditary Syphilis Vais—p 868  
 Placental Retention Case J Volperts—p 876

**Postinfluenzal Adenopathies of Infancy**—Ruelle discusses a group of children who develop tracheobronchial adenopathy subsequent to grip. He concludes that a lulu syndrome of nontuberculous nature exists which occurs after numerous infections, such as measles, whooping cough, syphilis and influenza. The principal cause appears to be a rhinopharyngitis. This condition has a double pathologic effect. It plays a mechanical part in narrowing the upper respiratory passages and creates a respiratory insufficiency. It plays also an infectious part by means of the mucopus either nearby or at a distance. It is not safe to diagnose tuberculosis lightly in the face of a continued fever. One cannot ignore the bad effects of rhinopharyngitis. If the latter is acute it is easily recognized, if subacute, it may create a fever lasting weeks or months or with episodes of fever for several months. This type of adenopathy serves as one of the therapeutic triumphs of arsenic. Iodides and sometimes sulphur are valuable accessories. A final sojourn at the seashore completes the results obtained by medicaments. If this is impossible, ultraviolet rays are helpful.

**Presse Médicale, Paris**

42 641 664 (April 21) 1934

- Clinical and Roentgenologic Study of Syphilitic Gummas of Lung E Sergeant E Piot and J Imbert—p 641  
 Voluminous Extracranial Hematoma Following Probable Rupture of Lateral Sinus C Lenormant and H Mayet—p 644  
 \*Esophageal Sequelae of Intoxications by War Gases Pathogenesis of Dilatations of Esophagus G Worms and J Leroux-Robert—p 646  
 \*Pseudohypophyseal Infundibulo Tubercular Syndrome J Lhermitte and P Pagniez—p 649  
 Endoscopic Study of Gastro-Enterostomy F Moutier—p 653  
 Growth of Connective and Osseous Tissue Cultivated in Vitro in Presence of Certain Metals Biologic Study of Osteosynthesis G Menegaux P Moysse and D Odette—p 658

**Esophageal Sequelae of War Gassing**—Worms and Leroux-Robert illustrate by cases several forms of esophageal involvement resulting from gas intoxication. In one case there was enormous esophageal dilatation which took only twelve or fourteen months to develop. In another, in spite of only mild cardiac stenosis ectasia of the esophagus existed thus showing the accessory nature of cardiospasm. In a third case massive dilatation of the esophagus existed in the absence of any stenosis of the cardia. Two other patients showed marked cardiac stenosis with gradual dilation. The authors believe

that these observations suggest that the dilatation is the primary phenomenon and that the stenosis plays only a secondary role in its development. They are inclined to attribute the primary ectasia to a toxic change of the parietal nervous system. The toxin has an elective action on the nervous system and can determine at what level of the esophagus dilatation will occur. Thus stenosis of the cardia of toxic, infectious, or inflammatory origin can produce esophageal dilatation due to the weakened wall, but this stenosis, while common, is a secondary phenomenon, inconstant, and not absolutely necessary to the development of the ectasia.

**Infundibulo Tuberian Syndrome**—Lhermitte and Pagniez describe the case of a woman who in infancy had had poliomyelitis and an encephalitis of indeterminate nature. At the age of 40, a facial paralysis with crossed hemiplegia appeared, followed two years later by a diabetic syndrome (polyuria, polydipsia, glycosuria and hyperglycemia) with an increase of obesity, menstrual difficulties and epileptiform attacks. The roentgenogram showing enlargement of the sella turcica added to the impression that the cause was a hypophyseal lesion. This hypothesis was proved false by anatomic studies which were made possible by the development of a fatal apoplexy. The hypophysis and sella turcica were entirely normal while the hypothalamic center appeared grossly altered by an infectious process. Not only did the basal leptomeninges show a dilatation of the vessels but the walls of the vessels were also infiltrated by lymphocytes and plasma cells. The quality and intensity of the process became more evident when the region from the terminal lamina to the peduncle was examined. From a topographic point of view this cellular infiltration developed in an elective manner from the terminal lamina to the peduncle but, although it was marked deeply in the gray substance, it was practically completely absent in the white substance. In the latter, some vessels surrounded by a collar of mononuclear cells were the only changes. It is apparent from this case that the differentiation of some conditions, which seem to be of hypophyseal origin, from morbid processes of the infundibulo tuber cinereum region is difficult but should be attempted.

#### Schweizerische medizinische Wochenschrift, Basel

64 501 524 (June 2) 1934

- \*Value of Sour and Dry Milks for Healthy Nurslings and for Those with Nutritional Disturbances E. Feer—p. 501  
Clinical Aspects and Therapy of Myelodysplasia J. Ratner—p. 505  
External Female Pseudohermaphroditism Case G. Monsch—p. 509  
Critical Remarks About Selection of Laparotomy Incisions E. Orbach—p. 512  
\*Cutireaction with Diphtheria Toxin Attempt at Simplification of Schick Test T. Reh—p. 513  
Liver and Chronic Rheumatism Vichy Cure P. Vauthey and M. Vauthey—p. 514

**Sour and Dry Milks in Feeding of Nurslings**—Feer says that research has revealed that the addition of organic acids, such as lactic and citric acid, to cows' milk makes up largely for its disadvantages compared to human milk. He considers buttermilk the most valuable of the sour milks in the feeding of nurslings. It is particularly useful in feeding premature infants and infants with dyspepsia and fat intolerance. Excessive acidification may cause diarrhea. The low fat content makes buttermilk alone unsuitable for long periods but additions of butter, flour and sugar compensate for this. In evaluating lactic acid whole milk, the author states that it is valuable in the so-called two-milk nutrition. In nurslings aged 4 weeks it can already be used to supply two thirds of the food requirements in addition to one third of human milk and eventually it even may be given as the only food. Since this milk has a high food value, the mother must be told not to exceed the prescribed quantities. In acute toxic dyspepsia lactic acid whole milk is inadvisable, at least in the beginning stage. In the treatment of enteritis and dysentery lactic acid whole milk is of great value having an almost specific effect. It has proved of great aid in dystrophy, atrophy, pyloric stenosis whenever there is a lack of appetite and in many infectious diseases. Citric acid whole milk may be used in the same manner as lactic acid whole milk. Other sour milks evaluated by the author are protein milk, yoghurt and kefir. He considers the dry milks good substitutes for fresh milk when it is difficult to obtain. The fat-containing dry milks

are helpful in preparing concentrated foods. If dry milks have to be used for longer periods it is necessary to guard against vitamin deficiency by giving fresh fruit juices.

**Simplification of Schick Test**—For years Reh has made efforts to simplify the Schick test and to develop a cutireaction with diphtheria toxin. His first experiments, in which he employed the usual toxin, failed. However, Ramon produced toxins with high antigenic value with which Reh has perfected a technic that permitted a "pirquetization" of the Schick test. Following experiments on guinea-pigs he tried it on children. The toxin was obtained from the Pasteur Institute and it was always controlled pure and diluted, heated and unheated for its cutireactivity on guinea-pigs. Two intracutaneous insertions are made into one arm and to one is applied heated toxin and to the other one unheated toxin. On the other arm a control Schick test is made. The cutireaction appears, as a rule after forty-eight hours and attains its maximum between the second and fourth days. It does not cause local pain or general reaction. Its intensity is variable just as in the Pirquet reaction. On the basis of observations made in ninety-six cases the author concludes that, with rare exceptions, the cutireaction gives the same results as the Schick reaction. The technic is simple by means of a vaccinostyle two scarifications are made on the forearm and on one of them a drop of toxin with 30 units of antigen is applied with a glass rod or with a drop-bottle and allowed to dry.

#### Riforma Medica, Naples

50 597 636 (April 21) 1934

- Massive Gastro Intestinal Hemorrhages in Relation to Ulcer of Stomach and Duodenum N. Leotta—p. 599  
\*Origin and Hepatic Treatment of Exfoliative Arsphenamine Dermatitis G. Zolezzi—p. 609  
High Ileac Retrograde Invagination Resulting from Tumor in Child A. Cioffi—p. 612

**Exfoliative Arsphenamine Dermatitis**—Zolezzi describes two cases presenting exfoliative dermatitis due to arsphenamine. He found a deficiency in the hepatic function of both patients. He emphasizes the importance of the functional activity of the liver in the course of arsphenamine treatment. The relation of grave cutaneous manifestations to the condition of the liver may in some cases be established by clinical examination, in others only by functional examination of the organ. The two patients responded well to intramuscular injections of various liver extracts. These extracts overcome the effect of the hepatic deficiency, in the absence of which arsphenamine dermatitis does not occur.

#### Rivista di Malariaologia, Rome

13 1120 (No. 1) 1934

- Hematic Conditions of Malarial Population of Hyperendemic Zone in Relation to Acquired Immunity A. Corradetti—p. 1  
Hemoglobinuria in Malaria U. Peratoner—p. 58  
\*Variations of Lactic Acid Content of Blood in Chronic Malaria M. P. Demurtas—p. 66  
Acute Nephritis in Malarial Infection D. Ceccarelli—p. 81  
Presence in Italy of Plasmodium Tenue and of Plasmodium Circumflexum A. Giovannola—p. 92  
Winter Malaria in Corsica Its Relation to Variety of Anopheles Maculipennis J. Sautet—p. 97  
Contribution to Biogeography of Malaria in Burhacaba (Benadir) C. Tedeschi and A. Scalas—p. 104  
Staining of Malarial Parasites F. Jerace—p. 114

**Lactic Acid Content of Blood in Chronic Malaria**—Demurtas states that the lactic acid content of the blood of normal persons fluctuates between 11 and 14 mg per hundred cubic centimeters. In studying eleven patients presenting chronic malaria, he found that the rate of lactic acid shows a marked and constant increase. Many investigators attribute this increase to symptoms of autophagia or to an abnormal passage of portal blood through the liver into the hepatic vein. The author maintains, however, that this lacticemia indicates a deviation in the function of the liver. It is his belief that an abnormal quantity of lactic acid is thrown into the circulation because the specific synthetic action of the liver is lacking owing to some alteration of the hepatic cells. Malarial infection always produces alterations of the hepatic parenchyma, such as fatty degeneration, pigment infiltration and necrosis of the cells. These alterations are not always demonstrable by clinical examination or laboratory investigation but they are by a systematic study of the lac-



ticemia. The change in function may be demonstrated many years after disappearance of the febrile attacks, of evolutive manifestations and of progressing malarial infection.

### Archivos de Medicina, Cirugía y Espec, Madrid

37 473 500 (May 5) 1934

- Sahlgren's Agglutination Test in Pulmonary Tuberculosis L. Gonzalez Rubio and R. Luelmo y Luelmo—p. 473  
 \*Ovarian Hypofunction in Etiology of Diabetes E. Arias Vallejo—p. 475  
 New Method for Roentgen Examination of Liver and Spleen P. Beltrán de Heredia—p. 482

**Ovarian Hypofunction in Etiology of Diabetes**—Arias Vallejo says that of all endocrine glands which, associated with insular lesions of the pancreas, take part in the development of diabetes, the ovary has the most important etiologic role. Of the diabetic women observed by the author, 86 per cent had ovarian hypofunction. Diabetes originated from a pathologic ovarian insufficiency, surgical ablation of one or both ovaries or roentgen castration (15 per cent). Eight of the patients were vagotonic. The injection of an extract of total ovary or of pilocarpine chloride produced a decrease in the glycemia, marked within an hour after the injection, but followed by a return to the initial values about an hour and a half after the injection. The results obtained by the author indicate that glycemia decreases under the influence of insulin secretion produced by stimulation of the parasympathetic by the ovarian hormones. They also show the advantages of giving ovarian treatments to diabetic patients whose diabetes follows insufficiency of the genito-endocrine glands.

### Lisboa Medica

11 257 330 (April) 1934

- \*Kala Azar and Malaria Case Cordeiro Ferreira—p. 257  
 Alkali Reserve in Dystrophic Infants C. Salazar de Sousa—p. 267  
 Prevention of Venereal Diseases E. Faro—p. 276  
 Abnormal Left Ureter and Urinary Incontinence M. Conde—p. 303

**Kala-Azar Coexisting with Malaria**—Cordeiro Ferreira reports a case of infantile kala-azar coexisting with malaria, which is extremely rare. Kala-azar and malaria, when associated in the same patient, do not exercise any reciprocal influence on each other. The patient shows clinical and hematologic symptoms of both infections. The malarial parasites are found in the peripheral blood of these children. The diagnosis of the coexisting kala-azar can be made only by means of the parasitologic examination of the blood of the spleen obtained by puncture. Reports have appeared in the literature with the statement that quinine treatment produces a harmful effect on kala-azar. In the author's case quinine produced a cure of malaria without aggravating the coexisting kala-azar, which in turn followed a favorable evolution to recovery when the patient was treated with an antimony preparation. In the author's case the splenomegaly disappeared slowly after the hematologic cure of the infection, as happens in all cases of kala-azar.

### Archiv für Kinderheilkunde, Stuttgart

102 65 128 (May 25) 1934

- Dysentery During Nursing Age E. Hainuss—p. 65  
 \*Etiology of Dysentery in Nurslings Z. Teveli—p. 79  
 Treatment of Enuresis J. Siegl and H. Asperger—p. 88  
 \*Elimination of Chlorine in Acute Hepatitis During Nursing Age G. Török and L. Neufeld—p. 102  
 Advantages and Disadvantages of Therapeutic Use of Garlic During Childhood with Especial Consideration of Celiac Disease E. Mayerhofer—p. 106

**Etiology of Dysentery in Nurslings**—Teveli succeeded in demonstrating a bacillus of the dysentery group in forty-six out of fifty nurslings with primary purulent and sanguineous enteritis, that is in 92 per cent. These bacteriologic investigations prove the assumption, which so far has been based only on epidemiologic observations, that all forms of colitis and enteritis in which the stools are mucopurulent or sanguineous and purulent, and in which influenza, typhoid and paratyphoid can be ruled out, may be considered bacillary dysentery. The author thinks that the role of intestinal streptococci and of coli, Proteus or pyocyaneus bacilli is doubtful.

**Elimination of Chloride in Acute Hepatitis in Nurslings**—Török and Neufeld studied an epidemic of hepatitis in

a group of children. They conclude that the determination of the sodium chloride content of the urine, at least during childhood, is unsuitable for the detection of a hepatic lesion, because in acute hepatitis the chloride elimination is just as much dependent on the chloride content of the food as is the case in normal children. Observations by other investigators indicate that the infant is capable of storing only slight quantities of sodium chloride. It appears that in some pathologic conditions in which the chloride retention of the tissues is increased in adults the infant maintains its characteristic low chloride retention capacity. The authors think that this difference may be due to hormone factors.

### Deutsche Zeitschrift für Chirurgie, Berlin

243 225 376 (May 14) 1934 Partial Index

- \*Shock Collapse and Electrosurgery F. Schorch—p. 225  
 Muscle Incision and Neurotization H. von Seemen—p. 274  
 Relationship Between Injuries to Intervertebral Disks and Spondylitis Deformans in Animal Experiments A. Lob—p. 283  
 Effect of Tissue Damage on Development of Neoplasms H. Lutzeler—p. 310  
 Use of Short Wave Diathermy in Surgery M. Haas and A. Lob—p. 318  
 State of Circulation in Collapsed and Normal Lung H. May—p. 341

**Shock, Collapse and Electrosurgery**—Schorch defines shock as a clinical state resulting from a sudden trauma of the nervous elements influencing the central nervous system by way of the reflex arc. It is accompanied by a rise in the blood pressure, followed later by a fall. Collapse, on the other hand, while clinically similar to shock, differs from it causally in that it is the result of a chemical action. It is caused by the absorption of toxic substances and their effect primarily on the circulatory system. It is slower in development and is characterized by a primary fall in the blood pressure. The author conducted studies of the circulation in rabbits and dogs in a state of experimental shock. Shock was induced by traumatization of the skin and the muscles, by trauma of the nerves and the vessels of the peritoneum and by procedures on the spinal cord and the internal viscera, especially the kidneys, the testicles and the uterus. He found that the circulatory system did not always react in the same manner. Not infrequently the fall in the blood pressure and the slowing of the pulse preceded the rise in the blood pressure and the acceleration of the pulse. As a rule, however, the fall in the blood pressure was secondary to an initial rise. The blood pressure fell, as a rule, in abdominal operations. The same experiments were performed in rabbits in which both hemispheres were removed as well as in animals in which the spinal cord was severed at the level of the neck. The effect was identical. The severing of both vagi did not change the effect. When the area to be traumatized was anesthetized by infiltration, no shock or any evidence of circulatory disturbance was noted. The author further found that trauma of an electrosurgical procedure produced less shock than that produced by ordinary mechanical means. In his studies on collapse the author showed that the so-called rapid toxins of the defibrinated blood are not identical with adenosinphosphoric acid of the muscle because the latter does not lose its effect when boiled, while the former loses its toxicity when heated to 59°C. He further found that in contradistinction to the juice of a fresh muscle, that obtained from an electrocoagulated muscle did not cause death when injected into the ear vein of a rabbit. It is possible that the rapidly working toxins affect the lesser circulation and the splanchnic area first and the central nervous system secondarily. Electrocoagulation destroys the toxicity of the rapidly working toxins because it generates a temperature of from 60 to 80 degrees, whereas their activity is inhibited at 59 degrees of heat. The autolysates of expressed muscle juice when injected into the ear vein of a rabbit caused death in smaller doses than that of the rapidly working toxins. The author found that autolysates from an electrocoagulated muscle were less toxic. Comparative studies of growth of bacteria (*Staphylococcus pyogenes aureus*) on raw, boiled and electrocoagulated muscle showed that they grew more slowly and in smaller numbers on the electrocoagulated muscle. The author believes that he demonstrated in experiments that electrosurgical trauma produces little reaction on the part of the nervous and circulatory systems.

**Jahrbuch für Kinderheilkunde, Berlin**

142, 255-318 (May) 1934

- Aspects of Grave Familial Icterus Cornelia de Lange—p 255  
Whooping Cough and Tuberculosis E Gabriel—p 281  
\*Diastase in Cerebrospinal Fluid in Poliomyelitis F Eckardt—p 303

**Diastase in Cerebrospinal Fluid in Poliomyelitis**—Studies on the behavior of diastase in the cerebrospinal fluid of patients with poliomyelitis revealed to Eckardt that the inflammatory processes which develop in the central nervous system of these patients cause an increase in the diastase content of the cerebrospinal fluid. In the severe cases the diastase content generally exceeds 50 mg per hundred cubic centimeters, while in the mild cases the values are usually near the upper limits of the normal content namely, around 50 mg per hundred cubic centimeters. The comparatively slight increase in cells, together with a great increase in the diastase content, proves that the diastase, independent of the number of cells increases only under the stimulus of inflammatory processes in the central nervous system. With the improvement of the clinical symptoms, that is, presumably with the retrogression of the inflammatory processes in the central nervous system the erstwhile increased diastase values decrease again. A relationship between the sugar and diastase values of the cerebrospinal fluid could not be detected in patients with poliomyelitis.

**Klinische Wochenschrift, Berlin**

13 721-752 (May 19) 1934 Partial Index

- Anoxemia H W Knipping—p 721  
Relations Between Decomposition and Oxidative Decomposition of Fat E. Freudenberg—p 723  
Coronary Embolism A Boger and G W Parade—p 724  
Protein of Plasma Oncotic Pressure Predisposition to Edema in Persons with Kidneys Impaired by Corrosive Mercuric Chloride E Roth and N von Szent Gyorgyi—p 726  
\*Influence of Vitamins on Catalase Content of Blood H J Juszat—p 727  
Aspects and Treatment of Vascular Reflexes of Visceral Organs H Gehlen—p 730  
\*Influence of Heparin on Epinephrine Permeability of Erythrocytes M Kuczarow—p 734

**Influence of Vitamins on Catalase Content of Blood**—According to Juszat, the decomposition of hydrogen dioxide by the blood is a highly sensitive reaction. The clinicodiagnostic significance of this reaction, however, has been given little attention. The author found that the catalase capacity of the blood could be employed for the experimental demonstration of the action of vitamins on the animal organism. The low catalase content in avitaminosis could be corroborated on rabbits, which for several months received practically no vitamins. The later addition to vitamin B and D to their diet produced a considerable increase in the blood catalase. The author further studied the effect of provitamin A (carotene), of vitamin A preparations and of vitamin C (ascorbic acid). He found that feeding with carrots (provitamin A) as well as the addition of vitamin A to the diet exerted no influence on the catalase content of the blood of rabbits that received an otherwise vitamin deficient diet. Vitamin C, however, administered in the form of ascorbic acid, either intravenously or orally, produced an increase in the catalase content of the blood.

**Influence of Heparin on Epinephrine Permeability of Erythrocytes**—Kuczarow shows that heparin reduces the absorption capacity of the erythrocytes for epinephrine. He thinks that this condition can be explained by changes in the permeability of the erythrocytes which develop under the influence of heparin. This assumption is explained also by the retardations in the hemolysis, which, as is well known, are a result of the changes developing on the surface of the erythrocytes and further by the observation that foreign erythrocytes, which are laden with epinephrine and heparin cause no increase in blood pressure after their injection into the blood stream. The latter observation may be the result of (1) an inhibition of the hemolysis of the heparinized foreign erythrocytes (2) a reduction of the epinephrine absorption by the heparinized erythrocytes and (3) changes of the epinephrine action under the influence of heparin. The clarification of these factors requires further research.

**Medizinische Klinik, Berlin**

30 693-724 (May 25) 1934 Partial Index

- Treatment of Detachment of Retina W Stock—p 693  
Revision of Federal Law Regarding Vaccination H A Gins—p 694  
Acute Insufficiency of Suprarenals in Generalized Infection Caused by Meningococcus Wickselbaum A Ghon—p 695  
\*Physiologic Dose of Follicle Hormone for Women W Schoeller—p 697  
Vascular Tonus and Endocrine Glands J Pal—p 698  
Hormone Analysis in Cystic Mole and in Chorion Epithelioma K Heim—p 700  
\*Anterior Lobe of Hypophysis and Male Gonad H O Neumann—p 702  
Relation of Suprarenals to Vitamins A B and C H Schroeder—p 704  
Thyroidectomy and Tumor Growth M Reiss and J Balint—p 706

**Physiologic Dose of Follicle Hormone**—In discussing the action of the follicle hormone, Schoeller points out that the synthetically obtained ester, such as the benzoate of the follicle hormone, is more effective than the crystalline follicle hormone. But organic chemistry has improved the follicle hormone preparation still more. In the course of hydrogenization experiments it proved possible to hydrogenize only the carbonyl group and not the first aromatic ring. The dihydro follicle hormone obtained in this manner is no longer an oxyketone, like the hormone, but rather a dioxy compound. However, this addition of two hydrogen atoms increased the efficacy of the hormone about five times and the dihydro follicle hormone is the most potent estrogenic substance. It was found that, in cases of ovarian insufficiency, from 200,000 to 300,000 mouse units of this hormone preparation had to be administered in the course of twenty days in order to produce the proliferation phase, and this may therefore be considered the physiologic dose. However, this number of units applies only to the preparation mentioned. The international unit agreed on in London in 1933 is 0.1 microgram (0.0001 mg) of the ketohydroxy form of the hormone in pure crystalline condition. The fact that this unit has only one fifth of the potency of the unit mentioned brings the physiologic dose expressed in the international unit up to from one to one and one-half million units.

**Anterior Lobe of Hypophysis and Male Gonad**—On the basis of his own experiences, Neumann reaches the conclusion that the hormones of the anterior lobe of the hypophysis which are extracted from pregnancy urine cannot be considered maturation hormones of the male gonad, that is, it could not be proved that they lack sex specificity. The results of other investigators support this observation. It proved impossible to influence the genitalia of hypophysectomized male rats by estrogenic substance extracted from pregnancy urine, but this was possible by means of anterior hypophyseal hormone extracted from the gland. Since gland implants and gland extracts do not produce the same results, it will be necessary to use different methods in future researches and the entirely unproved assertion of the lack of sexual specificity of the hormones of the anterior lobe of the hypophysis should be abandoned. The author reasons that, since every cell of a sexually differentiated organism is either male or female, it is logical to consider the hypophysis of a male animal the source of a specifically male secretion. It is possible that these hormones of the male anterior hypophysis are chemically related to but not identical with those of the female organism. It may even be assumed that on the basis of a bisexual disposition of all gonochorists the male anterior hypophysis produces also a small quantity of female hormone, just as the female organism contains small amounts of the male sex hormone. Future experiments should show whether hormones from the anterior hypophysis of male animals will effect maturation of the testicles of infantile animals.

**Monatsschrift für Kinderheilkunde, Berlin**

59 401-496 (May 14) 1934

- \*Misinterpretations of Encephalograms Eli Saamer—p 401  
Cystic Brain Tumor During Childhood Diagnosed by Neisser Pollack's Cerebral Puncture P von Küss and I Fenyes—p 411  
\*Acute Poliomyelitis of Brain Stem P von Küss and B Hecht—p 418  
Rudimentary Form of Diaphragmatic Relaxation M von Chott—p 432  
Cure of Classic Case of Moeller-Barlow Disease by Ascorbic Acid Preparation E Wentzler—p 431

**Misinterpretation of Encephalogram**—Saamer investigated whether a forced position of the head during air inflation can cause a unilateral air distribution leading to a misinterpretation.

pretation of the encephalogram. She cites experiments proving that a forced position of the head, particularly a maximal leaning to the side, may lead to a greater accumulation of air on one side. However, this was not always the case but was observed in four out of eight postmortem encephalographies and in two out of six living children with cerebral disorders, in whom the encephalogram was made for diagnostic purposes. Unilateral accumulations of air seem to be particularly frequent in children from 3 to 18 months of age. The author thinks that this is probably due to the greater plasticity of the brain, to the open fontanel and to the larger subarachnoidal space. The excess pressure evidently favors the unilateral accumulation of air. The author concludes from these observations that during encephalography a vertical position of the head should be insisted on. If this position of the head cannot be maintained during air inflation, caution is necessary in interpreting an increased accumulation of air on one side of the brain.

**Acute Poliomyelitis of Brain Stem**—The case described by von Kiss and Hechst was one of the so-called pontine type of poliomyelitis. It was of interest because of the diagnostic difficulties it presented and because its histologic aspects illustrate the significance of system electivity. The disorder began with high fever, pains in the neck and diplopia. On the third day the child was brought to the clinic, and at this time there existed cerebellar ataxia, meningeal symptoms and ptosis with paresis of the ocular muscles. A meningeal process could be excluded on the basis of the examination of the cerebrospinal fluid. The author discusses the differentiation from influenzal encephalitis and from epidemic encephalitis. The patient died and the postmortem diagnosis was based on the intensity of the histologic processes and on the diffusion of the changes in the nerve cells. The essential feature of the histologic picture was the destruction of cells in certain motor nuclei, which proved the so-called neurotropic system electivity.

### Wiener klinische Wochenschrift, Vienna

47 641 672 (May 25) 1934

- Diabetic Coma. H. Schwarz—p. 641
- \*Predominant Significance of Hereditary Factor in Development of Chronic Phthisis in Adults Compared to So Called Reinfection. K. Schuberth—p. 643
- Work Tests and Electrocardiogram. I. Rosenberger—p. 648
- Treatment of Asthma in Allergen Free Chambers According to Storm van Leeuwen. P. Habetin—p. 651
- Occurrence of Traumatic Tetanus in Austria. H. Kunz—p. 653
- \*Plastic Repair of Roof of Acetabulum in Case of Defective Hip Joints. H. Spitzzy—p. 655
- \*Complete Removal of Breast or Radical Excision of Tumor in Case of Mammary Carcinoma. W. Goldschmidt—p. 656
- Therapy of Genital Prolapse. P. Werner—p. 659
- Fever Therapy. O. Kauders—p. 662

**Hereditary Factor in Tuberculosis**—Studies on a material of 600 tuberculous patients revealed to Schuberth that in 64 per cent a hereditary factor was involved. He thinks that in the other patients a massive tuberculous infection during childhood was responsible for the development of the tuberculosis. Children from tuberculous parents contract tuberculosis much easier than children from healthy parents. The author concludes that, from the eugenic point of view, propagation is inadvisable not only when either the man or the woman has tuberculosis but also when they descend from a tuberculous family.

**Plastic Repair of Congenital Luxation of Hip Joint**—Spitzzy states that the method which he first employed in 1921, was carried out in the following manner. After bloodless reposition of the head of the femur and after exposure of the acetabulum by Hoffa's incision, the upper or the posterior rim of the acetabulum is laid free. Then a slit 2 cm in depth is made with the aid of a fine chisel into the pelvic bone, obliquely from below upward. Into this slit is driven a bone splinter, 5 cm in length taken from the contralateral tibia. The joint is fixed by a well fitted plaster-of-paris cast left on for from three to four months. It was found that in the course of the years the bone splinter became thicker, so that finally it grasped like a hand and thus gave the head a firm hold. It is essential for the success of the treatment that the splinter be as wide as possible. If one splinter proves insufficient, a second one may be driven in at once or later. In the course of the

years the author employed the method in forty-five cases and simplified it so that now it can be done almost subcutaneously and can be employed even in small children. This he considers an especial advantage of his method.

**Removal of Breast or Radical Excision of Malignant Tumor**—Goldschmidt points out that some authorities recommend the complete removal of the breast and others irradiation only, some a radical operation combined with irradiation and others simple excision of the primary tumor from the breast and subsequent application of rays to the lymph vessels and glands. The latter method avoids the mutilation to which many women refuse to submit, and it takes account of the progress in irradiation therapy. The author employed this method in fifty-one cases. His observations indicate that the less differentiated forms of carcinoma are more suitable for this form of treatment than are the more highly differentiated forms. He does not consider completely solved the problem as to when complete removal is necessary and when a more conservative method may be employed and he admits that further studies will be necessary to decide where the line should be drawn between total removal of the breast and simple excision with subsequent irradiation. He reports a case in which total removal was urged but rejected and the subsequent development showed that total resection should have been done. He concludes that if proper use is made of the progress in ray therapy and if the histologic structure of the mammary carcinoma is given consideration it will not be necessary to resort to the mutilating radical operation in all cases. Observations that he made in the course of eight years with the less radical operation seem to indicate early excision of the primary tumor, and, if they are involved, removal of the axillary lymph nodes through a different incision, but during the same session, and subsequent irradiation if the histologic examination reveals a solid cancer of a lower stage of differentiation. If the cancer proves to be a highly differentiated one, radical removal would of course be preferable.

### Zentralblatt für Gynäkologie, Leipzig

58 1201 1264 (May 26) 1934

- Delivery in Old Primiparas. F. von Mikulicz-Radecki—p. 1202
- \*Chorio Epithelioma and Aschheim-Zondek Reaction. H. Schwalm—p. 1212
- \*Connection Between Hypophysis and Genital Carcinoma. O. Busse and Hoeverner—p. 1218
- Experiences with Weltmann's Coagulation Band in Gynecology. Henriette Ypsilanti and L. Kyriakis—p. 1222
- Abdominal Speculum Frame. K. Holzapfel—p. 1224

**Chorio-Epithelioma and Aschheim-Zondek Reaction**—Schwalm relates the history of a woman in whom, in the absence of clear clinical symptoms, the Aschheim-Zondek test of the urine aided in corroborating the suspicion of the presence of chorio epithelioma so that surgery was resorted to early enough. He emphasizes that the test is valuable not only in the diagnosis of chorio epithelioma but also in ascertaining the efficacy of the treatment and in the early detection of metastases.

**Connection Between Hypophysis and Genital Carcinoma**—Busse and Hoeverner point out that some authorities, particularly Hofbauer, assume a connection between hypophysis and genital carcinoma. In experiments on guinea pigs this author noted that after the administration of the hormone of the anterior lobe of the hypophysis certain changes developed in the vaginal portion of the uterus and he considered these changes precancerous proliferations of the epithelium. He also made observations on castrated guinea-pigs, into which anterior hypophyseal tissue had been implanted, and maintained that the same changes took place. In order to verify these results the authors duplicated his studies on forty sexually mature female guinea-pigs. The animals were castrated and then portions from the anterior hypophysis of hogs were implanted. A considerable number of animals served as controls. In summing up their observations the authors state that they never observed precancerous proliferations of the epithelium and that control animals showed the same changes as the animals which had been given implantations. Administration of the hormone of the anterior lobe of the hypophysis likewise caused no changes in the genitalia of castrated guinea pigs.

# Klinicheskaya Meditsina, Moscow

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- Etiology Pathogenesis and Symptomatology of Rheumatic Infection E I Teukershteyn —p 497
- \*Procaine Hydrochloride Blocking of Nervous System as Method of Influencing Trophic and Inflammatory Processes in Tissues A V Vishnevskiy —p 514
- Method of Determining Working Capacity of Muscle and of Heart Muscle in Particular N A Kabayov —p 526
- Functional Evaluation of Circulatory Failure by Determination of Glycemic Curve O Sokolnikov A Lukovataya and M Tolgskaya —p 539
- \*Pathogenesis and Classification of Rheumatic Disturbances Ya B Eyger —p 548
- Pathogenesis of Polyarthritides L Ya Stepanenko —p 565

**Method of Influencing Trophic Processes**—Vishnevskiy treated sixty one patients presenting chronic, callous ulcers of the extremities by the method of procaine hydrochloride block of the nervous system. In fifty one the ulcers healed promptly and remained healed during the following year. Twelve patients having spontaneous gangrene of the extremities were submitted to the same treatment. The results were strikingly good. Of these, six were permanently cured, six had a recurrence which, however, yielded to repeated injections. In two the process was not influenced and amputation became necessary. The method consisted of injecting from 50 to 60 cc of 0.25 per cent solution of procaine hydrochloride into the renal fascia (lumbar anesthesia) or of a circular block of the thigh the needle reaching down to the bone, utilizing from 200 to 250 cc of the solution of procaine hydrochloride. The author obtained the same effect when lumbar block was carried out on the side opposite that of the diseased extremity. It appeared that fractional stimulation of the nervous system by procaine hydrochloride was capable of changing the condition of the entire nervous system, as a result of which the local pathologic process was influenced. The recent concept of the gastroduodenal ulcer as a neurotrophic lesion suggested to the author the rationale of applying his method of nerve blocking to this disease as well. In forty-six cases presenting ulcerative disease of the stomach or duodenum, the results were good. The author likewise applied this method in the treatment of acute inflammatory processes. He was able to show in a number of cases that injection of an anesthetic fluid into an inflamed area is, contrary to the old notion entirely free from any danger. The most striking effect noted was the disappearance of the inflammatory edema. This was so constant as to suggest that edema is a neurotrophic disturbance. Excellent results were obtained in the treatment of carbuncles, erysipelas and various other acute and chronic inflammations.

**Pathogenesis of Rheumatic Disturbances**—Eyger reviews the existing theories with regard to the pathogenesis of rheumatic disease. On the basis of the work of Klinge and of Weintraud, as well as his own clinical experience, he accepts the concept of rheumatism as an allergic disease. According to this concept the organism is first sensitized by foreign proteins of bacterial or other origin, both exogenous and endogenous. Certain agencies, such as chilling or dampness, innocuous to a healthy organism, produce in the sensitized organism morbid processes of the most varied type and localization, such as eczema, bronchial asthma and rheumatism. The allergic process may for a time fail to localize itself and may cause a febrile state, the so-called rheumatic fever. At some later time the characteristic alterations in organs will manifest themselves. The rheumatic process attacks the mesenchymal tissue, the joints and the muscles, the heart and the blood vessels, the serous surfaces, the brain and the peripheral nerves, the skin and the larynx. The reason for particular localization in any given organ is not known. It may have something to do with overwork. The author proposes a classification that embraces the various rheumatic manifestations.

## Acta Medica Scandinavica, Stockholm

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- Sugar Threshold and Renal Function T Bjerring and P Iversen —p 193
- \*Elimination of Urea and Renal Function T Bjerring —p 213
- \*Sugar Threshold and Renal Function T Bjerring and P Iversen —p 228
- \*Current Potential in Circulation and Its Significance in Pathogenesis of Hypertension F Leiri —p 251

- Coagulation of Blood F Leiri —p 268
- \*Relationship Between Plasma Proteins and Bone Marrow as Illustrated in Different Cases of Bone Marrow Tumors A H Johansen —p 276
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- Function of Liver in Galactose and Amino Acid Tolerance Tests E Cottlieb —p 342
- Presence of Antianemic Factor in Preparations of Dried Stomach Substance from Cardia Fundus and Pylorus Respectively E Meulengracht —p 352
- Pepsin and Rennin Activity of Preparations of Dried Stomach from Cardia Fundus and Pylorus Respectively E Meulengracht and E Schjodt —p 375
- Topographical Distribution of Glands of Cardia Fundus and Pylorus in Stomach of Pig E Meulengracht and A S Ohlsen —p 384

**Elimination of Urea and Renal Function**—Bjerring discusses the urea test of Addis and the creatinine test of Rehberg. The first determines the urea clearance and the second is based on the filtration resorption theory. The author found that within a fluctuation of from 10 to 150 of the creatinine concentration, and a fluctuation of from 13 to 90 mg per hundred cubic centimeters of the blood urea, there is a constant relation between the concentration index for urea and for creatinine. He reaches the conclusion that in the clinic the clearance test is superior to the filtration test not only because the determination of the urea belongs to the routine laboratory work but also because it is probably more reliable than the determination of creatinine, which necessitates a certain experience in the use of the colorimeter and a rather expensive equipment.

**Sugar Threshold and Renal Function**—Bjerring and Iversen relate the following observations: 1 The sugar resorption decreases only relatively according to the increasing sugar concentration in the blood. 2 There exists a linear correlation between the sugar content of the resorbed fluid and that of the blood. 3 With the same blood sugar content, the sugar solution absorbed by the kidney has a lower concentration in case of a decreasing blood sugar curve than in case of an increasing one. 4 Sugar content and total elimination of sugar in the urine are dependent on the blood sugar and on the concentration index. If the latter is kept constant, a parallelism may be produced between the sugar in the urine and the sugar content of the blood. 5 In acidosis the tubules are poisoned, with the result that the resorbed sugar solution becomes weak. 6 If the sugar content of the resorbed fluid remains for some time the same as the sugar content of the blood the sugar content of the urine will be found to be the same. 7 The elimination of increasing quantities of sugar is accompanied by a decreasing concentration index. 8 The same person eliminates under identical conditions the same quantity of sugar.

**Current Potential in Circulation and Pathogenesis of Hypertension**—Leiri shows that a current potential develops in the circulation and that it presents a resistance in the movement of the blood through the arteries. Changes that could produce an increased current potential have been observed in the blood and in the vascular wall of patients having hypertension, and it is possible that this plays a part in the pathogenesis of hypertension. This possibility is indicated by the favorable effect produced by carbon dioxide baths and by the inhalation of air with a negative electric charge.

**Relationship Between Plasma Proteins and Bone Marrow**—Determinations of the total protein and the more important fractions of protein in the plasma were made by Johansen in a series of patients who had diseases in the bone system. In primary tumors of the bone marrow, i.e. myelomas, greater variations were found in the plasma proteins than in cases of metastatic tumors of the bone system, although the distribution, the roentgenologic and other clinical features were nearly identical. The observations led the author to believe that there is a relationship between the maturity of the tumor cells in the bone marrow and the proportionate qualitative and quantitative changes of the plasma proteins.

### Norsk Magasin for Lægevidenskapen, Oslo

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- \*Internal Treatment of Gastric and Duodenal Ulcer H G Dedichen —p 465
- \*Result of Medical Treatment and Indications in Chronic Gastroduodenal Ulcers A Jervell —p 478
- \*Indications for Treatment of Gastric and Duodenal Ulcers J Holst —p 515
- \*Operative Treatment of Gastric and Duodenal Ulcers K Nicolaysen —p 533
- \*Results of Necropsy in Fatal Hemorrhage from Gastric and Duodenal Ulcers E Hjort —p 542
- \*Anemia in Patients After Operation on Stomach J Dedichen —p 565
- \*Clinical and Roentgenologic Study on Results of Internal Treatment of Gastric and Duodenal Ulcers T Dale and H G Dedichen —p 585

**Internal Treatment of Gastric and Duodenal Ulcer**—Dedichen states that after examination with roentgenologic control in thirty-two patients with roentgenologically established gastric or duodenal ulcer, treated medically from 1926 to June 1931, showed satisfactory results in about 50 per cent, the results being slightly better for gastric than for duodenal ulcers. Recurrence was most frequent in men doing heavy physical work, often also under poor economic conditions. One of the most important factors in internal therapy is the management of the after-treatment. Internal treatment of ulcers deserves a larger place than it has held during the last twenty years, and the results of the treatment are and can be better than is generally acknowledged. The failure of internal treatment is most often due to too late diagnosis or to defective management of the treatment, particularly the after-treatment.

**Medical Treatment of Chronic Gastroduodenal Ulcers**—Jervell concludes from statistics on the end-results of medical treatment that good results can be counted on in from 40 to 50 per cent of the cases treated. He is inclined to consider early diagnosis and start of treatment the important feature in the treatment of ulcers and one too little emphasized, but he says that even after symptoms of more than twenty years' duration medical treatment may be effective, and niches apparently due to callous and penetrating ulcers not infrequently disappear under it. In after-treatment, economic conditions play a part. Statistics are presented to show that there is no great danger of perforation in the further course of chronic gastroduodenal ulcers, except in special cases in which there are painful ulcers on the anterior wall. The danger of hemorrhages after medical treatment is also slight. Mattisson's report in 1931 on after-examination in 1,491 cases of gastroduodenal ulcers showed that of 178 fatal cases twenty-three, or 141 per cent, were due to hemorrhage. Prophylactic operation could have been done only in ten, or 076 per cent, of the 1,491. Repeated grave hemorrhages are considered a weighty indication for surgical treatment. The author finds greater significance attached to erroneous diagnosis of callous ulcer when cancerous ulcer is present than to the actual development of cancer from the ulcer. The least suspicion of cancer or perforation indicates operation. Pyloric stenosis and hour-glass stomach afford strong indication for operation, but, as the part played by the spastic factor is uncertain, medical treatment is worth trying. In acute hemorrhage from ulcers, internal treatment seems safer than operative treatment, but, in the more oozing chronic bleeding, surgical intervention must not be too long delayed. Before operation for gastroduodenal ulcers medical treatment should be tried. He regards two carefully performed courses of treatment with necessary after-treatment as the minimum requirement.

**Indications for Treatment of Gastric Ulcers**—Holst asserts that internal treatment and surgical treatment of ulcers do not compete but supplement each other. Surgical indications are present only in cases of definite complications. Except in cases of perforation he never operates for gastric or duodenal ulcer unless the ulcer is roentgenologically confirmed. Of 305 cases of gastric and duodenal ulcer in which operation was performed between 1919 and 1933, gastro enterostomy was done in 136, and resection in 169. Mild cases of gastric anemia, readily influenced by iron medication were frequently observed after resection. The decisive factor in the choice between gastro-enterostomy and resection must be the end-results. Late complications are more frequent and more grave after gastro-enterostomy than after resection, and the study of the pathology of the operated stomach' in cases from various Norwegian

hospitals shows resection, with extirpation of the ulcer, to be superior to gastro-enterostomy.

**Operative Treatment of Gastric and Duodenal Ulcers**—Nicolaysen says that the association of gastritis with peptic ulcers is less frequent in Norway than in central Europe, but more frequent than in the United States. He considers gastro enterostomy indicated in pyloric stenosis with large retention and dilatation of the stomach, irrespective of age. As a general rule, gastro enterostomy should be the method after 45, in women and in cases of gastric ulcer the age for gastro enterostomy can apparently be put slightly lower without special danger of jejunal ulcer. In resection he uses the anterior no loop as easier than posterior anastomosis and always removes more than one third of the stomach. Transient stomach retention in the first days after operation is frequent. The achylic anemia following operation yields to iron medication. He recommends operation in repeated, more massive hemorrhages and in a single massive hemorrhage due to chronic ulcer, in which, as also in all cases of suspected cancer, he prefers resection to gastro-enterostomy irrespective of age. In operative treatment indicated because of chronic symptoms, resistance to dietetic treatment, and for economic or geographic reasons, he prefers resection in all patients under 40, especially in men, in duodenal ulcers, and in high acid values and gastritis. With gastro-enterostomy mainly for older persons and resection for the younger, he considers resection a relatively safe operation, when well done, and offering far greater certainty of good results. In technically difficult cases, gastro-enterostomy is advised. In all diagnosed cases of ulcer, one regular course of dietetic treatment should first be given. In every case of gastric ulcer which after this treatment shows a roentgenologic niche, operation should be done, and in every case of duodenal ulcer, even with niche, continued diet may be advised if the patient can with a relatively liberal diet remain free from symptoms. He emphasizes the need for individualized treatment in each case of gastroduodenal ulcer.

**Necropsy in Fatal Hemorrhage from Gastric and Duodenal Ulcers**—Out of 4,460 necropsies, Hjort found gastric and duodenal ulcers in 108 cases (245 per cent), with fatal hemorrhage in twenty-two (20 per cent) of these (nineteen from gastric, three from duodenal ulcers). According to the local results of necropsy, fourteen cases seemed to be in an operable condition, five in an inoperable condition and three doubtful on the basis of the general results, about one half seemed in an operable condition. Attention is called to the operative difficulty in case of erosion of the splenic artery. Thirteen cases of gastric and duodenal hemorrhages not due to round ulcer are also reported. While the material supports the view that selected patients having acute grave hemorrhages from gastric and duodenal ulcers may be successfully operated on, the author emphasizes that the general results in half of the cases revealed pronounced vascular and organic disorders.

**Anemia in Patients After Operation on Stomach**—Dedichen's investigations show anemia, usually of secondary type, sometimes of pernicious type after resection of the stomach mainly according to Polya. The tendency to anemia in achylia following operation is greater than in spontaneous achylia and anemia may appear without postoperative achylia. The anemia cannot therefore depend only on the achylia. Possibly the excision of so large a part of the stomach is a factor, and perhaps also the rapid emptying of the stomach with consequent abnormal loading of the upper intestine. It seems at all events justifiable in choice of operative method, especially in younger women to bear the postoperative anemia in mind.

**Results of Internal Treatment of Gastric and Duodenal Ulcer**—Dale and Dedichen describe the clinical and roentgenologic results before and after treatment in twenty-eight cases. The ulcer niche usually disappeared after from four to six weeks, but some cases with a large niche required from two to four weeks more. Recovery was seen in old patients with large ulcers. After-examination in forty-five patients from two and a half to eleven years after treatment showed recovery in about one half of the cases, including cases with history of ulcers for from ten to thirty-two years and roentgenologically large niches.

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## THE MORTALITY FROM HEART DISEASE A CHALLENGE

CHAIRMAN'S ADDRESS

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In the United States today, heart disease in its various forms holds first place in the list of causes of death. Naturally, any condition that is of such far-reaching importance in the lives of our people is of unusual interest to physicians generally, but it is also of particular interest to them personally because carefully collected figures show conclusively that the death rate from heart disease is definitely higher among the members of the medical profession than it is among the general population. This fact is probably of considerable significance in the whole problem of the mortality from heart disease, since it provides a clear-cut opportunity for the evaluation of some of the etiologic factors involved. The life of the physician is more or less standardized by the nature of his profession with its constant nervous tension, irregular hours, heavy responsibilities and hard work. If these forces, projected into the lives of a large number of individuals, develop a class that is more susceptible to heart disease than are other social groups, it is practically certain that at least a partial insight into the larger aspects of the problem can be obtained. How well this apparently justified and obvious conclusion fits in with the established facts may later be observed.

### THE INCREASE OF HEART DISEASE

If one consults the mortality statistics of the United States Census Bureau, two outstanding facts are at once apparent. The first is that heart disease is responsible for about two and one-fourth times as many deaths as its nearest rival, cancer, the second is that heart disease is steadily increasing in frequency. As computed from this source, the death rate from heart disease in 1900 was 132 per hundred thousand of population, while in 1932 it was 224 per hundred thousand—an increase of approximately 70 per cent. There are those who believe that the alleged increase of heart disease is more apparent than real. They attempt to explain the higher rates in recent years on the basis of changes in the use of terminology and the designation as heart disease of various correlated conditions in the blood vessels and kidneys. That these factors may have some bearing on the greater frequency with which heart disease finds its way on death certificates can hardly be denied, but that they account for an

increase of 70 per cent in thirty-two years seems quite exaggerated. During the past fifteen or twenty years the popular appreciation by physicians of the clinical features of coronary thrombosis has undoubtedly added to the total number of heart disease diagnoses appearing in mortality statistics. However, if the percentage of this type of heart disease is estimated in a large group of cardiac cases it is found to be relatively small, so that coronary artery disease as a comparatively recent clinical entity can account for but a small part of the increasing frequency of heart disease as a whole. If one studies the carefully compiled mortality rates for the large cities and the life insurance companies, in which perhaps the most reliable figures are to be found, one sees that the trend in every instance is the same—a decidedly increasing death rate from heart disease. Then the opinion of capable clinicians who have practiced through the years from 1900 to the present is emphatically that heart disease is more commonly encountered now than it was thirty years ago.

An important fact brought out by the age incidence statistics is that heart disease has shown marked increase in frequency only in individuals past the thirtieth year of life. Before 30, fewer people die from infectious diseases now than was the case in 1900, this is in effect saying that, by avoiding serious infections, more have been carried into the age groups where heart disease takes its greatest toll. Whatever the actual facts may be as regards the increase of heart disease, however, it is sufficient for the moment to realize that it destroys more than twice as many lives as does its nearest competitor. Therefore from a public health point of view it is no exaggeration to state that the most outstanding challenge to modern medicine is the mortality from heart disease.

Almost fifty years ago, Osler said "It is of use from time to time to take stock, so to speak, of our knowledge of a particular disease, to see exactly where we stand in regard to it, to inquire to what conclusions the accumulated facts seem to point, and to ascertain in what direction we may look for fruitful investigations in the future." It is with this attitude of mind that the present discussion is undertaken. Many facts that afford definite clues are at hand, it should be our purpose to use that material which is available to add to the existing knowledge of the subject, to sponsor research that will clarify certain etiologic factors in heart disease, and to strive for the development of conditions that may be antagonistic to the operation of these factors.

### THE CAUSES OF HEART DISEASE

Within the last fifteen years the relative importance of the various causes of heart disease has become increasingly appreciated and more generally understood. This is due largely to the adoption of the prac-



tice of classifying heart ailments from the standpoint of etiology as well as of alterations in structure and function. In 1920 this composite type of study was instituted almost simultaneously in a few of the larger Eastern clinics, where its value was at once apparent. Soon thereafter, under the sponsorship of the American Heart Association, a uniform system for the classification of heart disease from all angles resulted in its widespread use in teaching hospitals, and more recently the same organization has fostered the development of heart clinics in ever increasing numbers throughout the country. The effect of these efforts has been to revolutionize, more or less, the concepts of heart disease in the minds of physicians, so that today no cardiac diagnosis can be considered complete that does not include the three cardinal features of etiology, tissue change and functional effect. Not only has a more adequate knowledge of the clinical manifestations and interrelationships of the manifold factors in heart disease been established—that is to say, more accurate diagnosis, more exact prognosis and more rational therapy—but important facts that may materially advance the cause of the unified movement for the prevention of heart disease have been accumulated. In fact, the knowledge has progressed to a point at which it is now possible to project offensives along a wide front in battle with the forces that ultimately destroy more lives than the combined powers of the next two most important causes of death.

During the last decade there have been reported in the literature from every geographic section of the United States numerous studies of the incidence of the different types of heart disease. Quite naturally there are variations in the frequency of individual types in different localities, the explanation for which is traceable to climatic, racial, social and other influences. However, it is now positively known that four conditions—rheumatic fever, hypertension, arteriosclerosis and syphilis—are responsible for approximately 90 per cent of all heart disease. The remaining 10 per cent is accounted for by congenital defects, infectious processes (acute and subacute bacterial endocarditis and pericarditis), thyrotoxicosis, chemical toxins, chronic pulmonary diseases with resulting increase in the tension in the lesser circulation, traumas, tumors, and a small percentage of unknown factors. It is thus at once apparent that the main problem lies in the conquest of the four major factors that produce heart disease.

If the figures from statistical surveys are studied, either rheumatic fever or hypertension will be first in the list. Rheumatic fever predominates in the North and East, but elsewhere hypertension is the most important cause. Generally speaking, heart disease is approximately twice as frequent in the Northeastern section of the United States as it is in the far South, while the Middle West and Central tier of states stands in an intermediate position. An analysis of the type incidence of heart disease in these various areas establishes the irrefutable fact that the difference is due chiefly to the high incidence of rheumatic fever in those areas in which the death rate is the highest, and its very low incidence in the South, in other words, it is the result of a climatic difference in the two sections. In certain areas, particularly in the South, where the Negro population is greatest, syphilis is more often a cause of heart disease than it is in other geographic locations. Goitrous districts naturally furnish a large number of cases of thyrotoxic heart dis-

ease, but even with these and other variants taken into consideration the four chief causes remain the same. In the order of frequency with which they are operative throughout the country as a whole, hypertension, rheumatic fever, arteriosclerosis and syphilis seems to be the proper sequence of "the Four Horsemen" in the causation of nine out of ten cases of heart disease. This fact narrows the field for further study, and it should indicate the necessity of concentrating the attack on the important salients along the battlefield. A brief consideration of the problems presented by these factors will serve to emphasize the need for investigation of leads that appear to hold the greatest promise.

#### HYPERTENSIVE HEART DISEASE

Vascular hypertension is increasing, if the statistical data and physicians' opinions are not misleading. This is in accord with well established fact, which indicates that the cause of hypertension is to a considerable extent a result of the nervous factors incident to and consequent on the complexities of modern life. For instance, native Chinese seldom have hypertension, but those who have been transplanted into the life of the Occident show it to a very considerable degree. Similarly, among African natives hypertension is practically nonexistent, while in this country their direct descendants have a higher incidence of abnormally high blood pressure than do the whites living in the same districts. In Japan the urban population has a high hypertension rate, which is in striking contrast to the rarity of the condition among the rural inhabitants. According to a dependable informant, a close analogy is to be found in the high and low classes of the general population of Mexico, whereas in our own Southern cities, to which the erstwhile Mexican peon has migrated in large numbers, many are found to have hypertension and its sequelae. These plain facts require no elaboration. They lead straight through to the conclusion that hypertension is to a large extent a total personality reaction to that which we have elected to call "modern civilization."

The mechanism by which the anxiety, high nervous tension, and the ever pressing struggle for survival—all important factors in the daily average American life—operate to produce hypertension is partly understood. In the continued increase in arteriolar tonus resulting from excessive vasoconstriction is to be found the underlying mechanical impediment to the blood flow which provokes a blood pressure increase, and thus in time becomes permanent, ultimately resulting in a generalized arteriolar sclerosis, with all the disastrous complications incident thereto. What produces the vasoconstriction is wholly unknown. It may be that psychic impulses through direct pathway communications act as stimuli to the sympathetic nervous system, the preponderant effect of which is a general heightening of arteriolar tone. Or emotional responses may provoke a hypersecretion of vasopressor substances of endocrine origin—e. g., from the suprarenals, pituitary and thyroid—which supply the vasoconstrictor stimulus. These are the most plausible concepts of the question at the moment, but subsequent research might conceivably produce different views and furnish newer methods of approach. Obesity, hereditary influences, chronic intoxications, severe exertion and other important factors need to be studied with regard to their relationship to the larger problem of hypertension, and their effects should then be correlated with those derived from other sources. However, the real crux

of the situation lies in ascertaining all of the etiologic factors in the production of essential hypertension in otherwise normal individuals. When that has been accomplished, medicine will be in a commanding position to attempt prophylactic measures with some expectation of success. Then may there be witnessed a reversal of the now rising incidence of hypertension and one of its greatest tragedies, hypertensive heart disease, in all its clinical forms.

#### RHEUMATIC FEVER

Rheumatic fever is apparently both a climatologic and a bacteriologic problem. Unfortunately it occurs with greatest frequency in the most densely populated part of the country, which fact together with the extremely high incidence of accompanying cardiac complications, makes it a disease of paramount significance in the larger aspects of the mortality from heart disease. The difficulty is further enhanced by reason of the fact that the true cause and nature of rheumatic fever are not known. The mass of the evidence suggests strongly that it is a systemic infection with a peculiar predisposition to cardiac involvement. If speculation, based on the success already achieved in other infectious diseases, may be permitted, one is justified in the belief that rheumatic fever, like typhoid, diphtheria and tuberculosis, may soon be classified among the diseases with a definitely known cause and a diminishing incidence ratio. When and if its etiology is settled, then may one expect methods of prevention and treatment to be developed that may go far toward diminishing the second most important type of heart disease, an achievement that would carry especial significance, because rheumatic heart disease exacts its severest penalties from the ranks of children, adolescents and young adults.

#### ARTERIOSCLEROTIC HEART DISEASE

The statement to the effect that every one will die from arteriosclerosis if he lives long enough is probably true, and by the same token many deaths in the later decades of life are caused by arteriosclerotic heart disease. It is intended to include in this category only those cases in which the heart disease results from the arteriosclerosis of senescence—i. e., the degenerative type—and to exclude those in which an existing arteriosclerosis is secondary to vascular hypertension. The latter type more properly belongs to hypertensive heart disease, although at times there is an overlapping of the two types, and the distinction between them is not always sharply demarcated. Inspection of a graphic chart of deaths from heart disease by age groups shows an almost vertical rise in the curve for the age period from 55 to 70 years. That is, of course the degenerative period when arteriosclerosis of some degree is present in most people, and most of the cardiac deaths in this group are due to arteriosclerotic heart disease, particularly is this true in the decade from 60 to 70. From 50 to 60 years of age, hypertensive heart disease still holds the premier position.

To one who is biologically minded there appears little to support the belief that the human animal was constructed to live far beyond the seventh decade. By reducing the mortality from infectious diseases in younger life, the present average age of our people has been prolonged to 59 years—a signal accomplishment—but further additions to the average expectancy will come gradually and will swell the ranks of the arteriosclerotic. This will occur in the event of real

progress in the control of hypertension and rheumatic fever, in which case arteriosclerotic heart disease will in time become the foremost type of heart disease, one for which there appears to be no biologic antidote. Moreover, if prior to the age of 60 there is a decrease in deaths from all causes, there will be a proportional increase in the number of deaths from arteriosclerosis and consequently from arteriosclerotic heart disease. Arteriosclerosis, as we know it, is bound by the laws that govern the average age of a species. It is ultimately inevitable, therefore, and not subject to change.

#### SYPHILITIC HEART DISEASE

Syphilis continues to rank among the major causes of heart disease despite the fact that as such it is perfectly preventable, and syphilitic heart disease should therefore not exist at all. Adequate treatment of all early syphilis would automatically erase this type of heart disease from further consideration. Whenever the attitude, both lay and professional, toward syphilis changes so that it ceases to be considered a "misconduct disease," and when we begin earnestly and seriously to conduct educational campaigns against it, a single case of syphilitic heart disease will be like one of typhoid today, almost a medical oddity. So long as individuals hide their syphilis because of the fear of public condemnation, and so long as they continue to receive insufficient treatment for the cure of early syphilis, there will be all too numerous cases of the most easily preventable of all heart disease, syphilitic aortitis and aortic insufficiency.

Some improvement with regard to the minor causes of cardiac abnormalities, excepting congenital heart disease and the rare cases of tumors of the heart, might reasonably be anticipated because of the fact that thyrotoxic states account for so large a number of cases in this group. Because of a better understanding of the underlying principles connected with its pathogenesis, much has been accomplished in the prevention of goiter. Furthermore, the clinical application of basal metabolic rate determination has greatly simplified the matter of diagnosis, and the introduction of iodine into the preoperative therapy of thyrotoxicosis has rendered the prognosis more favorable now than ever before.

#### SUMMARY AND CONCLUSION

Regardless of how one feels about the alleged increase in the number of deaths assigned to cardiac causes, there can be no real difference of opinion as to the importance of heart disease as the foremost cause of death. To know that four primary causes are responsible for the great majority of cases of heart disease assists in focusing attention on the strategic points and suggests the lines along which investigation should be initiated and pursued. In short, if good results are to be obtained, rational methods for the prevention and treatment of essential hypertension and rheumatic fever, based on a complete understanding of their etiology, must be developed. Syphilitic heart disease can be eradicated by the means now available. In the prevention of arteriosclerotic heart disease there is little to hope for.

The whole problem of the prevention of heart disease is a formidable one. Investigation must be pursued critically and in accordance with the advice John Hunter gave Jenner relative to the latter's studies on vaccination against smallpox. "Do not think, but try, be patient, be accurate." It is ours to plan and conduct the campaign in the light of facts that are known and

with those that will be accumulated in the future. In the conquest of the causes of heart disease an enormous responsibility is placed on the medical profession, one that by reason of its magnitude should serve to stimulate our best efforts. The benefits that will accrue to mankind, in the event of successful achievement, will constitute medicine's outstanding victory over the most ominous leader of all time among "the Men of Death."

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## THE INTRACUTANEOUS QUANTITATIVE TUBERCULIN TEST

IN THE DIAGNOSIS OF ACTIVE TUBERCULOSIS

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The diagnosis of active tuberculosis is aided but little by the positive skin tuberculin test (Pirquet or Mantoux tests), for more than 90 per cent of healthy adults will react positively to this test. On the other hand, the diagnosis of active tuberculosis can be made in more than 90 per cent of people who have positive skin reactions after the intracutaneous injection of properly diluted tuberculin, according to recent reports. The present study has attempted to determine further the value of such a test with diluted tuberculin.

### RATIONALE OF SUCH A TEST

The use of the dilute tuberculin reaction is based on the following simplified interpretation of experimental and clinical evidence. Past or present infection with tuberculosis makes the individual sensitive to tuberculin. One way of demonstrating this sensitivity is by a positive skin reaction following the usual skin injection of Koch's old tuberculin (Pirquet scratch method or Mantoux intracutaneous method). This sensitivity varies more or less directly with the activity of the disease.<sup>1</sup> Therefore a person with active tuberculosis should react to a greater dilution of tuberculin than a person with old healed tuberculosis. In other words, the tuberculin test may be used as a quantitative test. For a summary of the evidence on which this explanation is based, one should refer to the paper of Atsatt.<sup>2</sup>

### LITERATURE

The literature concerning the use of the skin tuberculin test in a quantitative manner may be divided into the studies using the relatively inaccurate Pirquet scratch method and those using the intracutaneous Mantoux method.

The studies using different dilutions of tuberculin by the Pirquet scratch method have shown that even by quantitating the Pirquet test one may separate active from latent tuberculous infections. For the details of these studies, one should refer to the paper by King.<sup>3</sup> However, in order to use the tuberculin skin test as a quantitative test, it is best not to use the Pirquet scratch method, for the actual amount of tuberculin absorbed by the skin through the scratch is not known.

Of more importance to the present investigation are the studies using the intracutaneous injection of a

known amount of tuberculin (Mantoux method). There have been three such studies in recent years, the results of which are enhanced by the fact that they all used a similar method and technic. In these investigations the authors experimented with different dilutions of tuberculin until they found a dilution 0.1 cc of which gave positive reactions in their cases of active tuberculosis and negative reactions in their controls with no active tuberculosis. The dilution that was finally used varied in each study, for, since the standardization of old tuberculin is unsatisfactory, the various lots of old tuberculin used by the different investigators varied markedly in strength. Thus, the final dilution used by the different observers was 1:10,000 in one study, 1:20,000 in the second, and 1:100,000 in the third. Whereas Atsatt<sup>2</sup> and Blair and Galland<sup>4</sup> used control injections of saline solution, King<sup>3</sup> did not use control injections.

The results of the studies with these dilutions were strikingly successful. Thus, Atsatt found 92 per cent of eighty-five tuberculous patients reacting positively, while 90 per cent of 126 control ward patients reacted negatively. Blair and Galland found 90 per cent of 121 tuberculous patients reacting positively, while 92 per cent of 350 control ward cases reacted negatively. King did not separate his control cases from his tuberculous cases but did find that, of 225 patients comprising both tuberculous and control cases, there was a 91 per cent agreement with clinical observations. There were about 80 cases of active tuberculosis in his group.<sup>5</sup>

When these investigations are discussed individually it is to be noted that Atsatt, the author of the original of these studies in 1927, did not mention what he interpreted as a positive reaction. It is probably to be inferred, therefore, that Atsatt considered a positive reaction to be a reaction of any size to his dilution of 1:10,000. Blair and Galland stated that their criterion of a positive reaction was the formation of an indurated cutaneous nodule, whatever its size, usually accompanied by erythema. King considered a positive reaction to be an area of erythema, nearly always indurated, 1 cm or more in diameter.

The age and type of tuberculous patients used in these observations varied. Atsatt, and Blair and Galland carried out their studies exclusively in cases of bone and joint tuberculosis, both in children and in adults. King made his observations chiefly in adults with active pulmonary tuberculosis, only a few of whom were seriously ill at the time of the test.<sup>5</sup> Except for a few cases, it was inferred in the reports of Atsatt and of Blair and Galland that their patients were in good condition although their tuberculosis was active.

### METHOD OF PRESENT STUDY

First, different dilutions of a given tuberculin were intracutaneously injected in a group of clinically non-tuberculous ward patients, and the size of the positive skin reactions were noted. Old tuberculin prepared by the Massachusetts State Laboratory was secured in sufficient quantity so that the same batch lasted throughout the entire study. This tuberculin was then carefully made up each week in dilutions of 1:1,000, 1:10,000, 1:25,000, 1:50,000, 1:100,000, 1:500,000, 1:1,000,000 and 1:10,000,000. Sterile Ringer's solution was the diluent, to which 0.2 per cent phenol was

From the Medical Clinic of the Peter Bent Brigham Hospital  
1 Krause A K The Significance of Allergy in Tuberculosis *Tr Nat Tuberc* A June 1921  
2 Atsatt R F Studies with a Quantitative Tuberculin Reaction *J Bone & Joint Surg* 9 657 (Oct) 1927  
3 King R B A Tuberculin Test of Value in Adults *New England J Med* 20 831 (Nov 10) 1932

4 Blair J E and Galland W I A Differential Quantitative Tuberculin Test *Am Rev Tuberc* 23 1 (Jan) 1931  
5 King R B Personal communication to the author

added as a preservative One cc tuberculin syringes and 27 gage needles were used For a short time, 0.5 cc syringes made by a different company were also used, but it was found that 0.1 cc injected from such a syringe invariably produced a smaller wheal than 0.1 cc injected from the 1 cc syringe Therefore, only 1 cc syringes made by one company were used Leakage around the hub of the syringe occasionally occurred in older syringes, so that such injections were repeated One-tenth cubic centimeter of each of the aforementioned dilutions was injected at the same time into the forearms of a group of ward patients In most cases, the saline-phenol control was also injected In one group of patients, the use of a glycerin broth control containing the same amount of broth as that present in the diluted tuberculin was also tried The reactions were always read at the end of forty-eight hours, but in many cases also at the end of twenty-four and seventy-two hours The size of the reactions was measured in millimeters in three dimensions—width, breadth and height—the measurement of the height being obviously done roughly In most positive reactions an area of induration was present, and this area was measured rather than the larger area of erythema that was usually present When erythema only was present, and the control had no erythema, the area of redness was measured, the height being recorded as zero The subjects utilized were unselected patients admitted to the medical wards of the Peter Bent Brigham Hospital with the usual variety of diagnoses that are encountered in a general medical ward Eighty-five per cent of the patients were 30 years or more of age

The next step was to determine the reaction of patients with active tuberculosis to these dilutions of tuberculin To avoid possible excessive reactions, the

tions of all the dilutions First, considering the percentage of positive reactions regardless of their size, it is seen that 89 per cent of the patients reacted to 0.1 cc of the 1:1,000 dilution, while increasing dilutions gave a decreasing incidence of reactions In this group are placed reactions of even 1 by 1 mm in size, provided the saline control showed no reaction It is seen that 20 per cent reacted to the 1:1,000,000 dilution, although only sixty-five were tested with this dilution

As to the incidence of positive reactions when only reactions 5 by 5 mm or more were counted, the 1:1,000 dilution gave 87 per cent positive reactions,

TABLE 2—Incidence and Size of Reactions to the 1:100,000 Dilution of Old Tuberculin in Patients Who Had Roentgen Studies of Chest

Number of Patients and X-Ray Examinations	Number of Patients with Reactions 10 by 9 mm or More	Number of Patients with Reactions 8 by 7 mm or more (Including 10 by 9 mm or More)
106 negative X-rays	2	6
13 healed tuberculosis	3	5
4 minimal tuberculosis	0	0
7 active tuberculosis clinically and by X-rays	3	4

the 1:100,000 dilution gave 15 per cent reactions, the 1:500,000 only 4 per cent reactions, and the 1:1,000,000 only 5 per cent reactions

If 8 by 7 mm is considered the lower limit in size of a positive reaction, the 1:1,000 dilution gave 85 per cent positive reactions, the 1:50,000 gave 12 per cent positives, the 1:100,000 gave 6 per cent positives, the 1:500,000 gave 4 per cent positives, and the 1:1,000,000 gave 3 per cent positive reactions

Finally, when only reactions of 10 by 9 mm or more are considered as positive, the 1:1,000 dilution gave 80 per cent positive reactions, the 1:50,000 gave 3 per cent, the 1:100,000 gave 2.6 per cent, the 1:500,000 gave 1.5 per cent, and the 1:1,000,000 gave 3 per cent Both patients who reacted to the 1:500,000 and the 1:1,000,000 dilution with areas 10 by 9 mm or more also reacted to the glycerin broth control

2 *Analysis of Reactions in Patients in Whom Roentgenograms of the Chest Were Taken*—One hundred and twenty-three patients of this clinically nontuberculous group had roentgenograms of the chest taken as part of the routine study in the wards Of these 123 patients, the roentgenograms were reported as negative in 106, in thirteen the report was old healed tuberculosis, and in four the report was minimal tuberculosis Of the latter three cases, none presented fever or positive sputums Table 2 shows the incidence and size of reactions to the 1:100,000 dilution in these 123 cases Thus, of 106 patients with negative chest plates, two, or 1.9 per cent, reacted with areas 10 by 9 mm or more in size, while six reacted with areas 8 by 7 mm or more in size Of thirteen patients with the roentgen report of healed tuberculosis, three, or 23 per cent, reacted with areas 10 by 9 or more Of four patients with roentgen reports of minimal tuberculosis but with no fever or positive sputums, none reacted In contrast of seven patients with active tuberculosis seen in the ward, three, or 43 per cent, reacted with areas 10 by 9 mm or more and four reacted with areas 8 by 7 mm or more The three patients who did not react were moribund

3 *Reactions of Patients with Active Pulmonary Tuberculosis*—Table 3 presents the incidence and size

TABLE 1—Reactions of Clinically Nontuberculous Patients to Varying Dilutions of Old Tuberculin

	Dilution of Tuberculin								Size of Reactions
	1 1 000	1 10 000	1 20 000	1 50 000	1 100 000	1 500 000	1 1 000 000		
Number of patients tested	178	178	130	202	223	125	65	Any size	
Number of positive reactions	157	112	41	67	66	20	13		
Per cent of positive reactions	89	63	31	33	30	16	20		
Number of patients tested	178	178	130	202	223	125	65	5x5 mm or more	
Number of positive reactions	153	97	35	34	35	6	4		
Per cent of positive reactions	87	54	26	16	15	4	5		
Number of patients tested	178	178	130	202	223	125	65	8x7 mm or more	
Number of positive reactions	150	73	20	24	15	6	2		
Per cent of positive reactions	85	40	15	12	6	4	3		
Number of patients tested	178	178	130	202	223	125	65	10x9 mm or more	
Number of positive reactions	147	45	14	7	6	2	2		
Per cent of positive reactions	80	25	10	3	2.6	1.5	3		

dilutions were not all given at once but rather the weakest dilutions were first administered The patients utilized for this part of the investigation were adult unselected patients with pulmonary tuberculosis in the wards of the Boston Sanatorium Many of these patients were seriously ill, and some were moribund Ninety per cent of these patients had positive sputums

RESULTS

1 *Reactions of Nontuberculous Patients to Different Dilutions of Tuberculin*—Table 1 shows the different sizes and incidence of positive reactions to the injection of varying dilutions of old tuberculin into clinically nontuberculous patients There were 223 such patients who were studied, not all of whom were given injec-

of reactions to varying dilutions of old tuberculin injected intracutaneously into patients with active pulmonary tuberculosis. It is seen that 98 per cent react positively to the dilution 1 10,000, all with reactions 10 by 9 mm or more in size. However, in the other dilutions, the incidence of reactions 10 by 9 mm or more is much less. Thus, in the 1 25,000 dilution the incidence of positives is 73 per cent, in the 1 50,000, 69 per cent react with 10 by 9 mm or more, in the dilution 1 100,000, only 47 per cent react with an area 10 by 9 mm or more. However, the latter is in contrast to 26 per cent of positive reactions 10 by 9 mm or more, in the dilution of 1 100,000 in nontuberculous patients. These high percentages of reactions by unselected tuberculous patients to weak dilutions of tuberculin are in marked contrast to the low incidence of reactions to weak dilutions in the nontuberculous.

Since only 47 per cent of the patients with active tuberculosis reacted to the 1 100,000 dilution with areas 10 by 9 mm or more in size, it is important to determine, if possible, why the remaining 53 per cent did not react similarly. The important factor appears to be the general state of the patient, as manifested by the degree of toxemia, height of fever and the like. It is of value to note whether there is any correlation in the tuberculous patients between the height of the fever and the degree of reaction to tuberculin.

**4 Height of Fever Versus Degree of Tuberculin Reaction in Tuberculous Patients**—Table 4 presents the incidence of fever in the patients who reacted to the 1 100,000 dilution with an area 10 by 9 mm or more in size, as compared with the incidence of fever in those who reacted with lesser sized reactions to this dilution. Not only the incidence of fever per se but the incidence of different heights of fever was determined in the tuberculous patients in relation to the size of their reactions to the 1 100,000 dilution. It is

examination. This bronchopneumonic reaction was often associated with little or no reaction to the lower dilutions of tuberculin.

Analysis, therefore, of the tuberculous patients who did not react to the weak dilutions of tuberculin with areas 10 by 9 mm or more showed that practically all of them had either high fever or marked bronchopneumonic areas, or both. All these poor reactors were almost invariably advanced or moribund cases. If the poorly reacting patients with high fever and bronchopneumonic areas are subtracted from all the tuberculous patients, it is found that the dilute tuberculin test has a 93 per cent agreement with the clinical observations when the 1 50,000 dilution is used, and 83 per cent agreement when the 1 100,000 dilution is used.

One other factor, which was usually present in the patients with high fever and toxemia but which also occurred without fever, was the exudative bronchopneumonic type of reaction, as seen by the roentgen

TABLE 4—Incidence and Height of Fever Versus Size of Reactions to 1 100,000 Dilution of Old Tuberculin, in Patients with Active Tuberculosis

Number of Patients	Size of Reaction to 1 100,000	Number and per Cent of Patients				
		With Fever at Time of Test	With 99.5 or Less	With 99.5 to 100.5	With 101 up to But Not Including 102	With 102 or More
70	20 by 9 mm or more	21 (30%)	18* (85%)	2 (0.5%)	1 (4.7%)	0
34	5 by 5 mm to but not including 10 by 9 mm	27 (80%)	14 (51%)	9 (33%)	2 (7%)	2 (7%)
10	1 by 1 mm to but not including 5 by 5 mm	9 (90%)	5 (55%)	2 (22%)	1 (11%)	1 (11%)
19	No reaction	16 (84%)	2 (12%)	1 (6%)	3 (18%)	10 (60%)

\* Only occasional fever

TABLE 3—Reactions of Patients with Active Tuberculosis to Different Dilutions of Old Tuberculin

	Dilution of Tuberculin					Size of Reactions
	1 10,000	1 25,000	1 50,000	1 100,000	1 100,000	
Number of patients tested	47	82	82	146	83	Any size
Number of positive reactions	46	80	76	130	30	
Per cent of positive reactions	98	97	93	89	36	
Number of patients tested	47	82	82	146	83	8×7 mm or more
Number of positive reactions	46	72	65	85	13	
Per cent of positive reactions	98	88	80	60	16	
Number of patients tested	47	82	82	146	83	10×9 mm or more
Number of positive reactions	46	60	56	70	10	
Per cent of positive reactions	98	73	69	47	12	

seen that, of seventy patients with areas 10 by 9 mm or more to the dilution 1 100,000, only 30 per cent had fever, 85 per cent of these patients with fever had occasionally a fever of 99.5 or less, and none had 102 or more. Of thirty-four patients who reacted to the 1 100,000 dilution with areas 5 by 5 up to but not including 10 by 9 mm, twenty-seven, or 80 per cent, had fever, of these twenty-seven patients, fourteen, or 51 per cent, had a fever of 99.5 or less, and two had a fever 102 or more. Of ten patients with reactions 1 by 1 up to but not including 5 by 5 mm, nine, or 90 per cent, had fever, only five, or 55 per cent, of these had fever of 99.5 or less, while one, or 11 per cent, had fever of 102 or more. Finally, of the nineteen tuberculous patients not reacting at all to the 1 100,000

COMMENT

It seems clear that with a given batch of old tuberculin it is easily possible to determine a dilution of this which will give a minimum of positive reactions of a certain size in patients without active tuberculosis and a maximum of such positive reactions in patients with active tuberculosis. More specifically, in the present study a 1 50,000 dilution of old tuberculin injected into 202 nontuberculous patients was found to give 97 per cent negative results, i. e., reactions less than 10 by 9 mm in size. The same dilution injected into eighty-two patients with active tuberculosis gave 69 per cent of positive reactions 10 by 9 mm or more in size, and when severely ill patients with high fever and bronchopneumonic areas in the lungs were subtracted from the total tuberculous group, 93 per cent of the tuberculous patients gave adequate positive reactions 10 by 9 mm or more in size. In seriously ill patients it is known that the allergic responses are diminished or absent, and since all these patients had every symptom and sign of active tuberculosis, their diagnosis is obvious without the dilute tuberculin test. It therefore seems valid to subtract these seriously ill patients from

the total group. Also, the fact that such dilute reactions occur chiefly when the patient is only mildly or moderately ill rather than moribund would appear to enhance the value of the test, for the difficulty in the diagnosis of tuberculosis is greatest in those patients who are not yet seriously ill.

With only 3 per cent of clinically nontuberculous patients reacting to the 1:50,000 dilution with areas 10 by 9 mm or more, and from 69 to 93 per cent of such positive reactions in patients with active tuberculosis (depending on whether one includes seriously ill and moribund patients), I believe that such a test has definite diagnostic value. This is in complete agreement with the previous studies. Since it is a specific test, unlike the nonspecific white blood cell count or fever and pulse chart, it would seem to merit as much use as these methods in the diagnosis of active tuberculosis. It is very unlikely that such weak dilutions will produce other than skin reactions. I have not encountered a single focal or general reaction after the 1:50,000 dilution.

With the recent availability of the crystalline tuberculo-protein, it should soon be simple to determine once for all a dilution of this tuberculo-protein which will give these reactions. Then such a dilution will always be the one to use, whereas at present the proper dilution of the old tuberculin will have to be determined for each batch.

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## HEART DISEASE AMONG ADOLESCENT SCHOOL CHILDREN OF NEW YORK CITY

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In a recent communication we reported the organization, procedure and method of examination of the Diagnostic Cardiac Clinic of New York City.<sup>1</sup> The present report deals with an analysis of some of the data accumulated in the twenty-seven months of the clinic's existence. This includes data on the prevalence of cardiac abnormalities and organic heart disease among adolescent school children. The problems bearing on the school child with heart disease, including medical supervision and early diagnosis, are discussed. In the period between Oct. 1, 1930, and Dec. 31, 1932, 166,152 children applied for working certificates in New York City. Of that number only 109,964 could be included in this analysis, because the children diagnosed as having cardiac abnormalities among the remaining 56,188 were not referred to the clinic for complete cardiac study. The great majority of these children were in the age group between 14 and 17 years and approximately 2 per cent were between the ages of 12 and 14 years. The children of the latter age group were boys who applied for newsboy badges and bootblack permits, to enable them to work after school hours.

The children in this study differ in two respects from those in similar surveys.<sup>2</sup> They are older and the age limits are narrower. The previously reported studies almost invariably cover the complete range of elementary school age, from 6 to 14 years, whereas the children in this study are almost entirely in the adolescent age group. Their economic status is another pos-

TABLE 1—Prevalence of Organic Heart Disease and Cardiac Abnormality Among School Children Applying for Working Papers from Oct. 1, 1930, to Dec. 31, 1932

Total number examined for working papers	Number	Per Cent
Total number included in present study	109,964	100.0
Children with suspected cardiac abnormality referred for diagnosis	1,432	1.3
Children examined in clinic	1,215	100.0
Diagnosed noncardiac	54	4.5
Diagnosed E	557	45.8
Diagnosed F	4	0.3
Diagnosed E and F	72	5.9
Diagnosed organic	528	43.5
Estimated organic in 1,432	622	43.5
Estimated organic in 109,964	622	0.57
Estimated proportion in general adolescent population		0.9

sible difference. Since these children enter industry prematurely, it would seem reasonable to assume that many come from poverty-stricken homes. These two factors—the age and the economic status—influence the results of this analysis and will be considered later.

### PREVALENCE OF CARDIAC ABNORMALITIES

Of the 109,964 children examined, 1,432, or 1.3 per cent, were referred to the cardiac clinic because of cardiac abnormalities. For lack of better terminology, the word "abnormality" is used to cover all the conditions for which the children were referred to the cardiac clinic, such as murmurs, cardiac enlargement, unusual arrhythmias and tachycardia. It is probable that many of these conditions are not indicative of abnormal hearts. On the other hand there are very few studies of such conditions in which the observations have been long continued, and the question of the significance of these symptoms is therefore unsettled. An incidence of 1.3 per cent for the prevalence of cardiac abnormalities is somewhat lower than the incidence of 1.9 per cent found in Boston by Robey.<sup>2a</sup> It is difficult, however, to evaluate this difference, since wide variations were reported by Baker,<sup>3</sup> who analyzed the physical records of the younger school children of New York City examined during the five years from 1915 to 1920. The minimum number of examinations in any one year was 243,416, the maximum was 328,190. Despite this large number, the reported incidence to "cardiac defect" varied between from 1.3 per cent to 1.9 per cent.

The studies by Robey<sup>2a</sup> and Baker<sup>4</sup> included children considerably younger than those of our study. A point of interest in their analyses is the prevalence of organic heart disease in the different age groups. In the Boston study<sup>2a</sup> organic heart disease was twice as

2 (a) Robey W. H. A Cardiac Survey of Children in Boston Public Schools. *Nation's Health* 9: 21 (Dec.) 1927. (b) Halsey R. H. Heart Disease in Children of School Age. *J. A. M. A.* 77: 672 (Aug. 27) 1921. (c) Kaiser A. D. Tonsillectomy in Children. *ibid.* 87: 1012 (Sept. 25) 1926. (d) Physical Defects Among Working Boys Who Go to Continuation School. *Statistical Bull. 2* Metropolitan Life Insurance Company 11: No. 2 (Feb.) 1930.

3 Baker Josephine S. School Health Supervision Based upon Age and Sex Incidence of Physical Defects. *Am. J. Pub. Health* 12: 465 (June) 1922.

4 (a) Baker Josephine S. School Medical Inspection in New York City. *Month. Bull. Dept. Health City of New York* 2: 97 1921. (b) footnote 2.

From the Department of Health Diagnostic Cardiac Clinic. In cooperation with the Board of Education, the Heart Committee of the New York Tuberculosis and Health Association, the Employment Center for the Handicapped and Bellevue Yorkville Health Demonstration. 1 Goodman Morris and Prescott J. W. Department of Health Diagnostic Cardiac Clinic of New York City. *New York State J. Med.* 34: May 15 1934.



prevalent in the age group from 11 to 15 years as it was in the age group from 6 to 10 years. Baker<sup>5</sup> showed a similar age distribution, varying from 0.55 per cent incidence in the 6 to 8 year old group to 1.4 per cent in the 12 to 14 age group. Other investigators<sup>6</sup> have supported these observations.

The facts that organic heart disease increases in the older age groups and that the prevalence of cardiac abnormalities remains approximately the same throughout childhood suggest several possibilities for the young children who have such abnormalities: 1 Their abnormalities are transient. This is the general opinion. 2 The abnormalities are early manifestations of organic heart disease, which becomes more evident with time. This possibility is suggested by the study of Fineberg and Steuer.<sup>6</sup> 3 Cardiac abnormalities predispose to rheumatic carditis and organic heart disease.

This interesting phase of the problem can be answered only by following for a number of years a group of children who have so-called functional abnormalities. It is hoped that some light will be thrown on this problem by a study now being conducted at this clinic of a young group of children.

#### PREVALENCE OF ORGANIC HEART DISEASE

Of the 1,432 children referred to the cardiac clinic, 1,215 were completely studied. Of these, 528, or 43.5 per cent, were diagnosed as having organic heart disease. Assuming the same percentage of heart disease among the unexamined group, we estimated that the number among the 1,432 referred children would be 622, or 0.57 per cent, of the entire group of 109,964. This incidence is lower than that found in most surveys, except in the careful study made in Boston,<sup>2a</sup> where the prevalence of organic heart disease among 119,337 school children between the ages of 6 and 15 years was 0.52 per cent. This excluded, however, 265 doubtful cases. A similar study in New York City by Halsey<sup>2b</sup> revealed an incidence of 0.5 per cent.

The reported percentages of organic heart disease among unselected school children vary from the low incidence found in New York<sup>2b</sup> to 4 per cent in Rochester.<sup>2c</sup> The majority of the surveys show a prevalence under 1 per cent. A study by the Metropolitan Life Insurance Company<sup>2d</sup> among a comparable but smaller group of employed boys between the ages of 14 and 17 years revealed 1.6 per cent with organic heart conditions. In another study of 1,000 newsboys between the ages of 10½ and 18 years<sup>6a</sup> the percentage was 1.5.

The low prevalence of organic heart disease among the children of this study was of interest because the children were older and they came from a poorer class than those of the general school population. Both of these factors should favor a higher occurrence rate of organic heart disease. Because the group is older, it has been exposed longer to infection and it should embrace a larger number who have had rheumatic fever. In the Boston study<sup>2a</sup> there were 247 children with organic heart disease in the age group 11-15 as against 112 in the age group 6-10. A similar relation-

ship was found in the study at Philadelphia,<sup>2a</sup> where the prevalence among the age group between 6 and 14 years was 0.69 per cent, as against 1.1 per cent in the age group from 12 to 18 years. On this point, Baker's study<sup>3</sup> showed greater prevalence of heart disease in the succeeding age groups from 6 to 14 years, ranging from 0.6 per cent in the children of 6 years to 1.4 per cent in the oldest group.

The factor of poverty is mentioned, since it is generally accepted, both here and abroad, that rheumatic fever is more prevalent among the poor. Paul,<sup>7</sup> in summarizing this question, says "The data on social conditions as a predisposing factor in rheumatic fever seem to indicate that the incidence of the disease, particularly in childhood, is considerably more common among poorer people, although there is some question as to whether this applies to the most destitute or not."

In spite of these facts, this survey showed an unusually low incidence of organic heart disease. The explanation for the difference between the results of this and other reported surveys seems to be in the thoroughness of the examinations and the criteria for diagnosing organic heart disease. When examinations are carefully made, a lower incidence is found. Thus, in the survey at Boston,<sup>2a</sup> made by special examiners, an incidence of 0.52 per cent was found. In the study by Halsey,<sup>2b</sup> in which the children were examined at cardiac clinics, an incidence of 0.5 per cent was reported. In a study of cardiac classes in New York City,<sup>8</sup> also conducted by cardiac clinics, the incidence was 0.7 per cent. In the same group of children the incidence obtained from the records of the school physicians was 1.4 per cent, nearly twice that of the figure from the cardiac clinic. In a careful study at Philadelphia,<sup>2a</sup> which included high school children, the reported incidence of organic heart disease was 0.9 per cent. To our knowledge, in no previously reported survey, has the cardiac examination been so complete for every suspected child. In every instance of cardiac abnormality a complete history, physical examination, teleoroentgenogram and electrocardiogram were obtained. Each child was examined in the upright and in the recumbent position, and after exercise.

The criteria for cardiac diagnosis of the Heart Committee of the New York Tuberculosis and Health Association were followed. It is thought, therefore, that the diagnoses were made with a minimum of error and that the reported incidence of organic heart disease in this group is very close to the facts. It is evident that this incidence does not represent the prevalence of the disease in the general adolescent population. There must be some who, because they know they have heart disease, do not apply for working papers, and others who are confined to bed at home or in hospitals. It is obviously impossible to determine the size of this group and it can be estimated only roughly. The ratio found in the Boston study<sup>2a</sup> of the number confined to hospitals to the number attending schools, brings the total number with organic heart disease to 781, or 0.7 per cent. This still fails to include ambulatory patients who are too ill to apply for working papers and those who are sick at home, classes 2B and 3. It is probable that the number of those ill at home is greater than that of those in the hospitals. This statement is borne out by the figures from the borough of Kensington, England,<sup>7</sup>

5 (a) Cahan J. M. The Incidence of Heart Disease in School Children in Philadelphia. J. A. M. A. 82: 1576 (May 11) 1929. (b) Wilson May G. Lingg Claire and Croxford Geneva. Statistical Studies Bearing on Problems in the Classification of Heart Disease. Am Heart J. 4: 164 (Dec) 1928. (c) MacLise T. T. Rheumatic Fever. Am J. M. Sc. 172: 199 (Aug) 1926.

6 Fineberg M. H. and Steuer L. G. Apical Systolic Murmurs in Children. Am Heart J. 7: 553 (June) 1932.

6a. The Health of 1,000 Newsboys in New York City. Heart Committee. New York Tuberculosis Health Assn.

7 Paul J. R. The Epidemiology of Rheumatic Fever. printed by Metropolitan Life Insurance Company.

8 Special Report on Cardiac Classes Assn. for the Prevention and Relief of Heart Disease 1923.

where rheumatic fever is a reportable disease, and also by the report of the Committee on the Costs of Medical Care,<sup>9</sup> which showed a ratio of only 70.8 hospitalized cases per thousand illnesses of all types. If the figures from the borough of Kensington are applied to our study, the incidence would be increased to approximately 0.9 per cent. This, of course, is only a rough estimation.

#### THE ETIOLOGIC CLASSIFICATIONS

When the cases in this study are analyzed according to etiologic classifications (table 2), certain interesting facts become apparent. It will be noted that under the term "unknown etiology" there are included an unusually large number of cases. From this group are excluded the ones with a history of rheumatic fever, joint pains or chorea. These cases were all, however, of the acquired type of heart disease, with the lesions characteristic of rheumatic valvulitis. Whether they were in part due to infections not included in the rheumatic group or whether most of them presented rheumatic carditis unattended by other manifestations of rheumatic fever, as Wyckoff and Lingg<sup>10</sup> suggest, could not be ascertained. If the rheumatic and unknown groups of our study are combined, a total incidence of 91.3 per cent is obtained (table 2). This compares well with the similar etiologic groups of the studies by Wilson, Lingg and Croxford,<sup>11</sup> in which the incidence of the rheumatic and unknown groups totaled 88 per cent, and with the study by Wyckoff and Lingg,<sup>10</sup> in which the combined incidence of the two etiologic types in the age group from 10 to 19 years, was 94.5 per cent. The rheumatic groups in each of these studies included more than 80 per cent of the cases. It is probable that the unknown group in our study includes many patients who were rheumatic. The large size of this group seems explainable by the fact that this was a study of an unselected class of children, whereas the studies of Wyckoff and Lingg<sup>10</sup> and Wilson, Lingg and Croxford<sup>11</sup> were of clinic patients who in many instances came directly from hospitals, following attacks of rheumatic polyarthritides or chorea.

TABLE 2—Classification of Organic Heart Disease Found Among School Children at the Diagnostic Cardiac Clinic

Etiologic Classification	Number	Per Cent
Rheumatic	231	43.7
Unknown	251	47.5
Congenital	42	8.0
Chest deformity	2	0.4
Hypertension	2	0.4
Total	528	100.0
Functional Classification		
Class I	386	73.1
Class IIa	136	25.8
Class IIb	6	1.1
Total	528	100.0

Surveys among the general school population,<sup>11</sup> on the other hand, seem to indicate that in a large percentage of cases carditis is the first and only manifestation of rheumatic fever. In Robey's study,<sup>12</sup> only 29.6 per cent of the cases gave a history of chorea,

rheumatic fever or both. Richter<sup>11</sup> found 39.5 per cent, and she includes those with histories of growing pains, arthritic pains, tonsillitis or unexplained fever. Only 19.7 per cent of the patients in our study gave histories of rheumatic fever or chorea. The incidence of congenital abnormalities was 8.0 per cent. This is in fair agreement with the reports of other studies<sup>12</sup> excepting that of Richter,<sup>11</sup> who reported the high incidence of 33.5 per cent of congenital heart disease in the survey at San Francisco.

#### ORGANIC HEART DISEASE FIRST DISCOVERED AT THE CLINIC

The large number of children with organic heart disease first discovered at this clinic is of unusual interest. Thirty and nine-tenths per cent of the total number of patients learned of their heart disease for

TABLE 3—Number and Percentage of Children with Organic Heart Disease Classified According to Medical Supervision at the Time of Their Examination at the Diagnostic Cardiac Clinic

Type of Supervision	Number	Per Cent
Under medical supervision	243	46.0
Private physician	128	24.2
Clinic	115	21.8
Not under medical supervision	285	54.0
Condition previously known	122	23.1
Condition first discovered in clinic	163	30.9
Total	528	100.0

the first time. Among these 163 children, only forty-two gave histories of joint pains, polyarthritides or chorea. A large majority of the cases, 74.2 per cent, were therefore included in the unknown group. When carditis occurred, it was in a form that did not incapacitate the child and therefore remained unnoticed. Obviously, none of these children are under medical supervision and all enjoy unrestricted physical activity.

One cannot help being impressed with the importance of this group. It constitutes almost one third of the total number of children with organic heart disease in the adolescent employed population. In these children heart disease develops while they are carrying on their regular school activities. The condition is not heralded by inflamed joints or choreiform movements, and it escapes notice until it is discovered during a routine examination or until late in the disease when cardiac symptoms bring the patient to the physician.

#### MEDICAL SUPERVISION

Of the children with organic heart disease, 46.0 per cent were under medical supervision (table 3). This small figure is due, for the most part, to the fact that almost one third of the children did not know that they had organic heart disease. Of those who had knowledge of their condition, 67 per cent were receiving medical care. This seems to indicate that there is no unwillingness on the part of the children to obtain medical supervision. It is ignorance of the existence of the disease that is the cause of the lack of medical supervision. This fact stresses the need for yearly examinations in order to diagnose heart disease early and bring the children under medical care.

#### AGES AT WHICH ORGANIC HEART DISEASE DEVELOPS

This analysis seems to support the evidence of Wilson, Lingg and Croxford,<sup>11</sup> Mackie<sup>13</sup> and other

<sup>9</sup> The Incidence of Illness and the Receipt and Costs of Medical Care Among Representative Families. Publication 26. The Committee on the Costs of Medical Care. Appendixes, p. 285.

<sup>10</sup> Wyckoff, John and Lingg, Claire. Statistical Studies Bearing on Problems in the Classification of Heart Diseases. II. Etiology in Organic Heart Diseases. *Am Heart J* 1: 446 (April) 1926.

<sup>11</sup> Robey, Richter, Ina M. Incidence and Variety of Heart Disease in School Children of San Francisco. *J A M A* 97: 1060 (Oct 10) 1931.

<sup>12</sup> Robey, Caban, Wilson, Lingg and Croxford.

observers<sup>13</sup> that rheumatic heart disease develops during the school age rather than during the preschool period. In the New York schools, all children are examined by the school physician on entering at the age of 6 years unless they bring records of examinations from their private physicians. When a child is found to have a cardiac condition, it is recorded on the health card and the parents are notified. There is evidence that the tendency among the school physicians is to include in the cardiac group a large number who do not have organic heart disease.

TABLE 4—*Known Duration of Heart Disease Among 528 Children*

	First Discov- ered at Clinic	13 Yrs	4-6 Yrs	7-9 Yrs	10-12 Yrs	13-16 Yrs	Since Birth	In defi- nite	Total
Number of children	163	130	93	62	30	15	12	18	528

It is therefore most unlikely that the organic cases found in the present study would have been missed by the school physician had the lesions existed when the children first entered school. This point is borne out also by the figures in table 4, which gives the duration of heart disease as obtained from the histories. Obviously, these figures cannot coincide with the actual duration of the cardiac lesion, which undoubtedly is longer. There were 410 children (84.3 per cent) with acquired heart disease who first learned of their condition after the age of 7 years. This is in fair agreement with the statement of Wilson, Lingg and Crawford,<sup>14</sup> that in 80 per cent of the cases rheumatic heart disease develops after the age of 6 years. Robey's<sup>2a</sup> study also corroborates these results. He found more than twice as many children with organic heart disease in the age group between 11 and 15 years as in the age group between 6 and 10 years. These results are in disagreement with Baker's<sup>3</sup> interpretation of her studies, when she states that chronic diseases, including heart disease, "remain at about the same level throughout school life." It also contradicts a similar conclusion in the special reports on cardiac classes in New York City.<sup>8</sup> "In rare instances only do these heart defects develop during the elementary school period."

#### DISCREPANCIES IN DIAGNOSIS BETWEEN THIS CLINIC, SCHOOL PHYSICIANS AND PRIVATE PHYSICIANS

Because of the importance, from the aspect of public health, of accurate and early diagnosis of cardiac disease, an important question arises as to the effectiveness of the customary examinations by school or private physicians. It is therefore of interest to compare the results of this study, in which all necessary facilities for specialized diagnosis were available, with records from groups examined by medical inspectors or private physicians.

An effort was made to ascertain how frequently the diagnoses made at this clinic varied from those made by the school physician or by the private physician. All children who came to the clinic were referred with diagnoses made by medical examiners. These were often so inadequate, however, that it was found impossible to use them for the study. An analysis was made of our statistics, of those from the records of children examined during the ten months before the clinic was established and of those from the records of children

examined during the summer months of 1931 and 1932. In the latter group 42,278 children were examined by school physicians but were not referred to the cardiac clinic. Organic heart disease was the diagnosis in 494 (1.2 per cent) of the children. In 1930, during the ten months period before the clinic was organized, 84,712 children were examined and an incidence of 1.4 per cent organic heart disease was found. These figures compare well with the prevalence of cardiac abnormalities obtained in our study, which is 1.3 per cent, and suggest that every cardiac abnormality was considered organic heart disease. It was impossible to compare the clinic diagnoses with those made by private physicians. Baker<sup>4a</sup> has shown, however, that the diagnosis by the private physician shows the same tendency toward indiscriminate. In an analysis of 27,854 records of physical examinations made by private physicians, of children entering the public schools, an incidence of 1.6 per cent of cardiac defect was found. This incidence was almost identical with that shown by the records of the medical inspectors.

It will be noted that seventy-seven children who were diagnosed at this clinic as class E (table 5) had had their activities restricted by private physicians, some for many years. In general, the school physicians and the private physicians diagnosed many more cases as "organic cardiacs" than we did. If the prevalence of organic heart disease as estimated by this clinic is correct, more than one half of the children who were denied working papers before this clinic existed were unjustifiably deprived of the right to work. This point is brought out merely to emphasize the necessity for

TABLE 5—*Duration of Restriction of Activity on Medical Advice Among Seventy-Seven Children in Class E*

Number of children	Number of Years Restricted				Total
	1-3	4-6	7-14	Indefinite	
	44	12	15	6	77

better facilities for cardiac diagnosis, particularly when the question of employment is involved. A well organized and equipped clinic should help to eliminate this injustice and should pay for itself by the earning powers of those who otherwise would be deprived of work.

#### ORGANIC HEART DISEASE COMPARED WITH OTHER IMPORTANT DEFECTS

Some idea of the importance of heart disease among adolescent children may be obtained through a comparison between the prevalence of cardiac disease and other serious defects for which children were refused working certificates. From October 1930 to December 1932, among the total 166,152 children examined, forty-two were permanently refused certificates for the following conditions: chronic pulmonary tuberculosis, five; deafness, twenty; chorea, four; serious orthopedic defects, ten; trachoma, one; and irremediable defective vision, two.

When 0.57 per cent was used as the incidence of organic heart disease, 930 of the total number were estimated to have organic heart disease. Thus, it is seen that heart disease as an important defect far outranks the others.

#### SUMMARY

1. In New York City during the twenty-seven months from Oct. 1, 1930, to Dec. 31, 1932, 166,152

children between the ages of 14 and 17 years were examined for working papers

2 A diagnosis of cardiac abnormality was made in 1,432 (13 per cent) of 109,964 of the total number, and the patients were referred to the diagnostic cardiac clinic for cardiac study. This study included in each case a complete history, physical examination by a cardiologist, an electrocardiogram, a teleroentgenogram and urinalysis

3 A complete study was made of 1,215 of the cases, and 528 were found to present organic heart disease. This was estimated to indicate an incidence of 0.57 per cent of the total number

4 The estimated incidence of organic heart disease in the general adolescent population is 0.9 per cent

5 An unusually large number (47.5 per cent) of the children with organic heart disease did not give a history of rheumatic polyarthritis, chorea or joint pains and were included in the group in which the etiology of the heart disease was unknown. All of these showed the rheumatic valvulitis which characterizes acquired heart disease

6 Of the total number with organic heart disease, 163 children (30.9 per cent) learned of their condition for the first time at this clinic. Of this group, 74.2 per cent are classified as of unknown etiology. It is believed that many of these cases remain undiscovered because the only rheumatic manifestation was carditis and that the lesion had developed insidiously without incapacitating the child or interrupting its school activities

7 A diagnosis of a functional condition (abnormal signs) or potential heart disease was made in 633 children (52 per cent) who were referred because of a cardiac abnormality. In fifty-four (4.5 per cent) there were no abnormal signs or history of rheumatism. The school physician and the private practitioner show the tendency to include in the organic group many who have no evidence of organic heart disease

8 Two hundred and eighty-five children (54.0 per cent) were not under medical supervision. Of those who received medical care, 128 (52.7 per cent) were under the care of private physicians. The other 47.3 per cent were receiving care at a cardiac or general medical clinic

9 This study seems to indicate that acquired heart disease develops in children of school age

10 In the adolescent school population in New York City, heart disease far outnumbers all other serious defects

#### CONCLUSION

The prevalence of organic heart disease among the adolescent population of New York City is estimated at 0.9 per cent. A large number of children with organic heart disease, approximately one third of the total, do not know that they have the disease and are not under medical supervision. The medical facilities of the department of health are entirely inadequate from the point of view of the cardiac child in school.

The greater degree of accuracy in cardiac diagnosis rendered possible by the facilities of the diagnostic cardiac clinic has decreased by more than 50 per cent the number of children who are refused working certificates. The correction of this injustice and the systematic procedure to obtain medical supervision for all of those who have organic heart disease have justified the existence of this clinic

75 East Fifty-Fifth Street

## AGRANULOCYTIC LEUKOPENIA

REPORT OF A CASE SUCCESSFULLY TREATED WITH  
X-RAYS AND SOME OBSERVATIONS ON THE  
EFFECT OF AMIDOPYRINE

JULIEN E. BENJAMIN, M.D.  
AND  
JOSEPH B. BIEDERMAN, M.D.

CINCINNATI

As early as 1931 Kracke<sup>1</sup> reported severe and repeated attacks of agranulocytosis in an individual using large amounts of coal tar derivatives. He likewise suggested that the benzene chain contained in the drugs might act as a powerful leukocytic depressant. More recently, he<sup>2</sup> has called particular attention to this fact in a review of nine cases. Madison and Squier<sup>3</sup> directly accuse certain of the benzene derivatives as causative factors of granulopenia in a large number of cases.

The following case is reported because it adds to the evidence that severe granulopenia may follow the administration of drugs of this group.

#### REPORT OF CASE

*History*—A white woman, aged 48, a nurse, while on duty suddenly experienced the prodromal symptoms of a grippal infection, characterized by headache, chills, exhaustion and sore throat. After two or three days of self medication (?) her condition grew worse and she was admitted to the Jewish Hospital, Jan. 13, 1931, extremely ill. The face was flushed, the eyes were dull and she could not raise her voice above a whisper.

The temperature was 103 F., the respiration rate was 20, and the pulse rate was 110. The breath was fetid, and the soft and hard palates were dark red and of a granular appearance. The physical examination was otherwise negative. The laboratory reported a slight trace of albumin and an occasional finely granular cast in the urine. The blood picture was as follows: The red blood cell and hemoglobin were normal, the total white cell count was 1,700, the polymorphonuclears were 8 per cent, the lymphocytes were 68 per cent, the transitionals were 22 per cent, and the large mononuclears were 2 per cent.

The patient was immediately given high voltage roentgen therapy over the long bones by Dr. Samuel Brown, according to the dosage in the accompanying table.

#### Dosage of Roentgen Therapy Given

Date	Region	Milli amperes	Filter	Time, Minutes	Kilo volts	Distance Inches
1/16/31	Right leg	5	3 mm aluminum	5	90	12
1/17/31	Right arm	5	3 mm aluminum	5	90	12
1/21/31	Left arm	5	3 mm aluminum	5	90	12

The effect of these treatments was most impressive. There was a fairly prompt alleviation of the severe aches, the fever gradually receded, and the white cell count altered as follows: January 20 the total white cell count was 1,050, the polymorphonuclears were 41 per cent, the lymphocytes were 38 per cent, the transitionals were 12 per cent and the large mononuclears were 9 per cent. January 25 the total white count was 2,600, the polymorphonuclears were 61.5 per cent, the lymphocytes were 33 per cent, the transitionals were 3.5 per cent and the large mononuclears were 2 per cent.

The effect of roentgen treatment on the white cell count is shown in chart 1.

Read before the Academy of Medicine May 7, 1934.

1. Kracke R. R. *Am. J. Clin. Path.* 1:385 (Sept.) 1931.

2. Kracke R. R. *Am. J. Clin. Path.* 2:11 (Jan.) 1932.

3. Madison F. W. and Squier T. L. *Primary Granulocytopenia After Administration of Benzene Chain Derivatives* *J. A. M. A.* 101:2076 (Dec. 23) 1933.

**Course of Illness**—During the rest of the year 1931 and the first half of 1932, the patient had several attacks of chills, fever and sore throat, during which time the white cell count was lowered in the characteristic manner. In each instance one of the coal tar derivatives (?) was taken. The attacks were mild, with the exception of one in which there was a severe stomatitis followed by extensive sloughing of the soft tissues. The white cell count on this occasion was 850, with 91 per cent lymphocytes and 9 per cent polymorphonuclears. This attack was amenable to roentgen therapy.

For the past seven months the patient has remained well. On April 18, 1934, the blood picture was as follows: The white blood cell count was 3,700, the polymorphonuclears were

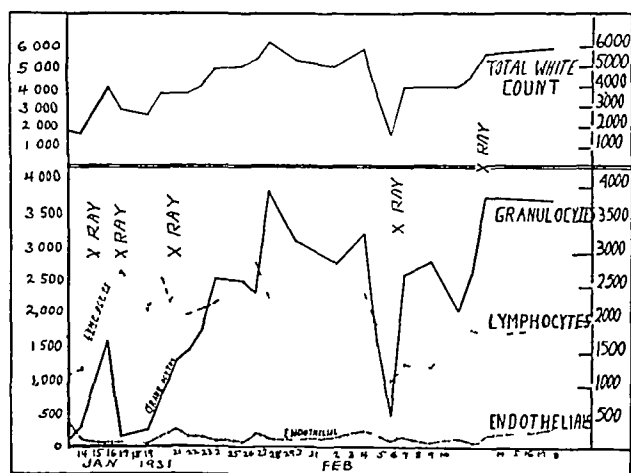


Chart 1—The variations in the total white and differential blood counts during two attacks of agranulocytosis. The effect of roentgen treatments is shown.

69 per cent, the lymphocytes were 22 per cent, the large mononuclears were 6 per cent and the transitionals were 3 per cent. The white blood cell count rarely exceeded 4,000.

**Effect of Administration of Amidopyrine**—April 19, the patient agreed to take 10 grains (0.648 Gm) of amidopyrine, a drug she probably had taken frequently. At 4 p m, exactly twenty-four hours after the preceding cell count and three hours after the ingestion of the drug, the count had fallen to the levels shown in chart 2. The total white cell count was 1,700, the polymorphonuclears were 50 per cent, the lymphocytes were 44 per cent, the large mononuclears were 4 per cent and the transitionals were 2 per cent.

The patient stated that one hour after she took the amidopyrine a headache and backache developed and she was nauseated. A mild sore throat gradually developed and when she was seen the temperature was 99.2.

April 20, exactly twenty-four hours after she took the amidopyrine, the white blood count was as follows: The total count was 1,000, the polymorphonuclears were 56 per cent, the large mononuclears were 8 per cent, and the transitionals were 11 per cent. The symptoms at this time were exaggerated and the patient was considerably prostrated. There was also swelling of the gums.

April 21, forty-eight hours after she took the drug, the white cell count tended to return toward the normal level. The total count was 2,500, the polymorphonuclears were 39 per cent, the lymphocytes were 49 per cent, the large mononuclears were 4 per cent and transitionals were 8 per cent. The patient's general condition was unchanged although the throat symptoms were somewhat worse.

April 22, seventy-two hours after the initial dose of amidopyrine, the blood cell count and the general condition were practically unchanged.

April 23, four days after she took the drug, the white cell count was 4,400, the polymorphonuclears were 53 per cent, the lymphocytes were 39 per cent, the large mononuclears were 3 per cent and the transitionals were 5 per cent. There was general improvement on the part of the patient. Subsequent cell counts have been normal.

April 27, the white cell count was 5,200, the polymorphonuclears were 66 per cent, the lymphocytes were 28 per cent, the large mononuclears were 3 per cent and the transitionals were 3 per cent.

The patient was given 10 grains (0.65 Gm) of acetylsalicylic acid. Studies of the blood demonstrated that the white count was unaffected and the patient's condition remained satisfactory.

April 30, the white cell count was 4,700, the polymorphonuclears were 54 per cent, the lymphocytes were 38 per cent, the large mononuclears were 4 per cent and the transitionals were 4 per cent.

The patient was given 2 grains (0.13 Gm) of alurate (allyl iso-propyl-barbituric acid) and the effect on the blood was studied in a similar manner, with negative results.

**Allergy Tests**—In an attempt to determine whether the reaction of the hematopoietic organs to these drugs was of an atopic nature, as suggested by Pepper,<sup>4</sup> or was the result of a hypersensitivity as is hinted at by Madison and Squier,<sup>5</sup> the patient was subjected to the following procedure.

After it had been determined that there was no instance of an allergic phenomenon in her personal or family history, skin tests were made with fifty-four common foods by the intracutaneous method.<sup>6</sup> The total nitrogen content of the testing extracts was 0.05 mg per cubic centimeter. The patient reacted positively to tea, parsnips, lemons, barley, pecans and chicken. Given a test meal of these ingredients, the white blood count decreased only slightly and the patient experienced no ill effects. The patient was next tested (patch method) with acetylsalicylic acid and amidopyrine; the results were negative.

Following this she was given intracutaneous tests with acetylsalicylic acid and amidopyrine; the results were negative. Passive transfer tests<sup>6</sup> were now made, in which 0.1 cc of the patient's serum was injected into the skin of a normal subject. This was followed forty-eight hours later by the injection into these sites on the normal subject of test solutions of acetylsalicylic acid and of amidopyrine. No reaction resulted, indicating the absence of reagins for acetylsalicylic acid and amidopyrine in the blood of the patient.

#### COMMENT

The granulopenia, at least in the case here reported, was not of an atopic nature but more in the nature of a drug hypersensitivity with the hematopoietic system acting as the shock organ.

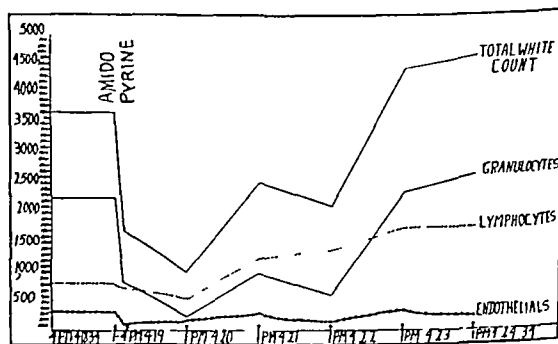


Chart 2—The effect of the administration of 10 grains (0.648 Gm) of amidopyrine during a remission that has lasted eighteen months.

#### SUMMARY

- 1 A case of agranulocytosis herewith reported was apparently amenable to high voltage roentgen therapy.
- 2 During a period of good health the patient was given 10 grains (0.65 Gm) of amidopyrine under control. This produced all the symptoms of agranulopenia within forty-eight hours.

<sup>4</sup> Pepper O H P. California & West Med 35 173 (Sept) 1931.  
<sup>5</sup> Cooke R A. Laryngoscope 25 108 1915.  
<sup>6</sup> Walker M and Kramer S D. J Immunology 10 835 (Sept) 1925.

3 The administration of acetylsalicylic and allyl-isopropyl-barbituric acids caused no unfavorable symptoms

4 Intracutaneous, patch and passive transfer tests gave negative reactions

5 In this patient the effect of imidopyrine was one of hypersensitivity to the drug and was not of an atopic nature

19 West Eighth Street

## NECROBIOSIS LIPOIDICA DIABETICORUM (URBACH)

DERMATITIS ATROPHICANS LIPOIDES DIABETICA  
(OPPENHEIM)

HENRY E MICHELSON, MD

AND

CARL W LAYMON, MD

MINNEAPOLIS

Until 1928 the only recognized cutaneous change in diabetes mellitus which had any possible diagnostic value was xanthoma diabeticorum. In that year Oppenheim<sup>1</sup> observed and described a condition which had a well defined clinical appearance and occurred only in diabetes. He called the condition dermatitis atrophicans lipoides. Urbach<sup>2</sup> reported the study of a similar case in 1932. He entitled the condition necrobiosis lipoidica diabeticorum. Since the report of these first two cases, other examples have been recorded by Galewsky,<sup>3</sup> Gottron,<sup>4</sup> Balbi<sup>5</sup> and Zeisler and Caro.<sup>6</sup> There is, as yet, no official international nomenclature for this condition. Because the majority of the observers have used the name suggested by Urbach, we have adopted it for the sake of convenience.

### LITERATURE

Urbach<sup>2a</sup> wrote the first formal article on necrobiosis lipoidica diabeticorum and since then has reviewed the condition in other contributions.<sup>7</sup> He regarded the disease as a metabolic dermatosis, related to the disturbances of lipid metabolism as well as to diabetes. His paper reported the case of a woman, aged 44, who had been treated for severe diabetes mellitus since 1926. In 1928 a cutaneous lesion appeared on the calf of the left leg, and a year later two similar lesions were noted on the left ankle. At the time of examination there were numerous lesions of the lower extremities in various stages of development. The more recent lesions were papules, while the larger, older ones were plaques.

From the Division of Dermatology, University of Minnesota Medical School. Dr. Henry E. Michelson, director.

1 (a) Oppenheim M. Ueber eine bisher nicht beschriebene mit eigentümlicher lipoider Degeneration der Elastica und des Bindegewebes einhergehende chronische Dermatitis bei Diabetes Mellitus (Dermatitis atrophicans lipoides diabctica). Arch f Dermat u Syph 166: 576 1932. (b) Eigentümliche disseminierte Degeneration des Bindegewebes der Haut bei einem Diabetiker. Zentralbl f Haut u Geschlechtskr 32: 179 1929. (c) Eigentümliche Bindegewebesdegeneration. ibid 36: 162 1931. (d) Eine noch nicht beschriebene Hauterkrankung bei Diabetes mellitus (Dermatitis atrophicans lipoides diabctica). Wien klin Wchnschr 45: 314 (March 4) 1932.

2 (a) Urbach E. Eine neue diabetische Stoffwechselerkrankung. Necrobiosis lipoidica diabeticorum. Arch f Dermat u Syph 166: 273 285 1932. (b) Kuttane Lipoidosen. Dermat Ztschr 66: 371 (June) 1933. (c) Lipoidstoffwechselerkrankung. Handb d Haut u Geschlechtskr 12: 328 1932.

3 Galewsky E. Necrobiosis lipoidica diabeticorum (Urbach). Zentralbl f Haut u Geschlechtskr 43: 252 (Jan.) 1933.

4 Gottron H. Dermatitis atrophicans lipoides diabctica. Zentralbl f Haut u Geschlechtskr 43: 47 (March) 1933.

5 Balbi E. Ricerche intorno alla patogenesi della necrobiosis lipoidica diabeticorum. Urbach. Oppenheim. Giornale di dermat e sif 74: 14 (Feb.) 1933.

6 Zeisler E. P. and Caro M. R. Necrobiosis Lipoidica Diabeticorum. Arch Dermat. & Syph 29: 167 (Jan.) 1934.

7 Urbach references 2b and 2c.

Although Oppenheim had observed his patient since 1928, the complete study of the case was not published until October 1932.<sup>1a</sup> The patient had been treated for diabetes by Professor Stejskal for several years, and the skin changes had appeared one year after the onset of the diabetes. At the time of the first examination in 1928 there were cutaneous lesions on the anterior and the posterior surfaces of the lower extremities, the arms and the trunk. At this time the buttocks, palms and soles did not show the lesion. In 1932 these areas as well as the face were affected. The early lesions were papules and the later ones were plaques, identical with the lesions Urbach had observed in his patient.

Galewsky<sup>3</sup> presented the third case of this skin condition and showed moulages and microscopic sections at the meeting of the Dresden Dermatologic Association in October 1932. A complete study of the case has not been reported.

The fourth case was shown by Gottron<sup>4</sup> before the Berlin Dermatologic Society in December 1932. The patient was a woman, aged 37, who had had diabetes since 1927. Skin lesions had developed gradually on the lower extremities for four years, in spite of the fact that the diabetes had improved. Numerous new lesions had appeared within the past year which superficially resembled morphea. The total cholesterol, cholesterol esters and fatty acids in the blood were abnormally high.

Balbi's<sup>5</sup> patient, a man, aged 55, presented a severe type of the disease. The lesions clinically were similar to those in the previous cases, except that many ended in central ulcerations.

The fifth case was that of a man, aged 27, presented by Zeisler and Caro<sup>6</sup> to the American Dermatological

TABLE 1—Classification of Lipoids

General Group	Individual Example	General Chemical Composition
I True neutral fat (glycerine esters)		Glycerin and fatty acid
II Cholesterol and cholesterol esters		Cholesterol and fatty acid
III Lipids		
1 Phosphatides		
a Unsaturated	Lecithin and cephalin	Organic base + glycerin phosphoric acid + fatty acid
b Saturated	Sphingomyelin	Organic base + phosphoric acid + fatty acid
2 Cerebrosides	Phrenasin and kersatin	Organic base + galactose + fatty acid

Association in Chicago in 1933. Since then, these observers have seen another case in a white woman, aged 72.

As far as we are able to determine, the case we discuss in this paper is the seventh recorded in the literature. The patient was younger than those in previous reports. Before the case is reported it is important to review briefly the classification of lipoids and the cutaneous lipoidoses and to give a few facts about the histochemistry of these fatty substances.

During the past twenty-five years the term lipoid has appeared frequently in medical literature. Although it is beyond the scope of the dermatologist to go into the detailed chemistry of the lipoids, it is advantageous to consider briefly the substances that are included in this group and the diseases in which they play an important role. Lipoid is a generic name applied to all those substances in the organism which in their general chemical and physical properties, and especially



in their solubilities, resemble the fats The classification<sup>8</sup> of lipoids is shown in table 1

The term lipid, as adopted at the International Congress of Chemistry in 1923,<sup>8a</sup> was intended to designate only phosphatides and cerebrosides, although Schaaf<sup>9</sup> and Wile<sup>10</sup> have since applied it to the total of all fat-like components of tissues or blood that are soluble in ether and alcohol, in other words, total lipoids

Although cholesterol, one of the sterol group of alcohols, is related to the other lipoids only in its solu-

phatide (lecithin), 200-250, total lipoids (lipid-Schaaf), 700-800

Lipoids are found normally in all living matter and are therefore considered as essential components of protoplasm Their concentration and nature may vary in different tissues, and their exact function is not definitely known They may also appear abnormally in the skin mucous membranes, blood, bones and internal viscera, forming the basis for many distinctly varied diseases In this paper the lipoidoses that are entirely internal in their localization, such as Gaucher's and Niemann-Pick's disease, are not considered Urbach's classification of the cutaneous lipoidoses is shown in table 2

TABLE 2—Classification of the Cutaneous Lipoidoses (Urbach)\*

Type	Generalized Types Chief Features	Lipoid
Xanthelasma (infiltration type)	Palpebral (essential and secondary types) Includes Hand Schuller Christian disease foam and giant cells microscopically	Cholesterolin and cholesterolin esters (intracellular)
Extracellular cholesterolinosis (Kerl Urbach)	Multiple reddish brown papules and nodules sometimes resemble erythema multiforme located on extremities trunk and mucosae extracellular lipid deposits especially as mantles around the vessels no foam cells	Cholesterolin and cholesterolin esters (extracellular)
Hepatosplenomegalia skin and mucous membrane lipoidosis (Burger Grutz)	Yellow firm nodules on skin of face and extremities mucous membrane lesions spleen and liver greatly enlarged lipemic fundi increased phosphatides in blood perivascular lipid mantles and intracellular and extracellular lipid granules	Phosphatides (intracellular and extracellular)
Lipoidproteinosis (Urbach Wiethe)	A familial disease occurring in the course of latent diabetes yellowish nodules on skin and mucosae hyperkeratotic lesions on extremities hoarseness (laryngeal involvement) usually since birth no foam cells	Probably phosphatides joined to a protein
Localized Types		
Necrobiosis lipoidica diabeticorum	Urbach states that in one sense this disease might be considered a generalized lipoidosis since there is a hyperlipemia however the earliest symptom is the necrobiosis and is the one on which the disease depends	Type of lipid not definitely established
Resorption xanthelasmas	Due to local freeing of lipoids as in gummas and scars	Cholesterolin and cholesterolin esters (intracellular)
Lipoid degeneration of the elastins (Kreibich) or imbibile lipoidelastelastine (Urbach)	The process that occurs in sailors' skin and in cutis rhomboidalis nuchae	Type of lipid not definitely established

\* Internal lipoidoses (Gaucher's and Niemann-Pick's disease) not mentioned in this classification

bility, it can be seen from the table that the other lipoids show common qualities in their chemical makeup All of them contain fatty acids, and the same acid may be found in different lipoids Glycerin is present in both neutral fat and unsaturated phosphatides, and similar organic bases occur in more than one lipid (Choline occurs in both unsaturated and saturated phosphatides and sphingosin occurs in saturated phosphatides and cerebrosides)

The normal values for plasma lipoids are neutral fat, 100-250 mg per hundred cubic centimeters, fatty acids, 250-450, cholesterolin and esters, 110-150, phos-

HISTOCHEMISTRY

It is generally accepted that the isolated, chemically pure, lipoids can be differentiated from one another by histochemical methods This differentiation is accomplished by various lipid stains on formaldehyde-fixed tissue and by extraction of the lipoids by means of solvents such as acetone, ether and absolute alcohol Histochemical methods, however, have only a relative value in differentiating the lipoids that may occur abnormally in the tissues Kutschera-Aichberger<sup>8c</sup> has concluded, after exhaustive experimentation, that the color characteristics of a certain chemically pure isolated lipid cannot always be brought out in the same way in the tissues, where there is usually a mixture of lipoids and where the staining reactions can be influenced by substances in the cell protoplasm near the lipoids A lipid that shows a definite staining property in the pure state can show a changed staining reaction or a lack of staining reaction in the tissues Thus one cannot say positively that a definite lipid is present in the tissues because a color is obtained that coincides with the color obtained with the same stain on the same lipid in the pure state Kutschera-Aichberger stated, furthermore, that until 1925, at least, lipid analysis had been greatly overrated Balb<sup>5</sup> noted that Hueck maintained that precision with dif-

TABLE 3—Reactions for Lipoids

Reaction	Neutral Fat	Free Cholesterolin	Cholesterolin Esters	Phosphatides
Sudan III	Scarlet or orange red	Scarlet or orange red	Scarlet or orange red	Stain poorly (light yellow) if at all
Nile blue sulphate	Red	Blue violet	Blue violet	Blue violet
Ciaccio	Unstained	Unstained	Unstained	Reddish yellow
Smith Dietrich	Unstained	Unstained	Unstained	Blue black
Fischler	Used for the demonstration of fatty acids			
Schultz	Unstained	Unstained	Blue green	Unstained
Kossa	Stains calcium black			
Benda	Neutral normal fat red	neurotic fat green		
Digitalin	Negative	Precipitates	Negative	Negative
Double refraction	Absent	Slight	Positive	Slight

ferential staining and extraction methods is impossible and that Kaufmann-Lehmann believes that sudan III is the only reliable lipid stain

Thus it appears that a direct chemical analysis is necessary to ascertain the types of lipoids that are present in any given tissue The reactions that have been determined for the lipoids in their pure states are shown in table 3

Table 3 shows that double refraction is completely absent only in neutral fat, that cholesterolin, cholesterolin esters and neutral fat stain well, while the phosphatides stain poorly, if at all, with sudan III, and that the

8 (a) Peters J. P. and Van Slyke D. D. Quantitative Clinical Chemistry, ed. 1 Baltimore: Williams and Wilkins Company 1931 p. 218. (b) Howell W. H. Textbook of Physiology ed. 11 Philadelphia: W. B. Saunders Company 1930 pp. 81 and 956. (c) Kutschera-Aichberger H. Beitrag zur Morphologie der Lipoiden Virchows Arch f. path. Anat. 256: 569, 1925. (d) Urbach. 9 Schaaf F. and Werner A. J. Die Pathogenese der Xanthoma Arch f. Dermat. u. Syph. 162: 217, 1930. 10 Wile U. J. Eckstein H. C. and Curtiss A. C. Lipid Studies in Xanthoma Arch. Dermat. & Syph. 19: 35 (Jan.) 1929. Eckstein H. C. and Wile U. J. Lipid Studies in Xanthoma J. Biol. Chem. 57: 311 (June) 1930.

phosphatides are best stained with the Ciaccio and the Smith-Dietrich methods

Table 4 shows the results to be expected in fractional lipid extractions

Up to the present time the only reports of histochemical studies in necrobiosis lipoidica diabetorum have been those of Urbach and Balbi. For the sake of brevity, their results are shown schematically in table 5

The reddish brown obtained by staining with sudan III, and the reddish tint obtained with Nile blue sulphate, were suggestive of the presence of neutral fat, while the black given with Smith-Dietrich and the positive staining with Ciaccio indicated the presence, in part at least, of phosphatides. The lack of double

TABLE 4—Fractional Lipid Extractions

Solvent	Lipoids Extracted	Lipoids Not Extracted
Acetone	Neutral fat, cholesterol esters, acetone soluble phosphatides, fatty acids	Unsaturated and saturated phosphatides and cerebrosides
Ether	Unsaturated phosphatides	Saturated phosphatides and cerebrosides
Absolute alcohol	Saturated phosphatides and cerebrosides	

refraction was against the presence of cholesterol esters, and the negative reaction to digitonin favored the absence of free cholesterol. The Schultz reaction for cholesterol was surprisingly positive in Balbi's case, but he was of the opinion that the digitonin reaction was the more reliable and the one to be accepted. Urbach likewise found the digitonin reaction negative. It is to be noted that in all cases in which two analogous reactions were done, Urbach and Balbi were in complete agreement.

In Balbi's case, a large part of the lipoids in the tissues were removed by acetone extraction, as proved by restaining with sudan III. Traces of reddish stain remained in some areas, however. After extraction with ether there were still traces of sudanophilic substances, but after extraction with absolute alcohol and benzene there was almost complete absence of substances staining with sudan III. In each extraction, the formaldehyde-fixed frozen sections were allowed to remain in the cold solvent for twenty-four hours and then were stained.

Balbi deduced from the results of the extractions that a large part of the lipoids in the tissues are to be grouped with neutral fat, cholesterol, cholesterol esters and acetone-soluble phosphatides, owing to the fact that they were extracted with acetone. From the staining reactions (digitonin negative, double refraction negative) it is natural to assume that most of the extracted lipid was neutral fat. Almost all the remaining lipid was extracted with ether, suggesting that it belonged to the group of unsaturated phosphatides. Balbi made these deductions reservedly but believed that the studies were at least an aid in determining the general groups to which the lipoids in question belonged.

#### CLINICAL FEATURES OF NECROBIOSIS LIPOIDICA DIABETICORUM

Both Urbach and Oppenheim have agreed that the earliest lesions are sharply bordered, distinctly elevated red papules from 1 to 3 mm in diameter, which may be capped by a slight scale and which do not disappear under glass pressure. Oppenheim has termed these lesions the first stage of the disease.

The well developed lesions, which may be considered representative, are round, oval or irregular plaques with well defined borders, of firm consistency, and having a smooth, glistening surface, which looks as if it were covered with a tightly stretched layer of cellophane. Oppenheim has noted that the lesions may assume the glazed appearance of lichen planus and has reported definite ringed lesions, violet at the periphery, followed by a yellow ring with a whitish center. The fully developed lesions appear to have a depressed center, with atrophy.

In all the recorded cases the color has been uniform. At first glance, one is immediately reminded of a xanthomatous lesion. There is a peculiar yellow tint which suggests this, but on more careful scrutiny one realizes that there is a difference in the color of the plaque at the center in contrast to its color at the periphery. The outer zone is a shade of violet, with a gradual transition to a lighter, more yellowish pink tone in the center. The surrounding skin is normal.

Many fine telangiectatic vessels trace over the surface of the plaque, which is usually smooth and without secretion. In Balbi's patient many of the lesions ulcerated.

Morphologically, the typical lesion, which Oppenheim has designated as the second stage of the disease, is simply a well defined plaque with an identifying color closely related in its general characteristics to the cutaneous xanthelasmas.

Oppenheim has described a third stage, which he states is not shown in all cases. It is characterized by a definite dellying of the center of the lesion, a more diffuse border, and a central grayish white scale.

Judging from the smaller number of cases that have been reported, the disease can occur at any age and in either sex. The extreme age limits have varied from 10 years in our patient to 72 years in one of the patients of Zeisler and Caro. The beginning is insidious and the course throughout is asymptomatic. The most common location is on the lower extremities, especially at the ankle region. The forearms are next in order of frequency, and lesions have been reported on the trunk, face, palms and soles.

TABLE 5—Histochemical Studies

	Urbach	Balbi
Sudan	+	+
Nile blue	No report	Blue red
Ciaccio	No report	+
Smith Dietrich	No report	+
Digitonin	—	—
Double refraction	—	—
Schultz	No report	+
Benda	—	No report
Kossa	+	+
Amyloid	—	—

#### REPORT OF CASES

CASE 1—History—K. D., a girl, aged 10 years, had been treated for diabetes for the past five years. Both dietary restrictions and from 25 to 35 units of insulin daily were required to control the disease. Under this regimen, growth and development had been normal. The first cutaneous lesion, which was at first thought to be a bruise, had appeared on the lateral surface of the right ankle about three years previously and had changed but little in size and appearance since it was first noticed. About eight months following the onset of the initial lesion a second one appeared on the calf of the right leg as a red pimple, resembling a mosquito bite. Later, this lesion became a plaque that spread peripherally and assumed characteristics identical with the older lesion except for the size.

Two new lesions had developed eight months before on the dorsum of each foot and could be palpated before they could be seen. They were lighter in color and smaller than the older ones but were duplicates in all other respects.

The eruption had remained asymptomatic throughout its course and there had been no other cutaneous lesions at any time. The mother, father, sister and brother of the patient were all living and well and free from cutaneous eruptions. No other member of the family had diabetes.

**Physical Examination**—The general physical examination was negative except for the condition of the skin. The eyes, ears, nose, throat, heart and lungs were apparently normal, and the liver and spleen were not palpable.

The entire eruption was confined to the lower extremities. The oldest lesion, which was situated on the lateral surface of the right ankle, was a sharply defined oval plaque, which measured 5 by 3.5 cm. It was scleroderma-like in consistency and covered by thin smooth epidermis, which appeared shiny and gave the impression of being atrophic. The yellowish violet in the central portion of the lesion deepened to a darker hue as the periphery was reached. Minute tortuous blood vessels passed through the thin surface covering.

The second lesion was a round plaque 2 cm in diameter, located on the posterolateral surface of the calf of the right leg. The details of this lesion were identical with those of the other plaque.

The two newest lesions, situated on the dorsum of each foot, measured 1.5 cm in diameter, were pink rather than violet, and were raised in barely perceptible manner above the surface or the surrounding skin. These lesions were less firm than the older ones and the atrophic, shiny appearance of the latter was lacking.

**Laboratory and Metabolic Data**—Urinalysis showed a specific gravity of 1.030, an acid reaction to litmus and an absence of albumin. The qualitative examination of the urine for sugar, Benedict's solution being used, was strongly positive on several occasions.

The routine examination of the blood showed hemoglobin, 81 per cent (Sahli), leukocytes, 7,150, neutrophils 46 per cent, eosinophils, 3 per cent, monocytes, 1 per cent, and lymphocytes, 50 per cent.

The Kolmer, Wassermann, and Kline blood tests were negative. The fasting blood sugar was 220 milligrams per hundred cubic centimeters (method of Folin). Other examinations of the blood plasma (method of Bloor) showed total cholesterol, 233 mg per hundred cubic centimeters of plasma, phosphatide (lecithin), 178 mg, and fatty acids, 428 mg.

**Microscopic Changes**—The biopsy was taken with a punch from the oldest lesion on the right ankle and was fixed in 10 per cent solution of formaldehyde. Frozen sections were made from part of the tissue and the remainder was embedded in paraffin and sectioned in the usual manner. We also had the privilege of examining the histologic sections from both of the cases of Drs. Zeisler and Caro.

The sections stained with hematoxylin and eosin showed a slight hyperkeratotic scale. All the layers of the epidermis were present. The basal layer was intact, although there was a definite but irregular increase of pigmentation. Aside from this, the epidermis was essentially normal.

Throughout the entire corium, the striking feature was the diffuse but patchy infiltration of localized collections of cells. It was arranged predominantly about the vessels but also pushed the collagen bundles aside, completely replacing them only in small areas. The collagen bundles were of irregular size and on cross section appeared to be swollen but the usual architecture and nuclei were present throughout except in the areas of heaviest infiltration. With higher magnification the infiltrate was seen to be made up of lymphocytes and fibroblasts. There were no plasma cells, giant cells, or polymorphonuclear leukocytes. One gained the impression from an examination of the infiltrate that the different foci of inflammation were of different ages. In certain areas the infiltrate consisted entirely of lymphocytes while in other areas there was a preponderance of fibroblasts, indicating an attempt at repair.

On a complete survey of the sections, necrotic areas were found in which the collagen appeared pale homogenized and

without nuclei. In and about these areas were the heaviest collections of lymphocytes and fibroblasts. They represented the necrobiotic foci described by Urbach and in almost all of them vessels were seen either in longitudinal or cross section. When the vessels were present, the intima was definitely swollen and proliferated, even to the point of occlusion of the lumen. However, no massive areas of necrosis were observed in any of the sections.

The preparations stained by the van Gieson method showed conclusively that the areas of necrobiosis were dispersed among the collagen bundles and at their expense. In the areas of infiltration the collagen was destroyed and had been replaced by the cells, but between the foci the collagen appeared to be practically normal.

Sections prepared by Weigert's method showed only fragments of elastic tissue throughout the entire corium, and they were completely lacking in the necrobiotic foci.

The results of microscopic examination in this case are in accord with those reported by Oppenheim, Urbach and Balbi.

In our case, from a superficial survey of the formaldehyde-fixed frozen sections, which were stained with sudan III and counterstained with hematoxylin solution one could readily observe that the heaviest sudanophilic foci coincided with the necrobiotic areas and that they showed a staining reaction which was definitely different from that of the neutral fat of the subcutaneous tissue. Whereas the latter appeared a brilliant orange-red, the lipoids in the necrobiotic masses assumed a dull brown. The lipid containing tissue was more dense in the center of these masses and gradually faded into the surrounding tissues.

Under higher magnification, both intracellular and extracellular lipid deposits were seen, although the extracellular accumulations were relatively more massive and consisted of much larger globules than those seen within the cells. The extracellular lipid was not only seen in the necrobiotic foci but was scattered diffusely throughout the corium as isolated fine droplets occurring between the connective tissue fibers. The intracellular lipid was contained in certain large fibroblastic cells, which seemed to be filled to overflowing, and numerous droplets of minute size that were stained with sudan could be seen about these cells. Some of the vessels in the necrobiotic foci, as well as in the infiltrated areas about the sweat glands, showed fatty substances in the vessel walls.

The collagen bundles in some of the sections appeared to be swollen and impregnated with tiny droplets of lipid, so that the entire bundle was stained a rusty brown.

**CASE 2—History**—M. H., a woman, aged 48, stated that she had diabetes mellitus since May 1932. The condition was discovered during a period of hospitalization for influenza. She was not treated until March 1933 when she became weak and sugar was discovered in the urine. At this time a physician outlined a diet and recommended the injection of 10 units of insulin twice daily. In November 1933 she injured the small toe of the right foot, while attempting to remove some dead skin. Soon afterward the toe became swollen and she was unable to wear a shoe. She attempted to reduce the swelling by means of a hot flaxseed poultice causing several bullae on the dorsum of the right foot. Neither the original injury on the toe nor the bullae healed during the following six weeks. The patient came to the University Hospital for advice.

She related at this time that her mother had died of diabetes and that her husband and one child were living and well.

**Examination**—At the time of admission Jan. 8, 1934, the patient was well developed and in good health except for the present complaint. The heart, lungs and other internal viscera were apparently normal.

On the dorsum of the right foot there were five superficial ulcers. The largest one was oval, measuring 3 by 6 cm, and was surrounded by a deep violet zone 2 cm in width due to hemorrhage beneath the surface. The other lesions were identical except for size. Two were situated at the level of the malleoli and two were at the base of the toes. All were about 1 to 2 cm in diameter and appeared as bullae from which



Fig 1 (case 1)—Lesion of three years duration in a girl aged 10 years

the tops had been removed. The right small toe showed an area of granulation tissue 2 mm in diameter on the lateral and medial surfaces. The left leg and foot were normal.

**Laboratory Data**—The urine at the time of admission showed a strongly positive reaction for sugar. The blood showed hemoglobin, 90 per cent; leukocytes, 8,300; polymorphonuclears, 71 per cent; lymphocytes, 25 per cent; monocytes, 3 per cent; basophils, 1 per cent.

The Wassermann and Kline tests were negative. The fasting blood sugar was 176 mg per hundred cubic centimeters, and the fasting blood cholesterol was 181.5 mg per hundred cubic centimeters.

Roentgen examination of the right foot showed an osteomyelitis involving the outer portion of the first and terminal phalanges of the right small toe. There was also a sclerosis of some of the vessels of the right leg and foot.

**Progress**—After treatment for two weeks with antiseptic wet compresses the toe, as well as the ulcerations on the dorsum of the foot and on the toe, healed. At this time the lesions assumed the typical characteristics of necrobiosis lipoidica diabetorum. All were similar except in size which varied from 1 to 7.5 cm. Each lesion corresponded exactly to the site of previous ulceration. The largest which was situated near the external malleolus was somewhat irregular but roughly oval. It measured 5 by 7.5 cm and extended medially from the malleolus to a point about 2 cm to the right of the midline. There were two other lesions on the dorsal surface of the ankle at the level of a line drawn between the two malleoli. Both were oval and were 3 by 2 and 4 by 3 cm in size the long axes being longitudinal. The two other lesions were located near the base of the toes and were 1 and 2 cm in diameter.

All the lesions were waxy plaques, of firm consistency, and sharply demarcated from the surrounding normal skin. The color of the three largest lesions was dark purple, deepest in the center and gradually becoming lighter and somewhat yellow toward the periphery. The purple of the plaques was not uniform over the surface but interspersed by yellow foci, which were irregular in size and shape. The largest lesion was capped by a thin white scale. No telangiectatic vessels were observed.

The two smaller lesions at the base of the toes were appreciably lighter in color than the three lesions previously mentioned. They were similar in other features. The central portions were violet and appeared to be stippled with yellow. The surfaces were glistening and smooth and there were no scales.

A biopsy was taken from the largest lesion and the microscopic features were found to be essentially the same as those described in the first case.

Sections from both of our cases of necrobiosis were treated with the tinctorial agents as outlined in table 4. The staining reactions were identical with those reported by Urbach and Balbi, and we do not deem a detailed description necessary.

#### PATHOGENESIS

The pathogenesis of necrobiosis lipoidica diabetorum has been the cause of controversy and is still not entirely settled. Oppenheim was chiefly concerned with the fact that this cutaneous finding in diabetes was a clinical entity and on the grounds of his observations was inclined to consider as the basis for the disease a fatty degeneration of the connective tissues, such as Kreibich described in sailors' skin and cuts.



Fig 2 (case 2)—Lesion present three months in a woman aged 48

rhomboidalis nuchae. He emphasized the fact that the microscopic changes were entirely different from those of xanthoma diabetorum for there was a complete absence of xanthoma and giant cells.

In his publication and discussions before medical societies, Oppenheim maintained that the degeneration was brought about by circulating toxic substances which were an accompaniment of the diabetes and which

by their local action caused a colloidal-chemical change in the tissues. Although his histologic studies showed no amyloid, colloid, hyaline or mucinous degenerations, he deducted from his study of the sections stained by the van Gieson method that there was some specific change in the connective tissue. In sections stained with sudan III he found intracellular and extracellular lipid droplets.

Urbach considered the condition to be a necrobiosis of the connective tissue followed by an imbibition of lipoids. He stated, in objection to Oppenheim's views, that the lipid degeneration described by Kreibich about twenty years ago was in no way analogous to the process that occurred in necrobiosis lipoidica diabetorum. In the former instance the sudanophilia that Kreibich found was limited exclusively to the swollen, fragmented elastic fibers, while in the latter condition the chief changes appeared in the connective tissue, with the elastic fibers for the most part completely lacking in the necrobiotic areas.

As a further objection to the theory of local degeneration as an explanation of the pathogenesis, Urbach

After a fair consideration of both views and an excellent, painstaking, microchemical investigation, Balbi felt that the conception of Urbach was correct. At first glance, because of the mild reaction of the tissues, he was undecided as to whether or not the process was one of necrobiosis and imbibition or one of degeneration. He believed that the nuclear alterations, the disappearance of cells, the restriction of the vessel lumens, due to thrombosis, and the homogenization of the connective tissue was indicative of necrobiosis, while the negative reactions for amyloid, colloid hyalin and mucin, which Oppenheim obtained, were against degeneration. For the same reasons that Urbach had given he concurred in the view that degeneration, in the sense that Kreibich uses the term in sailors' skin, could not be applied to this disease. Balbi found that most of the lipid deposits were extracellular, and the few cells containing sudanophilic inclusions were histiocytic fibrocytes of normal appearance. They were not degenerated, as would be expected if the process was one of lipid degeneration. He thought that the arrangement of the droplets in clusters and striae did not carry the significance that Urbach attributed to it.

In some sections, however, he observed masses of lipid within thrombosed vessels and rich perivascular deposits around others, strongly indicating that the lipid was blood borne and deposited in greatest quantities in the immediate vicinity of the vessels, gradually invading areas farther distant. In many places he saw degeneration of the vessel wall caused, he believed, by toxic materials circulating in the blood other than the lipid.

He thought that the clinical facts coincided well with the histologic observations. The surface telangiectasia was explained as a compensatory phenomenon secondary to disturbances in the deeper vessels. The brown discoloration of the lesions was due to iron pigment deposited in the upper part of the corium, and the yellow tint was given by the lipoids present in the lesions. He felt that the prolonged course of the disease was due to the torpidity of reaction that characterizes diabetic tissues. In cases such as Balbi's, in which the necrobiosis is more intense the foci may liquefy and cause ulcerating lesions. In the ordinary, milder cases the peripheral circulation maintains the integrity of the epidermis.

#### COMMENT

After a critical evaluation of the literature and a prolonged study of our cases we attempted to arrive at a conclusion regarding this condition. We felt that an attempt should be made to align a new dermatosis that could be attributed directly to the diabetic process with the two best known cutaneous complications of diabetes. These are xanthoma and gangrene. Furthermore, we were convinced that the absence of xanthoma and giant cells definitely excluded the possibility that the dermatosis is an atypical form of xanthoma diabetorum.

There is no question but that trauma played an important role in the development of the lesions in our two patients. Since our attention has been attracted to necrobiosis lipoidica diabetorum, we have minutely examined the skin especially of the lower extremities, of every patient in the diabetic service who showed any cutaneous abnormality. We have seen lesions which in their evolution passed through a phase that

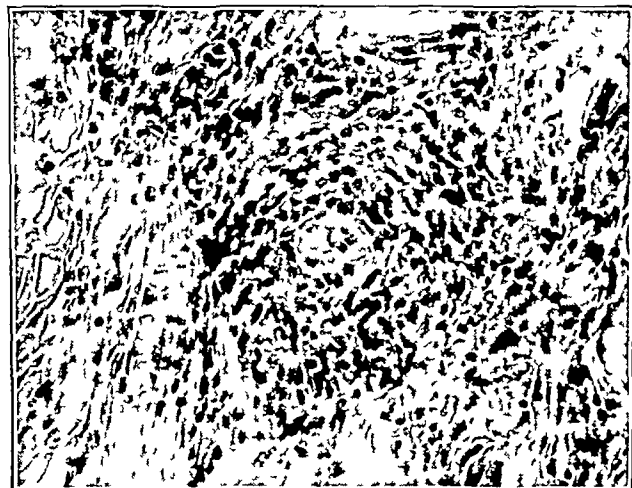


Fig. 3—A necrobiotic focus surrounding a blood vessel found at biopsy in case 1.

cited the belief, which is prevalent among pathologists at the present time (von Gierke in Aschoff), that it is improbable but not indisputable that fat can originate from cell protein. The accepted view is that the lipid in such degenerations comes from the blood or lymph streams and not from the cells themselves.

In support of his own ideas regarding the pathogenesis, Urbach claims that the arrangement of the lipid droplets in chains and clusters makes it appear probable that they come from the blood stream, and that it is the current belief that all necrotic tissue masses of the type found in necrobiosis lipoidica diabetorum attract substances circulating in the blood. Such a state exists in diabetes, as is illustrated by the finding of hyperlipemia. Hence the necrotic masses take up the circulating fatty substances.

Urbach supposed that certain toxins due to diabetes caused a severe disturbance in the vessels of the corium leading to necrobiosis as evidenced by loss of cells and nuclear homogenization of the connective tissue and the deposition of calcium salts. These primarily necrobiotic tissues then imbibed lipid substances, which are so often in the blood of diabetic subjects.

was identical in appearance with the lesions in necrobiosis lipoidica diabetorum. In some of these patients the process advanced to a frank gangrene, while in others the lesions disappeared without a trace. We concluded, therefore, that the disease was more closely related to gangrene than to any other integumentary process in diabetes.

We familiarized ourselves with the opinions of various authorities regarding the pathogenesis of diabetic gangrene and were surprised to learn that in spite of the vast literature on diabetes produced in the past decade there had been little study of gangrene.

We made biopsies at various distances from gangrenous areas in diabetic patients in an effort to ascertain whether or not the tissues adjacent to diabetic gangrene showed necrobiotic foci, and we felt that there was sufficient similarity to consider the processes closely related, the variation being mostly one of degree. We also cut sections from tissue surrounding gangrenous areas in patients who did not have diabetes. We especially searched for sudanophilic substances and found them in varying amounts. It was our opinion that in diabetic patients with a hyperlipemia the amount of fatty substance found in the necrotic areas was greater than in nondiabetic patients, although lipoids were present in both. We were convinced that necrobiosis lipoidica diabetorum was closely allied to gangrene, and that the degree of trauma, the anatomic location, and the severity of the underlying diabetes were the factors on which the course depended.

The composition of the lipoids found in this process is undoubtedly of interest to biologic chemists. However, we believe that the clinical lesions could be identical regardless of the predominating type of lipid found and, furthermore, that the imbibition of lipid was preceded by a primary vascular disturbance. The size and location of the vessels involved must govern the extent of the tissues injured, and this in turn influences the amount of fat deposited. Other factors, such as the relative amounts of the various lipoids in the blood, must play a role in determining the identity of the substances that are present in the tissues.

#### CONCLUSIONS

1 Necrobiosis lipoidica diabetorum is a definite entity that is more distinctive clinically than pathologically.

2 The process is more closely allied to diabetic gangrene than to diabetic anthoma.

**Disturbances of Nutrition**—Although pernicious anemia, pellagra, sprue, possibly the idiopathic steatorrhea or celiac disease and even hunger edema possess individual characteristics that give them the distinction of clinical and etiological entities, there are considerable numbers of patients who suffer from profound disturbances of nutrition in which the clinical picture is not so clear cut, and in which, in addition to malnutrition, several features peculiar to two or more of the above diseases may be combined in a most confusing manner. The variations in symptoms and signs may be numerous. There may be great loss of weight, anemia either of the microcytic or macrocytic type, persistent diarrhea, glossitis, steatorrhea, skin eruptions, abnormalities in mineral metabolism and alterations in the exchange of fluids so that in some patients there is dehydration of the subcutaneous tissues while in others such extensive edema that it becomes one of the predominant features of the illness—Longcope W T. The Importance of Disturbances in Nutrition in Edematous States, *Vc v England J Med* 210 1243 (June 14) 1934.

## ELECTROSURGICAL OBLITERATION OF THE GALLBLADDER

(SEVENTY-FIVE CONSECUTIVE, UNSELECTED, CASES WITHOUT MORTALITY)

MAX THOREK M D

CHICAGO

Although standard methods of cholecystectomy yield in competent hands an immediate operative mortality, in selected uncomplicated cases, of 1 or 2 per cent, no such happy results are recorded in hands not especially trained, particularly in complicated cases and in patients over 40 years of age. The global mortality in surgery of the gallbladder in complicated cases remains too high. The statistics of Enderlen and Hotz,<sup>1</sup> based on 12 144 cases of biliary tract disease treated surgically by vari-



Fig 1—Effects of forced carbonization on wall of inflamed gallbladder. (1) eschar. (2) Rokitansky Aschoff sinus in transverse section. (3) muscularis. (4) serosa. An excellent state of preservation characterizes the layers of gallbladder past the mucosa. Slightly reduced from a photomicrograph with a magnification of 85 diameters.

ous competent operators, gave an immediate operative (global) mortality of 9.28 per cent.

Verbrycke,<sup>2</sup> quoting Lyons, states that in a review of a series of his cases in which operation was performed by first class surgeons the immediate mortality was 10 per cent, and there were serious hospital complications in 33 per cent. Table 1 is of interest in this connection. The greater mortality in males as compared with females is striking.

Scalpel surgery of the gallbladder, therefore, must not be judged by the brilliant results of a few exceptional operators but by the general results of the average surgeon (who often does not report his results). These may in many instances give immediate mortalities of 20 or 30 per cent or even higher.

<sup>1</sup> Enderlen and Hotz. Behandlung des Gallensteinleidens. *Klin Wchnschr* 2 648 (April 2) 1923.

<sup>2</sup> (a) Verbrycke J R. Gallbladder Operation Mortality. *South M J* 22 452 (May) 1929. (b) *M J & Rec* 126 705 (Dec 21) 1927.



CAUSES OF DEATH AND COMPLICATIONS

The most frequent causes of death and complications following scalpel surgery of the biliary tract are peritonitis, shock, hemorrhage, pulmonary embolus, pneumonia and cholemia. The first four are by far the most

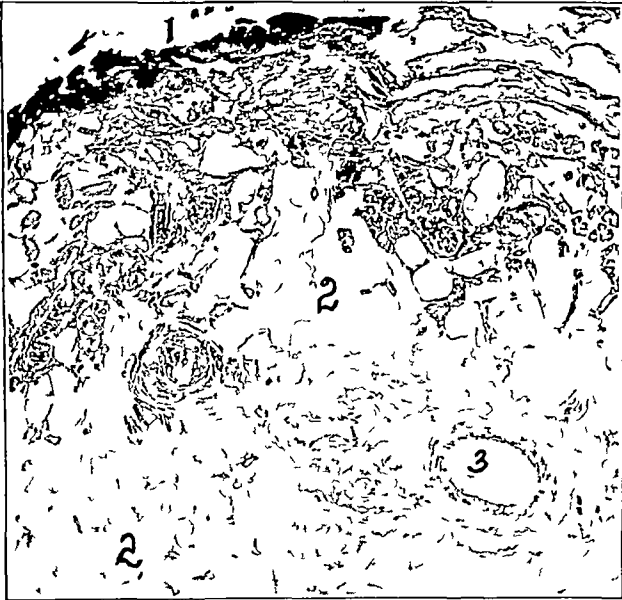


Fig 2—Effects of electrocoagulation on diseased gallbladder (chronic cholecystitis). (1) destroyed mucous membrane. (2) vacuolated spaces and homogeneous islands of tissue the result of tissue dissolution and coagulation. (3) blood vessel empty with small coagulum in lumen. All layers are affected in the coagulating process. Reduced from a photomicrograph with a magnification of 85 diameters.

TABLE 1—Mortality Statistics in Gallbladder Operations from 1908 to 1932

Surgeon	Number of Cases	Year	Mortality per Cent	
1 Cotte M	Not given	1908	Males	33
			Females	18
2 Davi B B	363	1921		8.17
3 Enderlen and Hotz	12,144	1923		9.23
4 Brentano	280	1923	Males	36.78
			Females	17.29
5 Villard	131 cholecystostomies	1925	Males	34
			Females	21
6 Duclos	Global mortality	1926	Males	36
			Females	23
7 Boutin	18 cases complicated by perforation	1927	Males	71.43
			Females	27.21
8 Davis B B 4	160 cases	1928		3.75
9 Cattell R B Ann Surg 89 932 (June) 1929	311 cases (complications 33 cases)	1929	Males	9.1
			Females	6.8
10 Sanders R L Ann Surg 92 374 (Sept.) 1900	18 series of case gathered from the literature totaling 60 cases	1900		1.0
11 Verbrycke 3	169 patients operated on by 23 surgeons. 1 surgeon in this series had 10 cases; another surgeon in this series had 20 cases	1927		8.8
				28.5
				1.0
12 Tivier Clavel and Chabannes	11 males 149 females	1932	Males	36.38
			Females	16
13 Thorek	649 cases 133 male 511 females	1910 to 1932	Males	16.8
			Females	9.4

common and seem to be more or less inseparable from any form of scalpel surgery. In most instances they are directly traceable to biliary seepage, particularly from the bed of the gallbladder, which contains not only

bile capillaries (often dilated) but also bile ducts of considerable caliber in from 15 to 25 per cent of individuals. These are injured during the course of cholecystectomy, and bile seepage results. Furthermore, it is not always possible to cover the denuded surface of the liver bed with peritoneum in a classic cholecystectomy. Bile, sterile or not, has been proved to act as a true chemical poison in the peritoneal cavity. Drainage invites bile seepage. Bakes<sup>3</sup> observed bile issuing from the wound 230 times in 346 cases of simple cholecystectomy. He and many other surgeons were impressed by the postoperative appearance of bile in the dressings "in nearly all the cases."

DANGERS OF DRAINAGE IN CHOLECYSTECTOMY

The dangers and evils of drainage are well known. Briefly, they are bile seepage (biliary peritonitis), hemorrhage (arrosion of vessels), cardiac embarrassment (particularly in the aged), acute dilatation of the stomach, pneumonitis (usually right lobar), fistulas, hernias, evisceration, stenosing sequelae, and the like.

The profession is still too much under the thrall of Kehr's famous dictum that "proper drainage is half a successful gallbladder operation." Nevertheless it appears in the light of recent reports that drainage might also be considered as half an unsuccessful operation. Davis<sup>4</sup> also called attention to the evils of drainage. There seems to be no doubt that, *ceteris paribus*, a gallbladder operation without drainage has a better chance of success than if drained. Many of the dangers are eliminated by omitting drains. Theoretically, a dry field and a tightly closed abdomen are ideal, but a scalpel cholecystectomy with completely satisfactory peritonization cannot always be accomplished.

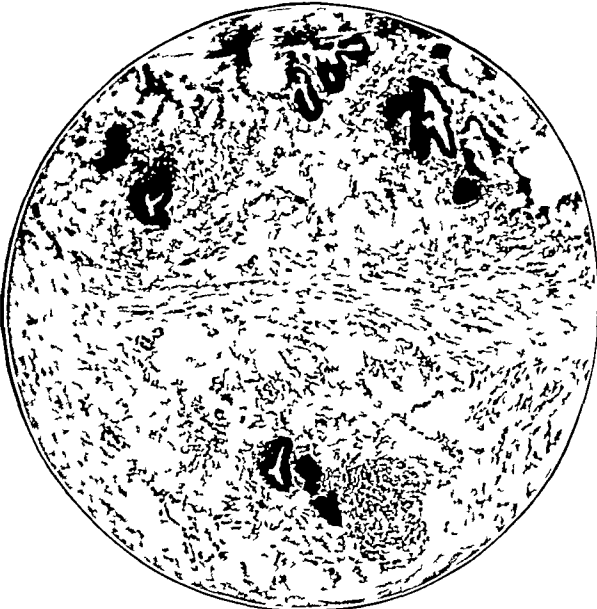


Fig 3—Mrs. A. M. Chronic cholecystitis eight months after (mucoclasia) electrocarbonization of the mucosa. Note remnants of Rokitsky Aschoff sinuses and diffuse round cell infiltration. Below in center of field an aggregation of polymorphonuclear leukocytes. Reduced from a photomicrograph with a magnification of 105 diameters. Persistence of symptoms. Relieved by total obliteration of gallbladder wall by electrocoagulation.

In certain conditions drainage is a necessity, namely, in obstruction in the common bile duct, icterus, progres-

3 Bakes J. Zentralbl. f. Chir. 55: 1858 (July 28) 1928.  
4 Davis B. B. Operative Mortality and End Results in Gallbladder Surgery. Ann. Surg. 87: 735 (May) 1928.

sive septic cholangitides, inability to peritonize the cystic duct and gallbladder bed, and the like

#### SOURCES OF GALLBLADDER INFECTION

Patey and Whitby summarized their observations as follows 1 Experimentally, the cystic artery is the easiest route by which organisms can reach the gallbladder 2 The liver is not an efficient bacterial filter Bacterial emboli may therefore reach the gallbladder

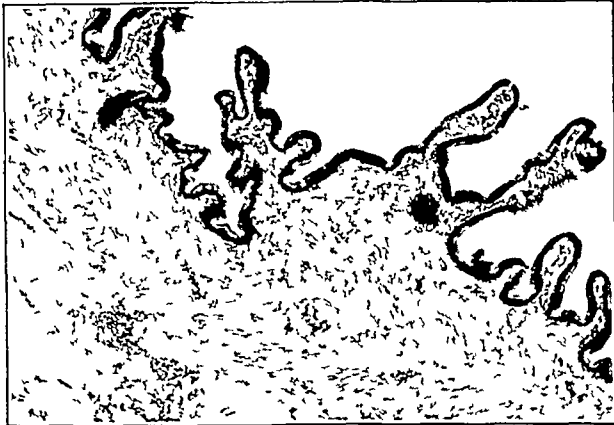


Fig 4—Mrs M L Chronic cholecystitis nine months after electrocarbonization of mucous membrane of gallbladder (mucoclasia) No relief of symptoms Regeneration of mucous membrane and persistence of inflammation (round cell infiltration and the like) Reduced from a photomicrograph with a magnification of 220 diameters Relieved by electrocoagulation of entire gallbladder wall

as easily from a portal focus as from a systemic one 3 There is evidence that lymphatic spread from the liver to the gallbladder is a probable route 4 The possibility of infection of the gallbladder by bile descending from the liver cannot be dismissed Ascending infection from the duodenum is, however, probably extremely rare Evarts Graham,<sup>5</sup> commenting on this, states that Patey and Whitby are wrong in their assumption that there is no evidence of a lymph flow from the liver to the gallbladder Sudler, in Mall's laboratory at Johns Hopkins, more than thirty years ago demonstrated this flow in the pig It is true, however, that in 1927 Winkenwerder, also of Johns Hopkins, was unable to find such a flow experimentally in the cat

The studies of Andrews and Hrdina<sup>6</sup> have shown that infection of the gallbladder occurs by direct extension from the liver They have produced hepatogenous cholecystitis by creating biliary stasis after ligating the cystic duct in dogs

It is conceded that the gallbladder is only a part sharing in an infectious process in the biliary apparatus Clinical results following its removal, however, seem to indicate that it often is the main focus, and, while the liver is usually amply fortified to cope with invading micro-organisms, the gallbladder seems to be a *locus minoris resistentiae*, which succumbs to the destructive influence of pathogenic micro-organisms The best damage of the biliary system is that which follows continuously after cholecystectomy through the common duct into the duodenum

#### HOW CAN THE EVILS OF DRAINAGE BE REMEDIED?

The logical answer seems to be (a) by omitting drains if possible, (b) by so protecting the gallbladder

bed that no bile leakage results, and (c) by eliminating the infected gallbladder All these can be effectually accomplished by a procedure to be described

The raw surface resulting from a dissection of the gallbladder from its bed is the *bête noire* in cholecystectomy Injury to the gallbladder bed and the resultant division of bile passages nearly always result in biliary seepage, and not all gallbladder beds can be covered with peritoneum after classic cholecystectomy Bile seepage will not result from the divided cystic duct when it is thoroughly peritonized with serosa of the hepato-duodenal ligament Such being the case, elimination of seepage from the gallbladder bed seems to be the keynote of the problem I have shown<sup>7</sup> that this can be effected (1) by electrocoagulation of the entire thickness of the gallbladder wall, and even the liver bed Such procedure results in an occlusion (by coalescence) of the capillaries and bile ducts and by formation of a dry, sterile layer of inert tissue, (2) by covering the electrocoagulated area with the ligamentum falciforme hepatis for further protection, and (3) by omitting drainage

#### EVOLUTION OF THE METHOD

Pribram<sup>8</sup> states that surgeons preceding him practiced extensive partial cauterization of the mucous membrane of the gallbladder with the Paquelin burner for purposes of avoiding fistulas He extended such "charring" or "burning" to larger areas of the gallbladder mucosa and called this procedure mucoclasia As recently as 1933<sup>9</sup> he still speaks of "carbonization of the mucosa of the gallbladder" I have shown elsewhere<sup>7</sup> that such cauterization of the mucous membrane of the gallbladder (mucoclasia) is insufficient to eliminate the gallbladder and eradicate disease A charred



Fig 5—Results of cholecystelectrocoagulectomy with falciform ligament implantation in a police dog Specimen removed seven weeks after operation (1) falciform ligament (2) lobe of liver (3) gallbladder bed (4) ligated cystic duct Fine adhesions between falciform ligament and gallbladder bed firm union of lower end of falciform ligament with stump of ligated cystic duct

eschar resulting from destruction of the mucous membrane acts, as do all eschars resulting from burns, as an impervious loosely attached foreign substance carry-

<sup>7</sup> Thorek Max Cholecystelectrocoagulectomy, Illinois M J 64 425 (Nov) 1933

<sup>8</sup> Pribram B O Fortschritte in der chirurgischen Behandlung des Gallensteinleidens Med Klin 24 1187 (Aug 3) 1928 Ztschr f Chir 56 1054 (April 27) 1929 ibid Zentralbl f Chir 55 775 (March 31) 1928

<sup>9</sup> Pribram B O Compt rend Cong internat lithiase biliaire Paris G Doin 1933

<sup>5</sup> Graham Evarts General Surgery (Practical Medicine Series) 1933 p 611

<sup>6</sup> Andrews Edmund and Hrdina Leo Hematogenous Cholecystitis Arch Surg 23 201 204 (Aug) 1931

ing with it the potential danger of partial or total detachment, which may result in hemorrhage, thrombosis and possible embolism. Albertin<sup>10</sup> has shown that Pribram lost nine patients in a series of 310 cases in which mucoclasia was employed. Coupled with this drawback there is still another, more important, factor, which is that the incomplete destruction of the gallbladder wall by carbonization defeats its purpose by

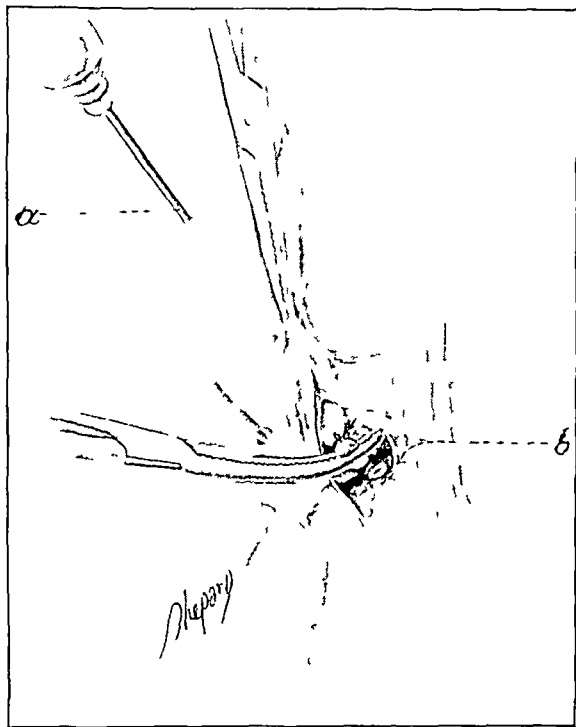


Fig 6—*a* aspiration of gallbladder contents *b* ligation and division of cystic duct

permitting micro-organisms to remain dormant in the Rokitsky-Aschoff sinuses. Carbonization is a superficial process. Electrocoagulation, on the other hand, permits destruction of tissue to any depth desired, simultaneously sealing lymphatics, blood vessels and biliary canaliculi (figs 1 and 2). It leaves a dry, sterile impervious surface tending to agglutination with serious surfaces. To be successful, destruction of the gallbladder wall must be thorough and extend through the entire thickness of the wall and as far into the tissues of the gallbladder bed as conditions warrant.

Graham<sup>11</sup> emphasizes that "very often the dependent layers of the gallbladder, especially the subserous layer next to the peritoneum, show the most severe inflammatory changes while the epithelium may look intact in the most severe grades of inflammation." The studies of Rosenow,<sup>12</sup> Brown,<sup>13</sup> Illingworth,<sup>14</sup> Wilkie<sup>15</sup> and others substantiate this view.

Figures 3 and 4 are from two of a series of cases in which only destruction of the mucous membrane of

the gallbladder was done. They prove the inefficacy of destruction of the mucosa in gallbladder disease. In both instances, mucoclasia was done without any clinical improvement. On the contrary, the condition of the patients became aggravated. Attempts at regeneration of the mucous membrane with persistence of inflammation in the deeper layers of the gallbladder wall and liver bed are the striking microscopic changes. Relaparotomy and cholecystelectrocoagulectomy gave relief in both cases. These cases are cited as examples of similar experiences in the rest of a series in which only the mucous membrane was attacked. Failures with subserous enucleation of the gallbladder and with classic cholecystectomy led to the evolution of total electrocoagulation of the gallbladder wall and the liver bed, with superimposition of the falciform ligament and the omission of drainage.

#### RATIONALE OF THE PROCEDURE

In patients seeking relief from symptoms of gallbladder disease, the surgeon often finds the gallbladder macroscopically normal at operation, but cholecystectomy frequently relieves these patients of their complaints. Histologically such gallbladders often contain diverticula, foci of infection, intramural abscesses and intramural calculi. The mucosal infoldings (Rokitansky-Aschoff sinuses) described by Luschka in 1863 and later by Aschoff in 1905 frequently harbor cholesterol concretions (stones), islands of round cells surrounding these diverticular outpouchings are commonly observed. Schmiedheiny<sup>16</sup> concludes that "in all forms of cholecystitis the so-called liver bed is almost always affected." Here the pathologic processes transgress

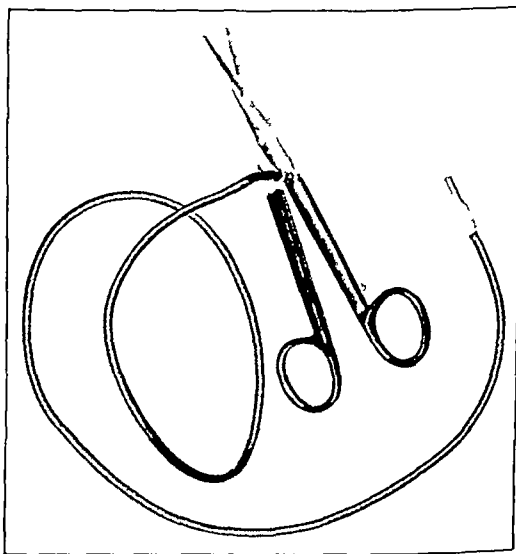


Fig 7—Diathermy scissors for ablation of gallbladder wall and simultaneous hemostasis

the tunica fibrosa and encroach on the subserosa and serosa, and frequently invade the contiguous liver parenchyma, particularly in the more serious forms of gallbladder disease.

Electrocoagulation provides an efficient method of eradicating such foci. As shown by Zschau<sup>17</sup> the electrocoagulating current does not cause thrombosis in the

10 Albertin M R. *Lyon chir* 30 207 (March April) 1933.  
11 Graham E A. *Hepatitis a Constant Accompaniment of Cholecystitis Surg Gynec & Obst* 26 521 (May) 1918.  
12 Rosenow E C. *The Etiology of Cholecystitis and Gallstones and Their Production by the Intravenous Injection of Bacteria J Infect Dis* 19 527 (Oct) 1916.  
13 Brown R O. *A Study of the Etiology of Cholecystitis and Its Production by the Injection of Streptococci Arch Int Med* 23 185 (Feb) 1919.  
14 Illingworth C F W. *Type of Gallbladder Infection A Study of 100 Operated Cases Brit J Surg* 15 221 (Oct) 1927.  
15 Wilkie A L. *Significance of Hepatitis in Relation to Cholecystitis An Experimental Study Brit J Surg* 16 214 (Oct) 1928.

16 Schmiedheiny Marie Louise. *Arch f klin Chir* 140 548 1927.  
17 Zschau cited by Ellis<sup>13</sup>.

## OPERATIVE TECHINIC

TABLE 2—Analysis of Seventy-Five Cases

Mortality None

19 A Model H Fischer apparatus was used in the experimental and clinical work.

edges of the coagulated segment of gallbladder with catgut sutures. The falciform ligament is attached to the coagulated area by sutures previously left long (fig 9), no drains.

A series of seventy-five patients were operated on by this method, without a death. An analysis of this series is given in table 2.

#### SUMMARY

Failures and fatalities in classic cholecystectomy are frequently due to bile leakage, as a result of an inability to obliterate and cover the gallbladder bed, which contains bile capillaries and often larger bile ducts, in from 15 to 25 per cent of cases. Drains invite bile seepage. A method is described which effectually seals these openings by electrocoagulation. A sterile, hyaline, dry protective layer is substituted for a raw, unprotected surface. The falciform ligament is superimposed over this area. Drainage is entirely omitted. A series of seventy-five consecutive, unselected cases were thus treated without a fatality.

3920 Lake Shore Drive

### SUPRAPUBIC PROSTATECTOMY WITH IMMEDIATE CLOSURE OF THE BLADDER

#### IMPROVED METHOD OF POSTOPERATIVE DRAINAGE

H. H. HAYNES, M.D.

CLARKSBURG, W. VA.

The advantages of immediate closure of the bladder are apparent to every one familiar with prostatic surgery, provided the hazards of faulty drainage and complications are not increased.

My experience with eight cases of primary closure, with postoperative drainage by a return flow catheter, would indicate that by this method drainage can be improved and the occurrence of complications materially reduced. This catheter is an original modification of Dr. Chetwood's suprapubic drainage tube designed for retrograde introduction into the urethra.

#### OPERATIVE PROCEDURE

The usual suprapubic incision is made. When the bladder is opened, suction is used to remove the contents of the distended bladder and thereby avoid unnecessary soiling of the wound. After enucleation of the prostate, complete hemostasis is obtained and the prostatic fossa is obliterated with No. 0 plain catgut. An ordinary catheter used for irrigating and distending the bladder is left in the urethra during the operation. Before the fossa is obliterated, the end of the small intake tube (fig 1 B) of the special drainage catheter is sutured with strong silk or linen to the tip of the catheter introduced before operation (fig 2 A). The urethral catheter is now withdrawn by an assistant and the special catheter, well lubricated, readily follows through the urethra.

When the distal end of the drainage catheter is withdrawn the assistant removes the intake tube from the main catheter (fig 1 A) through the small oval opening (fig 1 D). The button flap (fig 1 C) is adjusted over the intake tube and fastened in position to prevent leakage of the return flow. The intake tube is then attached

to the irrigating apparatus and the return flow tube connected to carry the return flow into a suitable receptacle. The irrigation is now turned on to demonstrate that the drainage catheter is functioning properly.

After obliteration of the prostatic fossa and complete hemostasis, the Pezzer tip of the drainage catheter is drawn snugly into position (figs 3 and 2 B).

The usual suture to obliterate the space of Retzius is now placed but not tied. After this the bladder incision is closed completely with two rows of No. 0 chromic catgut. The first row of sutures should include all the muscularis but not the mucosa and is a continuous lock suture. This row is completely buried by a continuous Cushing right angle suture.

The suture, previously placed to obliterate the space of Retzius, is then tied. This suture is of great importance both in obliterating the space of Retzius and in preventing tension on the bladder incision.

The abdominal wound is closed in the usual manner except that several loops of catgut extending down to the bladder are placed in the lower angle of the incision for drainage of the prevesical space; these are removed on the third day.

Before the patient is removed from the operating table, the catheter is anchored to the penis in the usual manner.

#### AFTER-TREATMENT

Continuous irrigation, by the drop method, is started before the bladder is completely closed and continued twenty-four hours. On the second day irrigation is done every four hours, and after the second day irrigations morning and evening are usually sufficient. Boric acid solution has been used in these cases. Heat is an important factor in the irrigation but care must be used

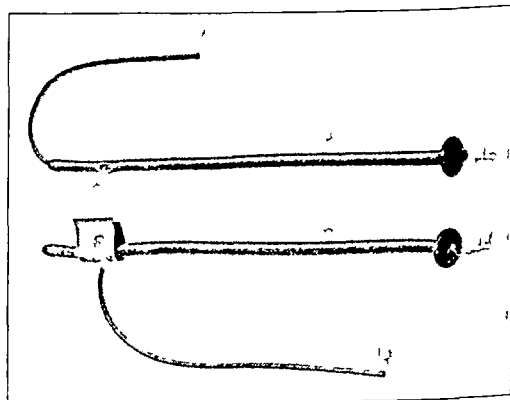


Fig. 1—Return flow irrigating catheter designed for retrograde introduction. Upper catheter adjusted for introduction; lower catheter adjusted for irrigation and drainage. A, main catheter containing intake tube and space for return flow; B, intake tube; C, button flap to prevent leakage of return flow; D, oval opening for bringing intake tube out of main catheter; E, Pezzer tip (drainage catheters made by Clay Adams Company, 25 East Twenty-Sixth Street, New York City).

to avoid burning the patient. Local treatment to the bladder can be used easily through this catheter.

The drainage catheters have been removed from the seventh to the tenth days and so far as I can see the patients from whom catheters were removed on the seventh day have done as well as those from whom catheters were removed later.

To remove the drainage catheter I start with a steadily increasing pull until the patient shows evidence of discomfort and then complete the withdrawal by a

quick harder pull. None of these patients have had difficulty in voiding following removal of the drainage catheter.

#### REPORT OF CASES

CASE 1—J L J, aged 61, was admitted, Oct 17, 1932, and discharged, November 2. Operation was performed October 19, the catheter was removed October 29, and the patient was out of bed October 30. The pathologic diagnosis was hypertrophied prostate.

CASE 2—T C, aged 81, was admitted, Jan 22, 1933, and discharged, February 19. Operation was performed January

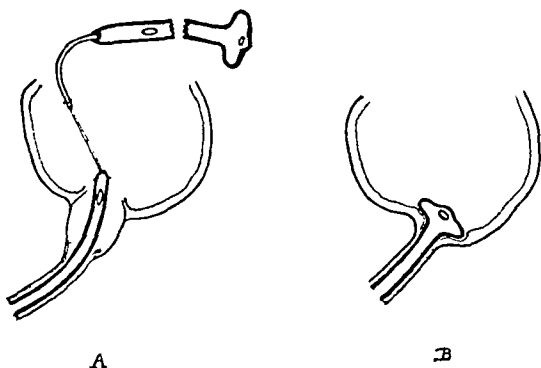


Fig 2—Schematic drawing showing A method of retrograde introduction of drainage catheter B Pezzet tip in position

31 the catheter was removed February 9, and the patient was out of bed February 13. The pathologic diagnosis was carcinoma of the prostate.

CASE 3—P F C, aged 83, was admitted, May 17, 1933, and discharged, June 3. Operation was performed May 20, the catheter was removed May 29, and the patient was out of bed May 31. The pathologic diagnosis was tuberculosis of the prostate.

CASE 4—W F L, aged 77, was admitted, June 20, 1933, and discharged, July 13. Operation was performed June 28, the catheter was removed July 6, and the patient was out of bed July 7. The pathologic diagnosis was benign hypertrophy.

CASE 5—E H C, aged 76, was admitted, Sept 22, 1933, and discharged, October 9. Operation was performed September 28, the catheter was removed October 5, and the patient was out of bed October 7. The pathologic diagnosis was benign hypertrophy.

CASE 6—G B, aged 51, was admitted Nov 20, 1933, and discharged, December 14. Operation was performed December 4, the catheter was removed December 11, and the patient was out of bed December 12. The pathologic diagnosis was adenoma of the prostate.

CASE 7—J E C, aged 59, was admitted, Nov 28, 1933, and discharged, December 29. Operation was performed December 11, the catheter was removed December 20, and the patient was out of bed December 23. The pathologic diagnosis was adenomatous hypertrophy.

CASE 8—F U K, aged 65, was admitted, Jan 2, 1934, and discharged, January 16. Operation was performed January 6, the catheter was removed January 13, and the patient was out of bed January 14. The pathologic diagnosis was benign hypertrophy.

This is not a series of selected cases. They have been taken in order as they came in a general surgical practice. Case 2 was adenocarcinoma in a man, aged 81, and was an ambulance case. Case 7, in addition to prostatic obstruction, presented toxic goiter, auricular fibrillation (shown by electrocardiography) and cardiac insufficiency with passive congestion. Except for the myocardial condition, the patient could have been discharged on the tenth or eleventh day.

Vasectomy was not performed in any of these cases and epididymitis or other complications did not occur. There was no bladder leakage in any of these cases and all suprapubic wounds were completely healed when the patients were discharged from the hospital.

The patients comprising this series have been communicated with in the last ten days and none of them have had any complications since leaving the hospital, all reported satisfactory results. The report from patient 2 (adenocarcinoma) through his family physician was that he had had no trouble with urination since leaving the hospital.

The average postoperative hospital stay of these patients was fourteen days. Two were discharged on the tenth postoperative day. The average postoperative time for removal of the catheter and for establishing natural micturition was eight and one-fourth days.

Only one of these patients complained of severe postoperative pain, and an investigation showed an obstruction of the return flow tube due to a faulty connection. This pain was immediately relieved when the return flow was put in order. Three of these patients voluntarily stated that at no time following their operation were they as uncomfortable as they had been before.

Evaluation of kidney function, intelligent preoperative care, hemostasis, obliteration of prostatic fossa and careful bladder closure are essential to success.

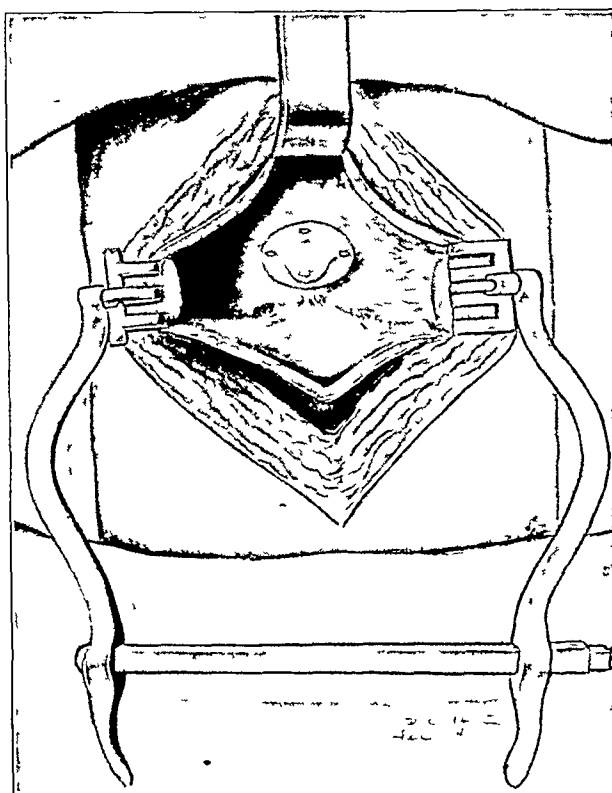


Fig 3—Interior of bladder with fossae obliterated and Pezzet tip in position

All these patients were anesthetized with tribrom-ethanol, supplemented with gas-oxygen or ether when necessary.

#### ADVANTAGES OF THIS METHOD OF DRAINAGE

First, continuous or intermittent return flow irrigation with any desired solution.



Second, better drainage  
 Third, shorter hospitalization  
 Fourth, no suture anchorage in the bladder  
 Fifth, assistance from Pezzel tip in obliterating prostatic fossa  
 Sixth, better anatomic and functional results  
 211 Goff Building

## SKIN SENSITIVENESS TO TUBERCULIN IN PRIMARY TUBERCULOSIS

IS ITS DEGREE IN CHILDREN RELATED TO THE  
 EXTENT OF DEMONSTRABLE INTRATHORACIC  
 PATHOLOGIC CHANGES PRESENT?

CHESTER A. STEWART, M.D.

MINNEAPOLIS

The degrees of skin sensitiveness to tuberculin manifested by infected children are found to vary widely when Mantoux or Pirquet tests are applied. It is also a matter of common experience to observe that, on the basis of physical changes and evidences indicative of disease or illness, individuals who are highly allergic to tuberculo-protein cannot be differentiated, as a rule, from other infected children who have small or mild skin reactions. Despite the absence in general of detectable differences in the health status of children paralleling the varied degrees of allergy present, and regardless of a lack of knowledge as to why the intensity of tissue responses to tuberculin is markedly dissimilar in different individuals, it is often difficult to avoid entertaining suspicions that children with exceptionally large and severe Mantoux reactions either harbor more tuberculous pathologic changes or have more active and potentially more serious lesions than do other patients whose responses to tuberculin are smaller. My object in this paper is to present the results of studies directed particularly toward investigating the question: Is the degree of skin sensitiveness to tuberculin present in children with the first infection type of tuberculosis related to the extent or character of the primary intrathoracic pathologic condition that can be demonstrated during life by roentgen examinations?

Observations on 188 Lymanhurst School children ranging from 8 to 17½ years of age provided the data on which this report is based. Each child selected for study was sensitive to tuberculin, and as a result of repeated roentgenologic and clinical investigations the group was known to include six children with parenchymal infiltrations that later resolved, to leave calcifications, fibrosis or no traces, 132 children with definite, conspicuous and characteristic calcified hilus glands or Ghon tubercles or both, twenty-one with negative chest plates, twenty-one with slight, questionable or inconclusive calcifications in hilus glands, and eight children with pleural thickenings. Roentgenograms were taken of the abdominal and cervical regions in only a few instances. Previous experience has indicated that the occurrence of demonstrable pathologic changes in these regions is rather infrequent in the children who come to Lymanhurst for examination; thus it seems that the incidence of lesions in these areas susceptible of being visualized roentgenographically probably is rather low in the cases selected for this investigation.

From the standpoint of general health, nutrition and freedom from manifestations of illness, the group studied was comprised of children who collectively were indistinguishable from normal uninfected school children. The differentiation of the former from the latter depended essentially on the results obtained by Mantoux tests and roentgen examinations. The group selected for special study presumably is fairly representative of the infected portion of the general child population except that in the Lymanhurst series the incidence of cases showing lesions demonstrable during life is rather high. No child was used in this investigation who had any form of demonstrable tuberculosis of the reinfection type. The deductions drawn from the observation made apply solely, therefore, to allergy in tuberculosis of the first infection type diagnosed as such after repeated roentgenologic and clinical examinations, and after months of observation.

The data recorded in tables 1 and 2 are based on a total of 1,864 surface area determinations (the area by-weight method being used<sup>1</sup>) made on 466 Mantoux reactions to 0.1 mg. of old tuberculin (Saranac Lake product). In compiling the data for the 188 cases studied, averages were computed for five groups of children classified separately according to their roentgen examinations (tables 1 and 2). For each child the maximum size found for the reaction when measurements were taken at the end of four successive intervals of twenty-four hours each was accepted as indicative of that individual's degree of skin sensitiveness to tuberculin, and these maximum measurements provided the basis for computing the values that appear in each table under the heading "average maximum reaction area."

Since the number of separate tests applied to different cases ranged from one to five, it was deemed advisable to calculate these averages according to two methods. In table 1 the mean maximum area of all the tests performed on each child was determined, and from these several individual means group averages were computed. In table 2, therefore, each child's degree of skin sensitiveness to tuberculin, as expressed in the maximum area to which the reaction grew, contributed to the average as a single observation regardless of whether one or several tests were performed on the individual. This procedure avoids permitting the data from one patient on whom several tests were applied from unduly influencing the average. The average maximum size of the reactions listed in column six of table 2 represents the means for all the tests applied. In this table, therefore, the extent to which the readings on one case influenced the average was dependent not only on the degree of allergy present but also on the number of separate tests performed on that individual. Since circumstances dependent on chance rather than selection based on sensitiveness to tuberculin determined the number of Mantoux tests applied to each child, it seems probable that means computed for the total number of tests performed represent with fair accuracy the average degree of skin sensitiveness present in the group, provided it includes a fairly large number of cases.

The average maximum size of the Mantoux reactions (37.2 sq. cm. in group A, table 1) in six children with primary pulmonary tuberculosis in the acute inflammatory or pneumonic stage exceeded that (33.2

From the Department of Pediatrics, University of Minnesota Medical School and Lymanhurst School for Tuberculous Children.

1. Stewart, C. A. Cutaneous Reaction to Tuberculin in Primary Pulmonary Tuberculosis. *Am. J. Dis. Child.* 45: 1229 (June) 1933. *Am. Rev. Tuberc.* 28: 844 (Dec.) 1933.

sq cm in group B, table 1) for 132 cases with primary pulmonary tuberculosis in the older, more latent, calcified stage by 40 sq cm. On computing the standard error for this difference a value of 0.58 is obtained, which signifies that fifty-six chances per hundred exist for this difference to arise by sampling or by chance. A similar analysis of the averages based on the total number of observations made on these two groups of children (groups A and B, table 2) reveals that twenty-two chances per hundred exist for the difference of

during the first few years that postdate the primary infection. Apparently, therefore, in infected children with demonstrable lesions considered as typical of tuberculosis of first infection, no definite and proved relationship exists between the average degree of skin sensitiveness to tuberculin and the character (freshness or latency) of the demonstrable primary tuberculous intrathoracic lesions present.

On comparing the average maximum reaction area of 33.6 sq cm for the 138 children with demonstrable

TABLE 1—Average Maximum Reaction Area Based on Mean of All the Tests Applied to Each Case, Standard Deviation, Standard Error, Standard Error of the Difference, and the Chances per Hundred for the Difference to Arise by Sampling for Five Roentgenologically Dissimilar Groups of Children with Tuberculosis of First Infection

No. of Cases	Age Range Years	Group	X Ray Reading	Average Maximum Reaction Area Sq Cm	Standard Deviation	Standard Error	Standard Error of the Difference	Chances per 100 for the Difference to Arise by Sampling $\pm P$
6	9½-14	A	Resolving parenchymal infiltration	37.2	16.4	6.69	0.58	56
132	8-17	B	Calcified hilus glands and Ghon tubercles	33.2	19.0	1.65		
138	8-17	A and B	Negative or inconclusive	33.6	18.8	1.60	0.786	43
50	8-17	C, D and E		31.3	17.3	2.45		
21	9-16	C	Negative	32.0	16.5	3.60	0.406	69
21	8-17	D	Questionable or indefinite calcification	31.6	15.0	3.25	0.55	58
8	10-17	E	Pleural thickening	28.6	13.1	4.63	1.02	30.8

TABLE 2—Average Maximum Reaction Area Based on All the Tests Applied, Standard Deviation, Standard Error, Standard Error of the Difference, and the Chances per Hundred for the Difference to Arise by Sampling for Five Roentgenologically Dissimilar Groups of Children with Tuberculosis of First Infection

No. of Cases	Age Range Years	Group	X Ray Reading	No. of Mantoux Reactions Measures Sq Cm	Average Maximum Reaction Area	Standard Deviation	Standard Error	Standard Error of the Difference	Chances per 100 for the Difference to Arise by Sampling $\pm P$	Average Reaction Area at			
										24 Hours	48 Hours	82 Hours	96 Hours
6	9½-14	A	Resolving parenchymal infiltration	13	39.4	20.5	5.7	1.22	22	20.4	28.2	19.0	8.3
132	8-17	B	Calcified hilus glands and Ghon tubercles	343	32.3	21.9	1.18						
138	8-17	A and B	Negative or inconclusive	356	32.6	22.1	1.17	1.46	14	19.5	25.7	17.1	6.2
50	8-17	C, D and E		110	29.6	17.8	1.7						
21	9-16	C	Negative	35	30.0	16.5	2.79	0.66	39	20.6	26.8	18.6	5.8
21	8-17	D	Questionable or indefinite calcification	51	32.2	18.4	2.58	0.14	88.9	19.6	26.4	17.4	6.9
8	10-17	E	Pleural thickening	24	23.4	15.4	3.55	2.46	1.4	16.6	21.1	12.5	5.4

71 sq cm between the mean maximum reaction areas for the two series of cases to arise by sampling. Regardless of how the data are analyzed, therefore, they fail to show any difference of proved significance between the degree of skin sensitiveness to tuberculin in children with acute fresh pneumonic lesions of primary pulmonary tuberculosis as compared with that present in other children with first infection types of lesions in older, more latent calcified stages. This observation suggests that, shortly following the initial entry of tubercle bacilli into the body and before the acute lesions resolve, allergy reaches an average level, which is sustained with little or no significant change

lesions (groups A and B, table 1) with the mean of 31.3 sq cm for the fifty cases with negative chest films or with small or inconclusive lesions (groups C, D and E), the former are seen to have the larger average reaction area by 2.3 sq cm. Statistical analysis of these data reveals that forty-three chances per hundred exist for this difference (2.3 sq cm) to arise by chance. The difference, therefore, is not significant. A similar analysis of the averages derived from the total number of observations made in these two groups of cases (table 2) likewise failed to show any significant difference ( $\pm P = 14$ ) between the mean level of allergy in one series of children as compared with that present in

the other. When the group of fifty cases is subdivided into its component series of cases, the average degree of skin sensitiveness for children with negative chest films and also for children with questionable or inconclusive intrathoracic lesions (groups C and D, tables 1 and 2) is not found to differ significantly from the mean value determined for the 138 cases with distinct demonstrable lesions. This also applies to the small group of eight children with pleural thickenings, provided the averages are based on the mean reaction area for each case as computed in table 1. When, however, the mean is based on all the readings taken (table 2), a rather low average degree of allergy is found in the group. This low value is seen on inspection of the individual data (not recorded in the table) to arise from the fact that five Mantoux tests on one child, who had a pleural thickening associated with a bronchiectasis and who was only slightly sensitive to tuberculin, influenced the average to a considerable degree. The low level of allergy for this group can hardly be interpreted as significant.

and conspicuous intrathoracic lesions considered typical and representative of primary tuberculosis as compared with other infected children with negative chest films or with indefinite and inconclusive lesions, cumulative frequency or ogive curves were constructed representing the situation as found in these two groups of roentgenologically dissimilar cases. The position of each child on his respective curve in figure 4 was determined by the average maximum area of the several tests applied to that individual. Each case, therefore, contributed a single point to the curve for the group to which he belonged. Inspection of the curves in figure 4 discloses that the pattern of the distribution of different degrees of skin sensitiveness to tuberculin among children with negative or inconclusive chest films is very similar to that for cases presenting definite and conspicuous demonstrable intrathoracic lesions interpreted as scars typical of tuberculosis of first infection. The conclusion seems justified, therefore, that, as expressed in terms of the area of Mantoux reactions to old tuberculin, the incidence of different degrees of allergy



Fig 1—Condition in M. Z. aged 12½ years. Average maximum area of five Mantoux reactions was 113 sq. cm. In 1923 at the age of 1 year bilateral consolidations were present in each upper lobe which later resolved to leave bilateral apical Ghon tubercles and calcified hilus glands together with an area of fibrosis extending laterally from the right hilus.

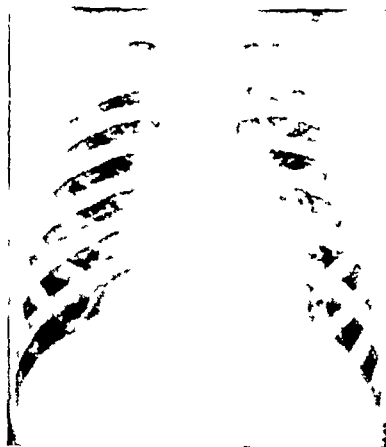


Fig 2—Condition in D. Z. aged 15 years. Average maximum area of two Mantoux reactions was 66 sq. cm. Roentgenogram shows no definite lesions characteristic of tuberculosis of first infection.

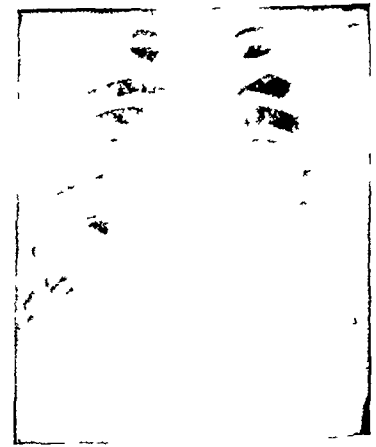


Fig 3—Condition in P. B. aged 13½ years. Average maximum area of four Mantoux reactions was 104 sq. cm. In 1927 at the age of 2 years a parenchymal infiltration was present in the left upper lung field which resolved to leave a large Ghon tubercle and calcified hilus glands.

In general, therefore, the study failed to disclose the presence of any difference of proved significance in the average degree of skin sensitiveness to tuberculin in children with negative or inconclusive chest plates as compared with that present in other children with definite demonstrable intrathoracic lesions considered to be characteristic and typical of primary pulmonary tuberculosis. Apparently the degree of allergy to tuberculin protein manifested by infected children is quite independent of the absence, presence, scarcity, abundance or character of the intrathoracic lesions of tuberculosis of first infection that can be demonstrated during life. The lack of correlation between the area of the Mantoux reactions and the roentgenologic observations is illustrated by the cases shown in figures 1, 2 and 3. The data in table 2 also show that the growth and decline of the areas of reaction for children with normal or inconclusive chest films and for other cases with positive plates are quite similar.

In order to analyze and to portray the manner in which different degrees of skin sensitiveness to old tuberculin are distributed among children with definite

introduced into groups of children by chance infections with tubercle bacilli which leave no definite traces or scars that can be identified with certainty during life is not essentially different from that induced in other groups of cases by infections that leave definite typical demonstrable primary tuberculous lesions.

#### CONCLUSIONS

1 The average degree of skin sensitiveness to old tuberculin present in a group of infected children with negative or inconclusive chest films was essentially equal to that present in groups of cases with definite and conspicuous demonstrable intrathoracic lesions in different stages of resolution and considered characteristic and typical of tuberculosis of first infection. The mean level of allergy to tuberculin protein produced in groups of children by chance infections is independent, therefore, of the absence, presence, scarcity, abundance, size or character of the primary tuberculous lesions demonstrable by roentgen examinations during life.

2 The distribution of different degrees of skin sensitiveness to old tuberculin in a group of infected

children consisting of cases with normal or inconclusive chest films was found not to differ essentially from that present in other cases with distinct demonstrable intrathoracic lesions deemed characteristic of tuberculosis of first infection. The curves that represent the general pattern of the distribution of different degrees of allergy to tuberculin found in each group of cases are very similar.

3 This study on living patients failed, therefore, to disclose evidence that justifies one in entertaining suspicions that children with large and intense Mantoux reactions harbor more extensive pathologic changes or

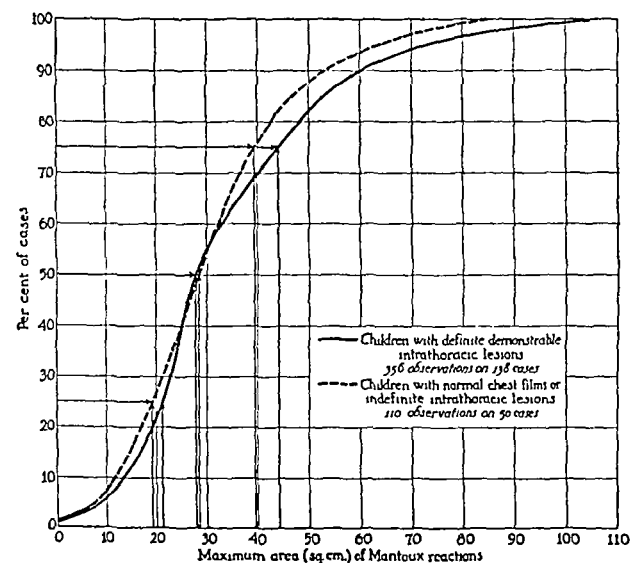


Fig 4—Cumulative frequency curves showing the distribution of different degrees of skin sensitiveness to 0.1 mg of old tuberculin in infected children with and without definite demonstrable intrathoracic lesions

have more active primary tuberculous lesions than do other children who are less sensitive to tuberculin.

4 Groups of children with primary tuberculosis exclusively, who are dissimilar roentgenologically, are alike as far as the average group skin sensitiveness to tuberculin is concerned. Apparently soon after tubercle bacilli make their initial entry into the body and before the primary tuberculous lesions have time to resolve, allergy reaches an average group level that is sustained with little or no definite change throughout the first few years that postdate the primary infection.

5 Changes in the size of Mantoux tests throughout the periods of increment and decline of the reactions in children with normal or inconclusive chest films roughly parallel similar changes manifested by skin reactions in other children with definite demonstrable intrathoracic lesions typical of tuberculosis of first infection.

953 Medical Arts Building

**Diagnosis of Intracranial Aneurysm**—The diagnosis of intracranial aneurysm cannot be made with any degree of certainty until rupture occurs. Focal signs, if present before rupture takes place, are not different from those found in other localized disease processes within the cranium, notably cerebral tumor. Furthermore, Fearnside, Cushing and others have pointed out that cerebral aneurysms which do not rupture rarely give rise to symptoms. The uniform clinical picture produced by aneurysms arising from the anterior portion of the circle of Willis makes the diagnosis during life possible.—Garvey P. H. Aneurysms of the Circle of Willis, *Arch Ophth* 11 1032 (June) 1934

## Clinical Notes, Suggestions and New Instruments

### THE HEREDITY OF A CONGENITAL WHITE SPOTTING IN NEGROES

CLYDE E. KEELER, Sc D BOSTON

Numerous isolated cases of congenitally piebald Negroes are recorded in the early literature. Little is known of the parents or progeny in these cases. The individuals described by Ptolemy, Apollonius, Gumilla, La Mothe, Blumenbach, Arthaud and Le Vallois, and the ones painted by Le Masurier and by Da Rocha were probably of the same type as those with which this paper is concerned, but several of these authors may have described the same individual. The more recent accounts of Piffard, Maas, Gould and Pyle, Baudouin, Levi, Frassetto, Hutchinson, and Simpson and Castle (all reviewed and with complete bibliography<sup>1</sup>) doubtless all refer to members of the family to be discussed here. In the several published pictures of members of this family, the clothing has interfered with a complete portrayal of the character.

Individual 4 in the pedigree chart shows normal pigmentation to be present on the head, back, hands and feet. There is, however, a white head blaze and a patch of white under the chin. The abdomen, sides, arms and legs are in general white but are speckled with small patches of normally pigmented skin. This type of pigment distribution is present in all piebald members of this family, although it may be stated that the one here presented bears somewhat more white than the average.

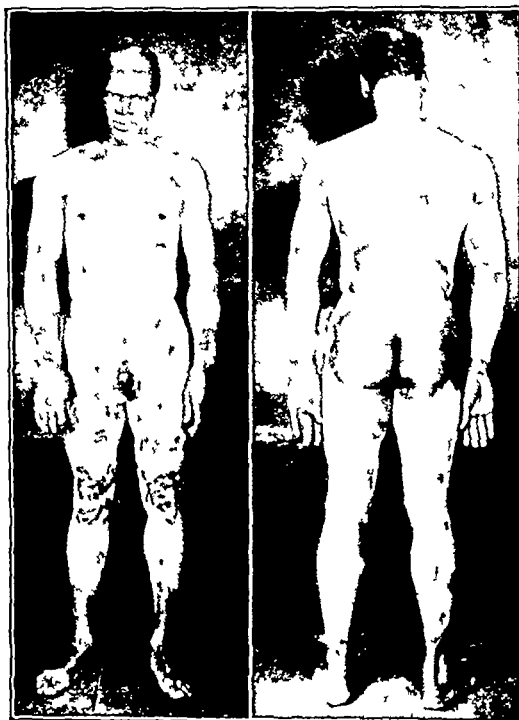


Fig 1—Appearance front and back of markings on individual 4

The construction of the pedigree chart of this family has been made possible by correspondence with individuals 1 and 2 and by personal interviews with 3, 4 and 6. In figure 2, squares represent males, circles represent females and diamonds represent sex unrecorded. The black symbols represent the piebald individuals.

The character is said to have first appeared in female 1. This woman who is said to be 86 years of age was born and

From the Howe Laboratory, Harvard Medical School.  
I. Pearson, Nettleship and Usher. A Monograph on Albinism in Man.  
Draper's Company Research Memoirs. Cambridge University Press.

still resides in Louisiana. She states that she was born of normal parents. If this is the case, the character must have arisen as a mutation in the germ plasma of one of her immediate parents. Of course, the possibility remains that she might have had a piebald white father, the extent of whose white markings was not generally known owing to the normal color of his skin.

Isolated members of this family, and occasionally several members together, have traveled with circuses and freak shows in Europe and America ever since 1896, and individuals 3, 4

were cut off as close as practicable, and the dermatitis was treated with soothing dressings. It required about four weeks for the eruption to heal, and two months passed before she was able to resume her work.

The patient had been treated for a similar dermatitis two years prior to this outbreak, and for the past two years she had not used dye. She had resumed the practice in the hope that her susceptibility had been overcome. It is of interest that for years she has used peroxide and ammonia to bleach her scalp hairs without untoward effects as well as lip rouge,

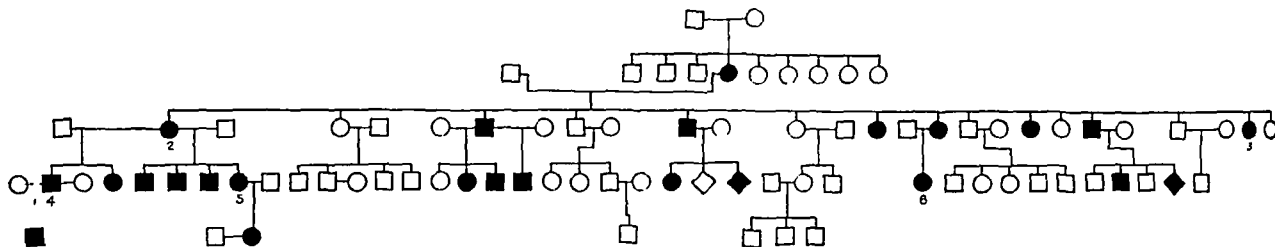


Fig. 2—Pedigree chart of family of piebald Negroes

and 6 were to be seen in 1933 at a Century of Progress Exposition. It was owing to such travels that descriptions of members of this family have found their way into European literature.

Most of these Negroes have married within their own race. In this connection, however, female 6 deserves particular mention. Her father is an Italian. The pigmented portions of her skin are consequently lighter than those of her Negro relatives, but in spite of this her piebald pattern is very similar to that of other members of the family.

It will be noted from an examination of figure 2 that the character is transmitted as a simple dominant unit character, as was shown by Simpson and Castle. Each piebald individual is born of a piebald parent who is heterozygous for the piebald character and transmits it usually to half of his offspring. No normal individual of the family transmits the piebald character. The pedigree chart shows a total of twenty-five piebald Negroes in four generations, the population comprising eighty-five individuals. In ten matings of piebalds with normals there were produced twenty-four piebald and eleven normal offspring. Since equality of each type is expected, it will be seen that the production of piebalds considerably exceeds expectations.

To biologists a dominant mutation of this sort is of interest as showing, in the case of man, the occurrence of an inherited pattern of skin pigmentation such as that found in other mammals. Familiar examples are seen in the Dalmatian "coach" dog, the English rabbit, and Hereford cattle. A study of the normal variation within the piebald pattern of this family would be of considerable interest.

Bussey Institution

#### DERMATITIS OF THE EYELIDS

HERBERT RATTNER, M.D., CHICAGO

THE JOURNAL has recently contained several reports dealing with dermatitis of the eyelids caused by eyelash dye. Dermatitis of the eyelids occurs rather frequently; it is usually due to external irritants, but to determine the irritant may be difficult.

An experience with four cases seen within a few days of one another prompts this note. All four patients were women who presented inflammations of varying severity, and the exciting agent in each case was different.

**CASE 1**—A young woman, a manicurist, shown in the illustration applied Godfrey's dye to her eyebrows and eyelashes and within a few hours the lids became swollen and red and itched intensely. When she was seen the next day there was severe conjunctivitis with photophobia and the lids, eyebrow regions and adjacent portions of skin were the seat of an intense vesicular eruption. The skin was edematous and red and she complained of severe pain in the eyes. The eyelashes

were cut off as close as practicable, and the dermatitis was treated with soothing dressings. It required about four weeks for the eruption to heal, and two months passed before she was able to resume her work.

**CASE 2**—A young woman complained of dermatitis of the eyelids of one year's duration. The lids were red and scaly and slightly swollen from rubbing. The dermatitis would improve at times and then flare up, so that in the past year she had never been entirely free from dermatitis. Among the irritants to which she was exposed were cosmetics, artists' supplies, flowers, a fur coat collar and the usual household articles, such as washing soaps and cleaning fluids. After the nature of her trouble was explained to her, she recalled that



Dermatitis from Godfrey's hair dye applied to eyebrows and eyelashes (case 1)

the flareups of her dermatitis followed usually after visits to the hairdressers, where the shampoo was followed by the application of a so-called wave lotion to maintain the waves in her hair. No changes were made in her routine other than to omit the wave lotion from her ritual. The dermatitis cleared up but reappeared when the lotion was again used. She has since had no recurrence of the dermatitis, she is able to pursue her

art studies and her household duties, and she is able to use her other cosmetics without harmful effects

CASE 3—A young woman was seen three years ago for dermatitis of the eyelids, the cause of which was found to be a face lotion that contained camphor. There had been two or three recurrences which the patient herself had been able to trace to various cosmetics. She returned this time with a persistent dermatitis of some two months' duration. The exciting agent was found to be a brown fur coat collar.

CASE 4—A woman of middle age, a patient of Dr. William Allen Pusey, presented a subacute scaly erythematous dermatitis of the eyelids of two weeks' duration. The history suggested that cold cream was the excitant. The patient was skeptical, because she had used this particular kind of cold cream for years. A patch test with the cream, which gave a positive local reaction and a focal flareup, convinced her. Although, as stated, she had used this make of cold cream for years, the jar was a new one just recently purchased. It is likely that some new ingredient such as a new perfume had been incorporated by the manufacturers. The patient was not inclined to submit to further studies, she merely discarded the cold cream for another brand.

#### COMMENT

These cases illustrate some important practical facts. In all cases of dermatitis of the eyelids, external irritant must be sought as the exciting agents. Fortunately, most irritants produce mild inflammatory reactions, but they are sufficient usually to cause a great deal of annoyance and some unsightliness, and occasionally, as in the case with dyes, the reactions are so severe as to disable the patient. The nature of the irritant is sometimes self evident, more often it is obscure. But usually the irritant is found to be hair tonic, hair dye or wave lotion, face creams, eye washes, nasal sprays, face powders and rarely spectacle rims. Within a few days I have seen a case in Dr. Pusey's practice in which the dermatitis of the lids and on the nose and above the ears appeared where contact occurred with imitation horn spectacles.

A good intelligent history from a cooperative patient, brought out by pointed questioning, will help to solve more cases than will routine skin tests. When skin tests are necessary the patch test is of the greatest value, for the sensitization in such cases is epidermal. It is in patients who are sensitive to more than one irritant, as in case 3, that patch tests are necessary, or as a confirmatory test as in the fourth case. For routine office procedure, however, it usually suffices to obtain a good history and to outline the problem to the patient, and in most instances an intelligent patient will herself ferret out the etiologic agent of her dermatitis.

7 West Madison Street

#### EXCRETORY UROGRAPHY AFTER SUBCUTANEOUS INJECTION OF NEOSKIODAN

EDWIN BEER, M.D., AND FREDERICK H. THEODORE, M.D., NEW YORK

The object of this note is to call attention to a third route for administering chemicals of the new group for excretory urography. In America, apparently, no attempts have been made along these lines, though intravenous and oral administration are well recognized. In 1931 Butzengeiger<sup>1</sup> first attempted subcutaneous skiodan in adults, using a 4 per cent (isotonic) solution and injecting 500 cc containing 20 Gm into the axillae. In thirty cases he reported results almost as satisfactory as those obtained by intravenous injection. The maximum excretion appeared from thirty to fifty minutes after injection, and there were no local or general deleterious effects.

In 1932 Hillebrand<sup>2</sup> used this method in a child of 14 months with a renal tumor in whom intravenous injection was not possible. He used 100 cc of a 4 per cent skiodan solution and obtained good results. The child died after the nephrectomy and autopsy showed no disturbance inflammatory or necrotic at the site of injection in the axillary tissues.

<sup>1</sup> Butzengeiger O. Ausscheidungs Pyelographie (Urographie) durch subkutane Abrodil Infusion. *Röntgenpraxis* 3: 881-884 (Oct. 1) 1931.

<sup>2</sup> Hillebrand H. Ausscheidungs-pyelographie durch subkutane Abrodil Infusion beim Kinde. *Zentralbl. f. Chir.* 59: 1048 (April 23) 1932.

In the service at Mount Sinai Hospital, fifteen patients—ten children, the rest adults—have been injected in this way with fairly satisfactory results. In this series a 7 per cent neoskioldan solution, approximately isotonic, was used, 50 cc being injected into each axilla, a total dose of 7 Gm. The low toxicity of the substance allows administration of the full dose in infants.



Fig. 1—Intravenous pyelogram showing a horseshoe kidney

The injection is attended by only the usual slight discomfort of a hypodermoclysis, local anesthesia being used for the older patients. In no case was there subsequent tenderness or induration. The best urographic shadows are obtained about fifty to sixty minutes after injection, a compression bag being used,

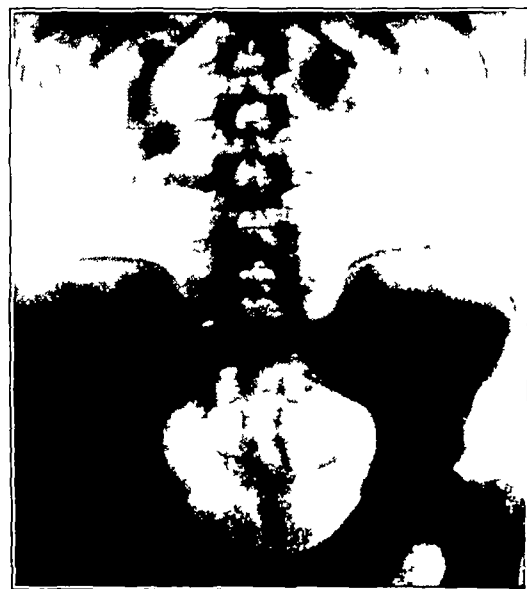


Fig. 2—Subcutaneous pyelogram of the same case as in figure 1 two years later

although good urograms can be taken at any time from thirty to ninety minutes after injection, so that only one or two plates are necessary. To demonstrate the efficiency of this procedure, two pictures of a horseshoe kidney are reproduced, one taken after intravenous injection and the other after subcutaneous injection of neoskioldan.

Fifth Avenue and One Hundredth Street



## CECAL POLYP ON OCCLUDED BASE OF APPENDIX

ABRAHAM STRAUSS M.D. CLEVELAND

The reason for reporting this case is the unusual location of the polyp. Polyps and papillomas occur in any part of the colon. They may be single or multiple and usually are of inflammatory origin. The case reported here was probably due to repeated attacks of inflammation of the appendix by which the lumen of the appendix became closed off from the cecum. The appendiceal lumen thus enclosed became a source of irritation itself, and the response to this was a reaction of the mucosa on the cecal side of the obliterating membrane in the form of a polyp.

A woman, aged 22, married three years, with a negative family history, has one child, aged 2 years, living and well. The menstrual history was negative. At the age of 15 she had an attack of severe abdominal pain while at a girls' camp. This was diagnosed as appendicitis. Since then, she has had some "bilious" attacks of pain in the lower part of the abdomen, more on the right side, accompanied by vomiting. She used to be confined to bed a day or two with each attack. Thirteen months ago she had a severe attack when I examined her for the first time. This attack was characterized by severe pain in the lower right quadrant of the abdomen, nausea and vomiting. Examination at that time revealed tenderness and slight spasm over McBurney's point. Pelvic examination was negative. The temperature was 99, the pulse 88, and the white blood count 12,000. Because the physical manifestations were still mild enough and because the patient was only nine months post partum, it was decided to be conservative unless the signs grew worse. Thus she was tided over this attack and remained well, with only slight discomfort at times until Dec. 23, 1933, when she had sufficient pain to go to bed. I saw the patient the next day when she was a little better and set the date for operation for December 27 to allow her to have Christmas at home. The physical conditions were the same as one year before. The patient had no other symptoms and the rest of the physical examination was negative.

December 27, resection of the tip of the cecum with the appendix was done. The patient was prepared and draped in the usual manner. McBurney's incision was made. The cecum was secured and the appendix was found to lie in the fossa beneath the cecum. It was short, thick and very firm, almost as if it contained concretions. The appendix was bound down

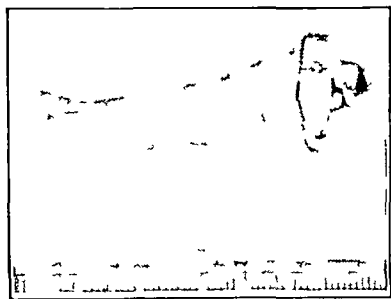


Fig. 1—Appendix with wall of cecum turned down displaying projecting polyp.

by much thickened indurated tissue, which gave evidence of chronic inflammation. The base of the appendix was very broad and thick and seemed to be the prolongation of a funnel-shaped cecum, as it was not sharply demarcated at the cecum. A polypous growth about 1 cm in length was palpated, arising from the base of the appendix and projecting into the cecum. The appendix was freed from the surrounding tissue and from the meso-appendix, and the tip of the cecum was crushed with two Kelly clamps proximal to the polyp and severed with the actual cautery. Thus, the tip of the cecum was resected together with the appendix. The cut ends of the cecum were then closed with a Cushing stitch of chromic No. 1 catgut. Closure was further strengthened by serosal sutures of linen. All bleeders had been ligated, and closure was effected in the usual manner.

The preoperative diagnosis was chronic appendicitis. The postoperative diagnosis was chronic appendicitis with a polyp of cecum at the base of the appendix.

A pathologic report was made by Dr. Benjamin S. Kline, pathologist of Mount Sinai Hospital. The appendix and a small portion of the regional cecum were examined. The

appendix was 4.75 cm long and from 2.5 to 8 mm in diameter, gradually enlarging toward the proximal end. The serosa, somewhat thickened, showed sheetlike fibrous tags adherent to the distal half. Attached to the adhesions was a flat, bean-shaped mass about 5 by 4 by 2 mm (lymph node? adipose tissue?). The most striking thing about the specimen was the fact that there was no detectable opening from the appendix into the cecum. Instead, the site was occupied by a polypoid mass about 4.5 mm in diameter and 7 mm long, continuous with the mucous membrane of the cecum. The polyp projected into the cecal lumen. There was some reddish discoloration of the surface of the polyp. On cross section of the appendix about 5 mm from the proximal end, the lumen was distended



Fig. 2—Polyp of cecal mucosa overlying blind base of appendix. The three coats of cecum and appendix can be traced.

by coherent dry fecal material about 7 mm in diameter. When this material was expressed from the proximal portion of the appendix, a cup-shaped depression was observed, and just beyond the blind end lay the base of the polyp already mentioned. On section of the appendix, the lumen obliterated in the tip was elsewhere slightly or considerably distended with coherent dry secretion. There was some reddish flecking of the mucosa throughout. The walls in general stretched. There was perhaps some edema of the inner coats.

The gross diagnosis was old chronic appendicitis of the proximal portion with occlusion of the lumen, distention of the lumen by coherent dry fecal matter, and old adhesions about the distal half of the appendix. There was an overgrowth of cecal mucosa in the region of the previous appendiceal orifice with polyp formation here, early acute appendicitis(?).

Microscopic examination of two sections of the appendix from 7 to 11 mm in diameter showed the lumen to be from 4 to 8 mm distended by coherent fecal material, which in places appeared to continue into the mucosa a small distance with but minimal regional reaction. There was slight scarring and round cell infiltration of the inner coats and some edema of all coats. A third section was about 3 mm in diameter, with no lumen, no glands and no lymphoid tissue in the mucosa. There was some edema of all the coats. A fourth section, including the regional cecum, showed a striking picture. The most proximal portion of the appendix showed complete occlusion of the lumen and fusion of the submucosa of the appendix with the submucosa of the cecum. The appendix in this portion showed a picture similar to the first and second sections, with distention of the lumen by fecal material and a thin mucosa. There was slight scarring and round cell infiltration of all coats. Regional to the occluded appendix there was a polypoid overgrowth of cecal mucosa and submucosa about 4.5 mm in diameter with moderate scarring, considerable round cell infiltration and marked leukocytic infiltration. There were numerous lymph follicles present. There was an area of necrosis and pus cell infiltration and hemorrhage of the mucosa.

of overgrowth several millimeters in extent. There was some carrying and round cell infiltration of the cecal mucosa at the margins of the section.

The final diagnosis was occlusion of the lumen at the proximal end of the appendix and fusion of the submucosa with the submucosa of the cecum, chronic appendicitis (slight) with considerable distention of the lumen and old adhesions about the distal half of the appendix.

1623 Medical Arts Building

## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.  
CHICAGO

NOTE—In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The series of articles will be continued from time to time in these columns.—ED

#### THERAPY OF ERYSIPELAS

##### PROPHYLAXIS

1 Isolation from surgical patients is desirable and from obstetric patients is imperative, but quarantine otherwise is not required. The period of isolation should continue until all local lesions are healed.

2 Disinfection of the hands and of the instruments of physicians and of nurses taking care of a patient with erysipelas is necessary. Even with this precaution, physicians and nurses should not simultaneously attend surgical or obstetric patients. Thorough cleansing suffices for final disinfection.

3 The organisms may persist in the patient for a long time in sinus or nasal discharges, which accounts for the tendency to recurrence in those who have suffered from the disease. In such carriers even the slightest traumatism, especially about the nose, should be prevented as much as possible.

##### TREATMENT

1 *Local*—(a) Ultraviolet irradiation of the area involved and of the normal adjacent skin at least two inches beyond the border should be done. The mercury quartz burner is used. The lamp is run for ten minutes first, so as to work up to maximum efficiency. The rays must be direct, so as to strike the diseased area and adjacent skin at right angles for a duration of ten minutes at a distance of 12 inches. In infants and very young children the time may be reduced to five minutes and occasionally to three minutes. If the area of erysipelas shows evidence of spreading, a second treatment will be necessary. Usually one intense treatment suffices.

(b) Roentgen rays, 100 kilovolts, unfiltered in moderate doses (not over one-fourth erythema dose) should be applied and the application repeated not more than once on the second day, if results have not been satisfactory. It is necessary to include a 2-inch margin of apparently uninvolved skin in order to treat all infected areas. Roentgenotherapy is not advisable in the diabetic, the nephritic and young children.

(c) A barrier consisting of a narrow (three fourths inch) band of contractile collodion (Collodion, U. S. P.)

all round a small lesion may possibly be effective. The band must be applied thickly enough to produce a deep depression about 2 inches from the margin.

(d) Evaporating lotions, applied ice cold by means of uncovered compresses, give relief to the hot burning sensation, which may be still better ameliorated by the addition of 1 per cent phenol. The Solution of Aluminum Acetate, diluted 1:8, is preferable for moist areas. If ulcers develop, these should be treated in accordance with the principles laid down in "Ulcer Therapy."

2 *Erysipelas Antiserum*—Administration of erysipelas antiserum should be preceded by an intracutaneous test of 0.1 cc. of the serum diluted 1:10. If the test is negative within fifteen minutes, one may inject the remainder of the contents of the ampule. The dose may be repeated daily for three days. If the test is positive, it might be well to use convalescents' erysipelas serum rather than the serum derived from the animal, in amounts varying from 40 to 100 cc.

3 *Fever Regimen* (q. v.)—Restraint is not infrequently necessary, as acute delirium may supervene. Protection of the patient should consequently be provided.

4 *Symptomatic Treatment*—A hypnotic may be required for obstinate insomnia (q. v.) or stimulation for collapse (q. v.)

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
H. A. CARTER, Secretary

### SOURCES OF ULTRAVIOLET AND INFRA-RED RADIATION USED IN THERAPY

#### PHYSICAL CHARACTERISTICS

W. W. COBLENTZ, Ph.D., D.Sc.  
WASHINGTON, D. C.

It seems as though there has never been such a widespread attempt as today to foist on an unsuspecting and trusting public all sorts of alleged physical cure-alls to relieve people's ills and to keep them in health. Prominent among these panaceas is the exploitation of ultraviolet and infra-red rays. The mere mention of "infra-red rays" creates in the mind of many persons a feeling that this is something new and mysterious that they have missed, when, as a matter of fact, it is difficult to think of a warm object that does not emit infra-red rays.

When an object is heated to a higher temperature than its surroundings, an excess of infra-red rays passes from it to the surrounding objects. Examples of sources of infra-red rays are arc lamps, incandescent lamps, coal fires, steam pipes and hot stoves. Because of their low temperature, the infra-red rays emitted by hot water bags and electrical heating pads are of low intensity, and hence they are insignificant in comparison with the amount of heat that is obtained by conduction, by having the hot pad or hot water bottle in contact with the body. Of course it sounds more impressive to speak of infra-red rays than to speak of the application of heat by conduction, by direct contact of the pad with the body.

There is nothing new or mysterious about the ultra-violet and the infra-red rays. A person is always exposed to the infra-red rays when standing near a steam radiator, an open grate fire or even an electric toaster. The spectral quality and total intensity of the infra-red rays emitted by the radiant heaters for warming rooms is essentially the same as emitted by the infra-red lamps sold for therapeutic purposes except that the latter have smaller reflectors and have more elaborate adjustable mountings, which cost more money.

During the past few years, experimental data have become available showing that the spectral band of ultraviolet radiation of wavelengths shorter than about 3,150 angstroms,<sup>1</sup> occurring in sunlight and in some artificial sources of radiation, if sufficiently intense and if the time of exposure is sufficiently prolonged, has the power of preventing and of curing rickets. This is the underlying basis for exploiting ultraviolet of these wavelengths for general healing purposes. While this point of view may be too broad, the beneficial effects of short wavelength ultraviolet radiation in surgical tuberculosis and certain skin diseases is recognized.

Before I discuss the various types of sources of radiation available for therapeutic purposes, it will be instructive to consider several incidental questions that enter into the subject. In fact, in order to apply radiation therapy successfully, it is important to have a thorough understanding of the physical properties of the source of thermal radiation as well as the physiologic reaction of living matter when exposed to it. Successful phototherapy depends on a knowledge of the spectral quality of the source, the total quantity or intensity, and the time of exposure, which depends on the distance of the patient from the lamp.

Excepting for the question of intensity and wavelength, physically there is no marked distinction between the various regions of the spectrum called "ultraviolet," "visible" and "infra-red." Chemically and physiologically there is a distinct difference. The action of infra-red rays is thermal and instantaneous, producing a burning sensation when the intensity is too great. On the other hand, the ultraviolet rays are actinic, causing, among other effects, the coagulation and precipitation of albumin. Their action is slow and insidious, so that the effect is not perceived until from three to six hours after exposure. A short exposure to an innocent-looking carbon or mercury arc may produce severe conjunctivitis. Hence the eyes should be protected with deep brown glasses or covered with a black cloth to prevent injury when the body is being irradiated.

Although there is no sharp demarcation of these rays into wavelength bands, for convenience I shall indicate these spectral ranges (table 1) and mention some of the photochemical and physiologic effects, if known. The wavelengths may be written in angstroms, microns ( $\mu = 0.001$  mm) or millimicrons ( $m\mu$ ), i. e., wavelength  $3,000\text{A} = 0.3\mu = 300\text{m}\mu$ . Thus the ultraviolet emission line of the quartz mercury vapor arc lamp, frequently mentioned in this paper, is 2,967 angstroms, 0.2967 micron or 296.7 millimicrons. More complete data on the radiation from arc lamps<sup>2</sup> and on their germicidal action<sup>3</sup> are given in other publications.

**1 Depth of Penetration of Thermal Radiation**—Authorities differ as to the depth of penetration of radiation of different wavelengths into the human body. Eventually this may not be an important question, but it may serve to explain why discomfort is sometimes experienced when one is exposed to certain types of lamps, owing to the emission of an excessive amount of infra-red radiation of wavelengths that cannot penetrate deeply into the skin.

In passing it is instructive to note that the shortest, "hard" x-rays and longest radio waves are deeply penetrating. It is therefore of interest to summarize what is known about the transparency of the skin and the blood to radiation of various wavelengths throughout the spectrum.

Data on the depth of penetration of radiation into the skin are given in table 1. It is, of course, to be understood that small amounts of radiation penetrate to still greater depths than here indicated and that these values represent limits in depth at which effective biologic action may still be expected. In the dehematized skin

TABLE 1—*Different Spectral Regions, Probable Depth of Penetration and Probable Physiologic Action of Rays from Different Sources\**

Spectral Region	Penetration of Rays	Physiologic Action	Source
Far ultraviolet 1,800 to 2,900 A	Superficial 0.1 to 0.5 mm	Photochemical	Metals in carbon arc and spark of metals (mercury arc)
Near ultraviolet 2,900 to 3,650 A	Superficial 0.5 to 1 mm	Photochemical	Sun, metals in carbon arc, arc of metals
Visible spectrum 3,900 to 7,600 A	Superficial 1 to 5 mm	Thermal nerve stimulation	Sun, carbon arc
Near infra red 7,600 to 10,000 A	Deep 10 to 30 mm	Thermal nerve stimulation	Sun, carbon arc, gas filled tungsten lamp
Far infra red 15,000 to 150,000 A	Superficial 3 to 0.1 mm	Thermal nerve stimulation	Carbon arc infra red (radiant) heaters

\* Wavelengths in angstroms, A

the depth of penetration would be greater than under normal conditions.

**2 Reflectors and Windows**—In view of the fact that most lamps used for therapeutic purposes are provided with reflectors and windows, it is relevant to emphasize the fact that the mirror acts solely as a reflector of the rays that fall on it and does not itself contribute anything additional to the ultraviolet radiation emitted by the source. In fact, since the reflector absorbs more of the short wavelength ultraviolet than of the visible and infra-red rays, especially when the surface is composed of a powdered metal (for example, aluminum) which has been applied with a lacquer, the total amount of ultraviolet radiation in proportion to the visible and the infra-red rays is relatively lower in the reflected rays than in those that proceed directly from the source. The reflector, placed back of the source, simply increases the total amount of radiation of all wavelengths falling on an object placed in front of the lamp. The reflector cannot supply ultraviolet wavelengths that may be lacking in the source, and after it becomes covered with smoke from the arc, the amount of reflected radiation is, of course, greatly reduced.

Likewise windows or filters used in front of the source of ultraviolet, whether it is the sun, the mercury arc or the carbon arc, emit no ultraviolet wavelengths

<sup>1</sup> The angstrom unit of wavelength is one ten millionth millimeter.

<sup>2</sup> Coblenz, Dorcas and Hughes. *Bur. Stds. Sc. Papers* 21: 535 (1926) (Nos. 539, 15 cents). The Bureau of Standards publications are obtainable only from the Superintendent of Documents, Washington, D. C., at the prices indicated.

<sup>3</sup> Coblenz and Fulton. *Bur. Stds. Sc. Papers* 19: 641 (1924) (No. 495, 20 cents).

themselves but always reduce the intensity of the rays that are present. The same is true of lacquers used in applying the powdered metal for a reflecting surface. Linseed oil and cellulose lacquer are highly opaque to ultraviolet radiation of wavelengths shorter than 3,500 angstroms.

**3 Radiant Heat Versus Conducted Heat**—Owing to the general misconceptions on this subject, it is relevant to call attention to the difference in heat transfer by conduction and by radiation. Practically all the heat obtained from an electrically operated heating pad or a hot water bottle (which takes the place of a heated brick or of ground meal used in the earlier days), placed in contact with the body, is transferred by thermal conduction. The amount obtained in the form of infra-red rays is negligibly small.

#### SOURCES OF RADIATION

Under the caption of sources of radiation, various types of thermal radiators are considered, beginning with those operated at low temperatures and therefore emitting principally infra-red rays. In order to obtain an appreciable amount of ultraviolet radiation it is necessary to heat the radiating substance to a high temperature, 3,000 C (5,432 F) or higher. Since solids (e.g., metals such as tungsten) evaporate rapidly at high temperatures, sources of ultraviolet radiation are practically confined to electric arcs between electrodes of metals, of carbon, and of mercury vapor in a closed tube of quartz glass called "the burner."

**1 Miscellaneous Sources**—Under this caption may be grouped vacuum incandescent lamps, kerosene lamps, acetylene flames, luminous and Bunsen gas flames, and incandescent mantles heated by gas flames, which do not emit sufficient ultraviolet radiation to be useful in therapy. Neither is the ultraviolet emitted of sufficient intensity to be a source of injury to the eye. Vacuum incandescent lamps have been built into cabinets used for treatment by means of infra-red rays. Wood and coal fires, in an open grate, emit practically no ultraviolet radiation but are good sources of infra-red rays, which will become less and less familiar to coming generations. The open front gas stove, with its incandescent radiant of refractory clay, cannot be operated at a sufficiently high temperature to emit an appreciable amount of short wavelength ultraviolet rays. It is a convenient source of intense infra-red radiation, giving a spectral energy distribution that is somewhat similar to curve B in chart 1 provided care is taken to avoid the production of carbon monoxide which results from improperly adjusted gas burners and insufficient ventilation.

**2 Infra-Red Radiators**—Under this caption may be placed various radiant heaters used for therapeutic purposes. They consist of a concave reflector at the focus of which is an incandescent filament lamp in a glass bulb, or a heater consisting of an electrically heated solid rod, or a resistance wire embedded in or wound on an electrically nonconducting, refractory material, such as, for example, steatite, "lava" or porcelain. The color of the surface (whether white or black) is unimportant. The nonmetallic surface emits the greatest amount of infra-red rays.

The incandescent filament radiators that are enclosed in glass bulbs emit radiation of wavelengths 5,000 to 40,000 angstroms (chart 1), with the maximum emission at from 11,000 to 20,000 angstroms depending on

the temperature of the filament. Only a small amount of radiation is emitted by the glass bulb.

The radiant heaters that are not enclosed in glass emit perceptible radiation of all wavelengths throughout the infra-red to 150,000 angstroms (15  $\mu$  in the illustration), beyond which point the intensity is very low, as shown in chart 1. The carbon dioxide and water vapor in the air selectively absorb certain wavelengths in the infra-red, producing indentations in the spectral energy curves, especially at 4.2 microns (42,000 angstroms), as shown in this illustration. With increase in temperature the maximum emission shifts toward the short wavelengths, so that for a surface temperature of from 300 to 400 C (572 to 750 F) the maximum emission (curve C, chart 1) is not well defined, extending from 4 to 5 microns (40,000 to 50,000 angstroms), whereas at a low red heat (from 600 to 800 C, or 1112 to 1472 F) the maximum emission becomes more sharply defined (curve B, chart 1) and lies between 2 to 3 microns (20,000 to 30,000 angstroms). Moreover, the infra-red radiation from the latter is far more intense (eight to ten times greater) than that emitted by the heater at 300 C (572 F).

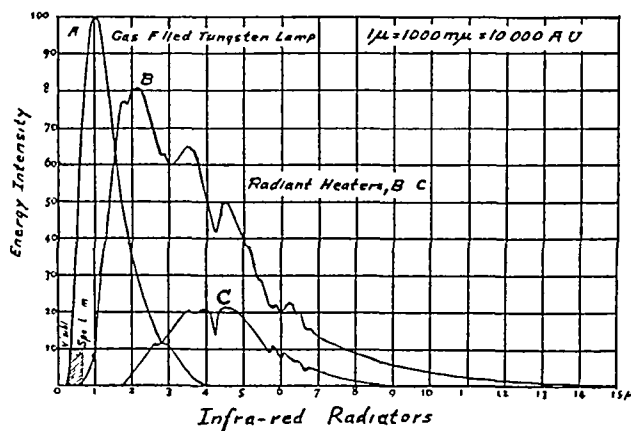


Chart 1—Infra red radiators

The reflectors surrounding these heaters are practically nonselective, hence they have no appreciable effect in modifying the spectral composition of the radiation emanating from the heater. In other words, there is no way of producing narrow spectral zones of radiation by emission in the infra-red. On the other hand, filters for isolating relatively narrow bands of the visible and ultraviolet are easily provided.

For experimental purposes, the most easily produced, fairly narrow band of infra-red radiation is obtainable from the Bunsen nonluminous gas flame, which has a strong emission band at 4.4 microns (44,000 angstroms), but the total intensity is rather low.

A filter consisting of a cell of water and red glass will confine the radiation stimulus to the spectral region extending from 6,000 to 14,000 angstroms. The red glass alone will confine the stimulus to wavelengths between 6,000 and 40,000 angstroms. Such a filter may be used in front of a Mazda, gas-filled tungsten lamp as a source of infra-red rays.

As already mentioned, these radiant heaters, made for therapeutic purposes, do not differ in principle from those used for heating dwellings, except that the latter have a wider pan or hood for reflecting the rays over a wide area, while in the therapeutic radiator the reflector projects the radiation on a small area.

3 *The Tungsten Filament Lamp*—The "Mazda" tungsten filament lamp, enclosed in a bulb of special glass that transmits ultraviolet at wavelengths extending from 2,800 to 3,100 angstroms (recognized as effective in preventing rickets) has been considered for a source of ultraviolet radiation. A small lamp, similar in appearance to the automobile headlight lamp, was on the market some time ago. It was operated at a considerably higher voltage than that normally used, which shortened the useful life to a few hours. It was claimed that under these conditions the lamp would emit sufficient ultraviolet radiation for therapeutic purposes. The

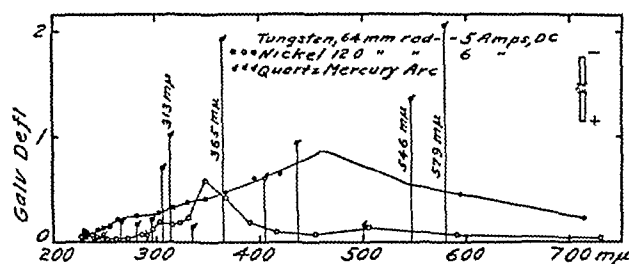


Chart 2—Spectral energy (intensity galvanometer deflections) distribution of the radiation emitted by the arc between electrodes of nickel of tungsten and of mercury vapor in a quartz tube called the burner

lamps examined did not emit an appreciable amount of ultraviolet rays of wavelengths less than 3,100 angstroms.

Calculations and radiometric measurements show that the tungsten filament lamp, even when enclosed in a bulb that transmits the ultraviolet rays extending from 2,800 to 3,100 angstroms, emits but little ultraviolet radiation of these wavelengths.

In curve A of chart 1 is depicted the relative special energy distribution of the radiation from the gas-filled tungsten lamp. The maximum emission occurs at 10,600 angstroms ( $1.06 \mu$  in the illustration). The measurements were made on a 1,500 watt gas-filled lamp, but without a reflector such as is used in a therapeutic lamp. The reflector would increase the total intensity in the direction observed. The bulb, which was of clear glass, absorbs practically all the radiation of wavelengths longer than 35,000 angstroms and it absorbs completely all the radiation of wavelengths greater than 45,000 angstroms. The low temperature radiation from the heated glass bulb (some 11 per cent of the total) cannot penetrate deeply into the skin.

The gas-filled tungsten lamp is useful as a source of visible and of short wavelength infra-red radiation of wavelengths less than 15,000 angstroms. About 30 per cent of the total radiation emitted by the gas-filled tungsten lamp is of wavelengths that can penetrate deeply into the skin. The original papers cited here<sup>4</sup> contain data on the spectral energy distribution of the tungsten filament in a gas-filled bulb.

4 *The Violet Ray Lamp*—One of the standard products of commerce is an incandescent lamp consisting of a helical carbon filament in a bulb of blue glass, sold for decorative purposes and sources of low illumination in assembly rooms. If such lamps have a therapeutic effect, e. g., in stimulating the growth of hair on bald heads, it should be noticeable on patrons of amusement houses. Nevertheless such lamps have been put into special caps and sold for growing hair and for therapeutic purposes.

Radiometric tests showed that the intensity of the violet and ultraviolet rays emitted by such a lamp is only one ten-thousandth the total radiation emanating from the lamp. The amount of violet and ultraviolet rays of full sunlight transmitted through the glass bulb of such a lamp was from 1,000 to 1,500 times greater than that of the carbon filament lamp. Observations showed that the intensity of the violet rays of sunlight (skylight) falling on the scalp of a person sitting near a window, but not in direct sunlight, would be from 50 to 150 times that of a blue bulb carbon filament lamp.

Another bit of hokum is a so-called violet ray lamp, consisting of a spark coil to which is attached a glass tube that terminates in a flattened glass bulb, which emits a blue glow when it touches the body. The function of this glass tube is to provide a high resistance to the electric current that comes from the spark coil, so that the patient will not feel the shock too severely, and even if the ultraviolet rays generated could pass through the glass walls of the bulb, they would be too weak in intensity to be effective for therapeutic purposes.

5 *The Nickel and the Tungsten Arc*—The radiation emitted from the arc vapors between two electrodes of nickel, and of tungsten, consists of numerous fine lines which (chart 2) are not separated when examined with a small spectroscope.

The spectral energy distribution of the arc between two pure nickel rods, 12 mm in diameter, with tapered ends, operated on 6 amperes, is given in figure 2, from which it may be noted that the nickel arc emits strongly at 230 millimicrons (2,300 angstroms) and especially at 350 millimicrons (3,500 angstroms). These bands are especially conspicuous in certain cored carbons, discussed in a subsequent part of this chapter. The arc of nickel-cord carbons is an excellent source of ultraviolet radiation. Moreover, the material is inexpensive, quiet burning and easy to operate.

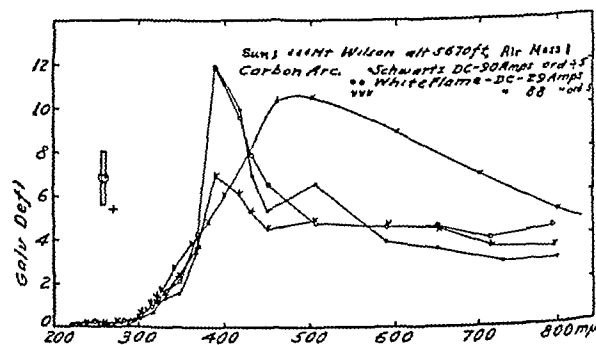


Chart 3—Spectral energy (intensity) distribution of the sun and of the carbon arc

The tungsten rods examined were 64 mm in diameter and were the regular imported British stock material used for therapeutic purposes. They were operated on 5 amperes. Because of the formation of a crust of oxide around the electrode, the arc was rather unsteady and hence difficult to operate. The emission spectrum of tungsten is weak in the spectral region of wavelengths shorter than 2,300 angstroms (230  $m\mu$  in the illustration).

The odors from the metal arcs are disagreeable, and some vapors may be irritating to the bronchial tubes. In order to eliminate the odors and to secure greater

<sup>4</sup> Coblenz W. W. Bur. Stds. Sc. Bull. 14 115 1917 (No. 300 5 cents) Priest Bur. Stds. Sc. Papers 18 225 1922 (No. 443 5 cents)

steadiness in operation, cored carbon electrodes containing oxides of certain metals are commonly used in place of electrodes of pure metals

**6 The Sun**—In connection with the following discussion of the radiation emitted by artificial sources, it is relevant to mention the sun—the only natural source available for therapeutic purposes. The temperature of the surface of the sun is above  $5\,500\text{ C}$  ( $9\,932\text{ F}$ ), some estimates being  $6\,000\text{ C}$  ( $10\,832\text{ F}$ ). The solar radiation intensity, falling on a surface normal to the incident rays in this latitude ( $38^{\circ} 50'$ ) at sea level at the noon hour on a clear day, amounts to about  $1.2\text{ Gm-calories per square centimeter per minute}$  and rarely rises to  $1.35\text{ Gm-calories}$ . Less than 0.1 per cent of this amount is ultraviolet of wavelengths that have a strong therapeutic action, at least in preventing rickets.

The intensity of the ultraviolet rays varies greatly with the altitude above sea level (chart 3) and also with the time of day. Only between the hours of 9 a. m. and 3 p. m. (excepting in the three summer months, when least needed) is this ultraviolet component of sufficient amount to be of importance radiometrically, and probably therapeutically. In addition to this variation with the time of day, the amount of vitalizing ultraviolet solar rays available for therapeutic purposes varies with the season of the year, with the altitude and the geographic latitude of the station, and with the almost infinite variety of air pollution and weather conditions that are encountered in different localities.

The intensity of the shortest ultraviolet solar rays transmitted by the atmosphere is extremely small. The intensity at  $2\,900\text{ angstroms}$  is only one millionth as great as at  $3\,130\text{ angstroms}$ , where the mercury arc has a strong emission line, and only about one forty-millionth of the intensity of the sun's rays in the visible spectrum, where the intensity is a maximum (chart 3).

**7 The Carbon Arc**—As already mentioned, the temperature of the surface of the sun is about  $5\,500\text{ C}$  (about  $9\,900\text{ F}$ ). The temperature of the positive electrode of the carbon arc is much lower—about  $3\,300\text{ C}$  (about  $6\,000\text{ F}$ ). The carbon arc is the hottest artificial source of radiation readily obtainable, and in this respect it is the closest approach to sunlight. However, the radiation from the carbon arc is far from being like sunlight. There is a strong emission band in the violet at about  $3\,890\text{ angstroms}$  (the "cyanogen band," chart 3), and beyond  $40\,000\text{ angstroms}$  in the infra-red there is a great amount of radiation not present in sunlight. When a window of special glass (e. g., Corex-D) is used, which shuts out the ultraviolet rays of wavelengths shorter than  $2\,900\text{ angstroms}$  and longer than  $40\,000\text{ angstroms}$ , the spectral limits are similar to those of sunlight, but the intense cyanogen band remains.

Except for the violet cyanogen band at  $3\,890\text{ angstroms}$ , the vapors from the electrodes of pure carbon are quite nonluminous. A highly luminous arc is produced with carbons filled with various substances.

Superimposed on the radiation from the arc vapors is the continuous spectrum from the highly incandescent crater of the positive electrode. The result is an intense infra-red spectrum, of wavelengths longer than the solar rays transmitted by the atmosphere. If the arc is surrounded by a glass or a quartz globe, as already mentioned, some of the infra-red rays are excluded, but in turn the surrounding globe becomes heated and

emits nonpenetrating infra-red rays with wavelengths of from  $50\,000$  to  $120\,000\text{ angstroms}$ , which are not present in sunlight. Hence, no exact comparison can be made between the radiation from the sun and the carbon arc.

The crater of the positive electrode emits an intense white light, which, as already mentioned, is mixed with the radiation of the arc vapors. This fact is usually overlooked in discussions of the radiation from the carbon arc. The vapors from the pure carbon arc contribute but a small amount to the total radiation emitted.

In chart 3 is shown the distribution of energy in the ultraviolet and in the visible spectrum of the sun (as observed on Mount Wilson) and of the white flame carbon arc. For convenience in making these comparisons, the radiation intensities (the galvanometer deflections) of the sun and of the carbon arc were set to equality at  $300\text{ millimicrons}$  ( $3\,000\text{ angstroms}$ ), a procedure that is permissible and in common use.

No appreciable radiation of the sun of wavelengths less than  $2\,900\text{ angstroms}$  is transmitted by the earth's atmosphere. On the other hand, radiation of wave-

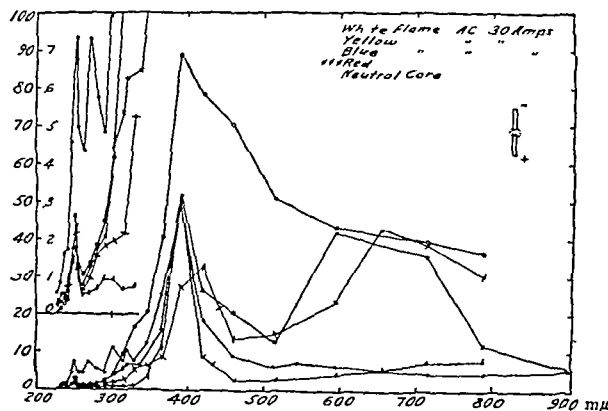


Chart 4—Spectral intensity (energy) curves of different kinds of carbon electrodes

lengths out to  $2\,200\text{ angstroms}$  is observable in the white flame carbon arc. As illustrated in chart 3, the ultraviolet cyanogen band, with its maximum emission at  $389\text{ millimicrons}$  ( $3\,890\text{ angstroms}$ ), is relatively far more intense than similar wavelengths in the spectrum of the sun. On the other hand, under the same conditions, the radiation of the sun in the visible spectrum is relatively far more intense than that which obtains in the white flame carbon.

As will be mentioned presently, the radiation from the mercury vapor arc in a quartz burner consists of a series of strong emission lines, notably at  $2\,570$ ,  $2\,650$ ,  $2\,804$ ,  $2\,967$ ,  $3\,020$ ,  $3\,130$ ,  $3\,340$  and  $3\,650\text{ angstroms}$ . In this spectral region the radiation from the vapors of the carbon arc consists of numerous fine lines, which are so close that the spectrum appears continuous and, hence, somewhat like that of sunlight.

When the carbon arc is enclosed with a close-fitting transparent quartz chimney, the gases surrounding the arc expand and force sufficient air out of the chimney to establish an equilibrium in pressure, viz., atmospheric pressure. The amount of oxygen is reduced and the life of the electrode is prolonged. When the arc is extinguished, cold air rushes in. This does not mean, however, that the arc was operating under reduced pressure, i. e., in a partial vacuum. The pres-

sure was the same as or slightly above the atmospheric pressure, but the volume of oxygen (air) was reduced.

In some recent designs of carbon arc lamps the arc is partly surrounded by a metal casing, which reduces the air circulation and prolongs the life of the electrode.

**Factors Affecting Carbon Arc Radiation** It has been found that the radiation from the carbon arc depends on (1) the size and the kind of the electrodes (white flame, blue flame, yellow flame, red flame, chart 4), (2) the direction of the current when direct current is used through combinations of neutral cored and impregnated carbons, and (3) the amount of electric current.

This information has been of assistance in making improvements in arc lamps. Assuming that the manufacturer has incorporated into his lamp the latest improvements based on the information available regarding the proper current, the proper size of electrode for a given current, and the direction of the current (if direct current) through the electrodes, it is incumbent on the purchaser of such a lamp to operate it as was intended. This is evident from the increase in the intensities (galvanometer deflections) of the different wavelengths with increase in the current (hence the temperature) in the arc (chart 5). These curves are called "isochromatics," meaning at some particular wavelength.

Amount of current. Take for example the curve of intensities for the wavelength 3,020 angstroms, which is of special interest because of its strong antirachitic action. On 5 amperes the galvanometer deflection was hardly perceptible. With a current of from 25 to 30 amperes, the intensity (galvanometer deflection) was almost 100 times greater.

**Size of electrodes** Suppose the operator is using carbon electrodes about 12 mm in diameter, which require from 25 to 30 amperes in order to attain the proper temperature. It is evident that on 10 amperes he would obtain less than one-tenth the intensity available. Moreover, the arc would sputter and would burn unsteadily. To avoid the sputtering, the electrode of the carbon arc lamps, with a current of from 8 to 10 amperes, should be only from 6 to 8 mm in diameter.

As a general rule, high amperage arcs are more efficient than the low amperage arcs in the production of ultraviolet and visible radiation, relative to the total infra-red radiation produced. All carbon arcs emit considerable nonpenetrating infra-red radiation of wavelengths longer than 40,000 angstroms not present in sunlight. Aside from the production of a sensation of warmth, there is probably no important physiologic reaction that could not be produced by the above-described, simpler sources of infra-red radiation.

Data on the radiation from the carbon arc have been published elsewhere.<sup>5</sup> To simplify the discussion, it will be sufficient to depict the spectral energy distribution of representative samples of cored carbons containing substances that, in the state of incandescent vapor, have bands of selective emission in certain parts of the spectrum. These spectral energy curves, throughout the ultraviolet, the visible spectrum (from 390 to 750 millimicrons, 3,900 to 7,500 angstroms) and to 800 millimicrons (8,000 angstroms) in the infra-red spectrum, are illustrated in figure 4. The inset on the left-hand side of figure 4 gives a magnified (ten times) illustration of the intensities extending from 250 to 300 millimicrons.

**Direction of current** The carbon electrodes used were 127 mm in diameter and were operated on 30 amperes, alternating current. The effect of direct current is to raise the temperature of one electrode considerably higher than the average that obtains when alternating current is used. This increases the intensity of the cyanogen band at 3,890 angstroms, especially in the blue flame arc, but it does not have so marked an effect on the intensity of the radiation in the short wavelength ultraviolet and in the visible spectrum.

**Kind of electrodes** It may be noticed (chart 4) that in the neutral core carbon arc (a practically pure carbon) the ultraviolet radiation of wavelengths less than 320 millimicrons (3,200 angstroms) is extremely weak, the radiation being concentrated almost entirely in the cyanogen band, with a maximum at 389 millimicrons (3,890 angstroms). In contrast, in the blue flame ("therapeutic B") carbon arc, the ultraviolet radiation of wavelengths less than 310 millimicrons (3,100 angstroms) exceeds that of all the other arcs illustrated (chart 4).

In the yellow flame ("therapeutic C") carbon arc there is considerably more radiation, extending from 2,900 to 3,200 angstroms (290 to 320  $m\mu$  in the illustrations) in the ultraviolet, which is weak in the neutral core carbon arc. In the visible spectrum there is a strong emission extending from 5,000 to 7,500 angstroms.

The red flame ("therapeutic E") carbon arc is conspicuous for its intense emission, extending from 5,500 angstroms in the orange to beyond 7,500 angstroms in the red.

The white flame ("therapeutic A") carbon arc is conspicuous for its relatively low spectral emission in the ultraviolet of wavelengths shorter than 2,900 angstroms, its high emission in the region extending from 4,500 to 5,000 angstroms, which is lacking in the other carbon arcs just described. Owing to the intense radiation in the cyanogen band at 3,890 angstroms (chart 3), the color of the light emitted by the white flame carbon is a more bluish white than sunlight. However, as already mentioned, when the arc is covered with a suitable glass chimney, which absorbs the ultraviolet rays shorter than 2,900 angstroms and the infra-red rays longer than 40,000 angstroms, the white flame carbon arc is the closest approach to sunlight. But it is still far from being an exact match with sunlight in spectral energy distribution. It remains to be determined whether this difference in spectral energy distribution is of importance biologically.

(To be continued)

5. Coblenz, W. W. Tr. Illum. Engin. Soc. 23: 247 (March) 1928.  
Coblenz, Dorcas and Hughes.

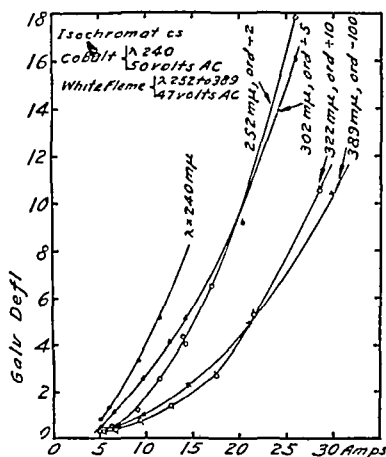


Chart 5.—Increase in intensities of the emission lines in the carbon arc with increase in current.



## Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING  
GENERAL DECISIONS  
RAYMOND HERTWIG Secretary

### ACIDOSIS CLAIMS IN LAY ADVERTISING

Acidosis and acid claims, and the words 'acidosis,' 'acidity' and 'acid' are frequently used in advertising to play on vague fears of the public. The usual well-balanced diet includes many alkali yielding foods—milk in its various forms, fruits and vegetables. Acid forming diets are not a practical nutritional problem because a good modern mixed diet adequate in minerals and vitamins can scarcely be potentially acid. It is appropriate to call attention to the fact that certain foods are potentially alkaline, or yield alkaline mineral residues in the body.

Acidosis is a medical name for a morbid condition of diminution in the reserve supply of fixed alkali in the blood and body fluids. Most people have no conception of the true meaning of the word and are quite likely to confuse it with gastric hyperacidity or "acid stomach" or to conceive of it as 'acid blood,' a condition which would be incompatible with life. The term "acidosis" is so little understood that its use in any advertising except that restricted to the medical profession is misleading and consequently disapproved.

### VITAMIN E CLAIMS FOR PUBLIC ADVERTISING

There are at present no adequate scientific data establishing the role of vitamin E in human dietetics. This vitamin is present in many common foods, the necessary amount so far as is known, being acquired with any ordinary diet. Statements or claims referring to vitamin E in advertising to the public imply a need for special sources of the vitamin that is not warranted by present knowledge. Claims for vitamin E, therefore, other than mere statement of its presence should not be used on food labels or in advertising to the public.

### VITAMIN FORTIFICATION OF FOODS

Tentatively no objection is taken to the reasonable fortification of food products, whether intended for special diets, convalescents or general use, with vitamin concentrates or with natural foods rich in vitamins. There is no convincing evidence, however, that fortification of foods generally serves any public necessity or that it is in the best interest of public welfare, therefore such practice is not to be encouraged.

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG Secretary

#### ALPHA-LAC

*Manufacturer*—Alpha Milk Laboratories, Sacramento, Calif.

*Description*—A spray dried homogenized mixture of skim milk, lactose dextrose, coconut oil, cacao butter and cod liver oil.

*Manufacture*—The milk used is grade A as produced under the dairy laws of California and the health regulations of the city of Sacramento. The acidity as received at the plant is about 0.13 per cent lactic acid, the average bacteria count is less than 10,000 per cubic centimeter.

As soon as received the milk is drawn into the vacuum pan without preheating, where it is condensed to about 18 per cent solids content at a temperature below 54 C. The condensed milk with the other formula ingredients is pasteurized

for thirty minutes at 62 C. The mixture is homogenized and spray dried at as low a temperature as is practical (82 C). The dry powder is quickly cooled and packaged. In the course of the entire operation the ingredients are in contact with stainless steel or glass.

#### Analysis (submitted by manufacturer) —

	per cent
Moisture	11
Ash	2.5
Fat (ether extract)	28.4
Protein (N × 6.38)	11.3
Crude fiber	0.0
Carbohydrates (by difference)	56.7
Titratable acidity as lactic acid	1.1

Calories—5.3 per gram 151 per ounce

*Claims of Manufacturer*—A food for infants to be used in place of breast milk when mother's milk is not available, under the directions of the physician. Contains 2 U S P (1934, Revised) vitamin D units per gram.

#### CELLU JUICE-PAK SLICED PINEAPPLE

*Distributor*—The Chicago Dietetic Supply House, Inc., Chicago.

*Packer*—Hawaiian Pineapple Company, Ltd., San Francisco.

*Description*—Processed, peeled and cored sliced pineapple packed in undiluted juice without added sugar.

*Manufacture*—The method of manufacture is essentially the same as for Doles 1, 2 and 3 Hawaiian canned pineapple products. THE JOURNAL, April 8, 1933, page 1106. Partially neutralized unsweetened juice is used to fill the cans.

#### Analysis (submitted by distributor) —

	per cent
Moisture	83.7
Ash	0.4
Fat (ether extract)	0.1
Protein (N × 6.25)	0.3
Reducing sugars as invert sugar	7.5
Sucrose	5.9
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	15.2

Calories—0.6 per gram 17 per ounce

*Claims of Manufacturer*—Packed in undiluted pineapple juice without added sugar.

#### STOKELY'S FOR BABY SPECIALLY PREPARED STRAINED CARROTS

##### SEASONED WITH SALT

*Manufacturer*—Stokely Brothers & Company, Inc., Indianapolis.

*Description*—Strained carrots, seasoned with salt, largely retaining the natural vitamins and minerals.

*Manufacture*—Selected, fresh carrots are washed, peeled, steamed in a closed kettle, sieved in a steam atmosphere, canned and processed as described for Stokely's Strained Green Beans, (THE JOURNAL, May 26, 1934, p 1763).

#### Analysis (submitted by manufacturer) —

	per cent
Moisture	89.7
Total solids	10.3
Ash	0.9
Sodium chloride	0.3
Fat (ether extract)	0.04
Protein (N × 6.25)	1.1
Reducing sugars as dextrose	3.0
Sucrose (copper reduction method)	2.2
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	7.5
Alkalinity number (cc normal acid per gram ash)	8.1
pH	5.1

Calories—0.3 per gram 8.5 per ounce

*Vitamins*—The natural vitamin content is retained in large measure in the manufacturing process by the use of equipment and procedure which exclude incorporation of air, the vegetable material is exposed to steam only.

*Claims of Manufacturer*—Supplementary to the infant milk diet, and valuable for children and adults on soft diets. Has smooth consistency and supplies desirable bulk without roughness. The straining renders the nutrient content readily available for digestion. Scientifically prepared to retain in high degree the natural flavor, mineral and vitamin values. Seasoned to bring out full flavor and packed in enamel lined cans. Requires only warming for serving.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 21, 1934

## RATIONAL DIETARY ADVICE

In the knowledge of nutrition there have been great advances of late, which are destined to have an important influence on practical dietetics and dietotherapy, but the responsibility—and the opportunity—for promoting, expounding and applying the novelties have been left largely in the hands of nonmedical persons. Many of the latter are well tutored, understanding students of the science of nutrition and have proved themselves to be capable in leadership. This is true of many of the devotees of modern home economics. On the other hand, the quack and even the well meaning faddist have been quick to seize the opportunities that a more critical medical attitude would tend to thwart. Consequently, as a result of the propaganda of various food faddists, commercial or otherwise, Bogert<sup>1</sup> points out, competent and sane advice about food has been a good deal discredited, since the average person does not appear to be able to discriminate between those who know what they are talking about and those who do not. A great many people therefore attach themselves, Bogert adds, to one of the following groups: (1) those who pooh-pooh all advice about diet and eat whatever they want with indifference or with defiance, (2) those who become overanxious concerning food and often overcredulous as to food theories, so that they try all the advice they can get, either at one time or in series, ending up in a sad state of mental confusion, and (3) those who become zealots, adopting some particular food fad and sticking to it with a perseverance that would be admirable in a better cause.

One of our contemporaries<sup>2</sup> has incriminated the physician to some extent for the sorry situation that prevails. The practice of medicine has always been rife with ideas, fads and fancies about diet. This was true of the medicine of the ancients, the tribal witch doctors and the American Indian medicine men. While simple concoctions of herbs, berries, roots, leaves and

flowers characterized the earlier attempts at nutritional therapy, extreme complexity marks present practices because of the many discoveries in the science of nutrition and the resultant stimulation of food fads and misconstrued theories that defy extermination. The physician, since his advice carries weight with his patients, has been blamed not only for the perpetuation of many old ideas about nutrition but also for the adoption of many of the present unsound dietary practices and food fads. Among the topics for criticism are the unwarranted attacks on meat because it is "hard on the kidneys," the "magic password autointoxication," and the "psychically pandemic acidosis."

To combat the unfortunate situation that has been described, the *Journal of the American Dietetic Association* offers a constructive plan. It suggests that occasional joint meetings of physicians, especially internists, together with dietitians, nurses and biochemists, and physiologists who may be interested, should promote the health dissemination of the newer knowledge of nutrition. Then the essentials for the foundation of a normal diet for persons in good health, and the requisite changes for persons with various illnesses, would become better known to all physicians, nurses and dietitians. Scientific articles on nutrition should replace the syndicated food fad columns in daily papers and discourage the adoption of fanatical and pseudoscientific diets.

## STEROLS IN MILK

Milk possesses a unique value in nutrition. An ideal food for the infant, it still remains the cornerstone around which dietaries are effectively built long after the demand for increased energy requires the replacement of part of the liquid milk with foods of greater caloric value. Chemical analysis has shown that proteins, fat, carbohydrate and salts are to be found in milk, and nutritional studies have demonstrated that these constituents together with the contained vitamins are peculiarly valuable in promoting growth and in maintaining physiologic well being. In line with the current tendency to examine the possible nutritive value of both organic and inorganic constituents present in food materials in mere traces, milk has recently been studied anew by methods not ordinarily applied to food analysis. Thus, Blumberg and Rask,<sup>1</sup> using the spectrograph, studied the ash of nineteen samples of milk, the spectrum of the ash was photographed and the presence of the elements detected by searching for their "raies ultimes" on the spectrogram. In addition to the calcium, phosphorus, magnesium, potassium and sodium present in considerable concentrations, traces of barium, boron, copper, iron, lithium, rubidium, strontium, titanium and zinc were found. Again in subjecting the fatty acids of butter fat to examination for linoleic and

<sup>1</sup> Bogert, L. Jean. *Nutrition and Physical Fitness*. Philadelphia: W. B. Saunders Company, 1931.  
<sup>2</sup> Too Much Acid. editorial. *J. Am. Dietet. A.* 9: 498 (March) 1934.

<sup>1</sup> Blumberg, Harold and Rask, O. S. *J. Nutrition* 6: 285 (May) 1933.

UNIVERSITY OF WASHINGTON  
SCHOOL OF NURSING  
HARBORVIEW DIVISION.  
EDITORIALS

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hmoenic acids, Eckstein<sup>2</sup> has found a concentration of 0.21 and 0.12 per cent, respectively, for these compounds. If, as it appears, these fatty acids are "essential" in the nutritional sense, there is here another explanation for the unique food value of milk. There is thus slowly accumulating information on the finer details of the composition of milk, which in its fulfillment will doubtless explain much of the recognized excellence of this fluid from the point of view of nutrition. One commentator<sup>3</sup> has referred to this growing situation as the challenge of nutrition to the chemist.

A recent contribution deals with the cholesterol content of milk. Ansbacher and Supplee<sup>4</sup> were led to undertake this investigation because of the growing importance of the lipids, notably the sterols. It is well known that ergosterol, one of the sterols, is endowed with marked antirachitic properties when irradiated with ultraviolet energy and, as this sterol usually accompanies cholesterol in nature, the determination of the distribution of the latter lipid in milk might have considerable importance in elucidating the mechanism whereby both liquid and dried milk is rendered antirachitic by irradiation. As might be expected, the butter fat fraction of the milk contained the greatest concentration of sterol, about 0.3 per cent, however, it is significant that the butter fat did not contain all of the sterol in the milk. The skim milk, whey and casein all had sterol but the lactalbumin showed 0.18 per cent, more than half the concentration of the butter fat. It was observed that the sterol combined with the lactalbumin is more constant than that of the other milk constituents, indeed, the sterol of the whole milk seems to be independent of the fat content.

Previous studies have demonstrated that butter fat on irradiation with ultraviolet energy becomes active in curing rickets. Ansbacher and Supplee subjected a suspension of lactalbumin to similar irradiation and demonstrated that the sterol combined with this protein could be thus rendered antirachitic. These investigators are inclined to view the sterol component as the so-called prosthetic group of the protein, much as is nucleic acid in nucleoprotein and hematin in hemoglobin. The lipoprotein group has never been well defined, the sterol-lactalbumin combination is one of several recently described substances that are lending increased biochemical significance to this group of compound proteins.

A recent comparison<sup>5</sup> of several therapeutic agents on the basis of their efficacy in curing infantile rickets has indicated that, when judged on the number of rat units of vitamin D, irradiated milk was superior to milk from cows fed irradiated yeast, to cod liver oil and to viosterol. It appears that the effect of irradiating milk with ultraviolet energy is to produce a product

of peculiar efficacy in the treatment of human rickets. It is known that such treatment of ergosterol alone yields a series of products, one of which is vitamin D. The foregoing studies on the sterols in milk suggest that the combination of provitamin D with the milk proteins may enhance the usual effect of irradiation on this sterol.

#### EXPERIMENTAL ELEPHANTIASIS

The history of medicine shows that, whenever it has been possible to imitate experimentally the phenomena of human disease, the way has usually been paved for a better understanding of the malady and often a greatly improved facility of diagnosis, prognosis and treatment. Perhaps recent investigations will initiate some progress in present conceptions of lymphedema and elephantiasis. As far as the latter belongs to the acquired type, lymph stasis due to various etiologic agents has been assumed to play the most important part. The majority of the cases in the tropics, where elephantiasis occurs as an endemic disease, are due to filariasis caused by infestation with *Wuchereria bancrofti*. In temperate climates the same end results seem to follow a variety of experiences. Heretofore attempts to produce lymph stasis and permanent lymphedema in extremities has not been especially successful, presumably owing to the readiness with which somehow a restoration of lymph drainage occurs.

Investigations<sup>1</sup> at the Harvard School of Public Health in Boston seem to have been more fortunate. By successive cannulation of lymphatic trunks of the extremities of animals, followed by injections of crystalline silica and quinine hydrochloride, obstruction finally occurred. Lymphedema developed after such injections and eventually became pronounced. The protein content of the edema fluid rose slowly to above 4 per cent. With the establishment of lymphedema the subcutaneous connective tissue increased and the leg gradually became elephantiac. It is reported that, when the lymphatics are blocked in such experiments water and salts continue to pass in and out of blood capillaries but extravascular protein cannot move from the part except by diffusion of the tissue fluid through the tissue spaces. On first establishment of lymph block, these spaces are extremely small and diffusion through them is slow, but as the part enlarges the tissue spaces become quite noticeable even though there has been large new formation of fibrous tissue. Under these circumstances the tissue follows gravity rapidly. One of the first effects of lymphatic block is the appearance of varicose lymphatic trunks. These are seen as hugely dilated elements. When cannulated centrally lymph flows out of the cannula plentifully, indicating the incompetence of the valves. As blockage persists, lymph capillaries in the skin and subcutaneous

<sup>2</sup> Eckstein H. C. *J. Biol. Chem.* **103** 135 (Nov.) 1933.  
<sup>3</sup> Mendel L. B. Address to American Association for the Advancement of Science, Northeastern Section, Boston, Dec. 29, 1933.

<sup>4</sup> Ansbacher S. and Supplee G. C. *J. Biol. Chem.* **105** 391 (May) 1934.

<sup>5</sup> Hess A. F. and Lewis J. M. An Appraisal of Antirachitics in Terms of Rat and Clinical Units. *J. A. M. A.* **101** 181 (July 15) 1933.

<sup>1</sup> Drinker C. K., Field Madeline E. and Homans John. The Experimental Production of Edema and Elephantiasis as a Result of Lymphatic Obstruction. *Am. J. Physiol.* **108** 509 (June) 1934.

tissue dilate widely and their walls become somewhat thickened

According to the Harvard physiologists, overgrowth of connective tissue and dilatation and thickening of lymphatic capillaries begin to be noticeable when lymphedema has been present for two months. These changes are those underlying elephantiasis. It is well known that in the presence of chronic lymphatic obstruction the part involved becomes notably susceptible to infection. Drinker and his associates<sup>1</sup> aver that, whatever may be the effect of acute lymphatic block in restraining acute infection, there can be no doubt that when a part loses lymphatic drainage permanently, so that with each period of activity there is no movement of fluid from the tissues to the lymphatics out of the region, there develops a surprising susceptibility to streptococcal infection. Periods of repeated infection intensify the changes in the tissue fluid which result from lymphatic obstruction alone, and it is not surprising, Drinker adds, that they have been considered the underlying cause of elephantiasis. They are not the essential cause, but they do accelerate the new growth of connective tissue.

## Current Comment

### SUDDEN DEATH AFTER INJECTION OF HUMAN SERUM

While normal human serum is presumably the least toxic therapeutic agent that can be used in attempting passive immunization of children, the opinion that such serum can be injected without danger into children is not justified by clinical experience. European clinicians<sup>1</sup> report that the administration of human serum to children under 14 years of age is sometimes followed by severe or even serious serum disease in approximately 3 per cent of the cases. The term "auto-anaphylaxis" has been suggested as a descriptive title for this type of serum shock. The term "iso-anaphylaxis," recently suggested,<sup>3</sup> is, however, more nearly in accord with recent immunologic nomenclature. Assuming that the adult human serums are selected and prepared by competent clinicians and laboratory technicians so as to rule out all dangers from the selection of pathologic serums or from subsequent bacterial contamination, the most obvious explanation of iso-anaphylactic toxicity would be that it is due to physical or chemical denaturation of normal serum proteins. This is probably not the full explanation, however, for investigators<sup>4</sup> report equally serious serum disease following the injection of absolutely fresh, nonheated and demonstrably sterile normal human serum, to which antiseptic or chemical preservatives had not been added. A second obvious explanation would be to assume that the iso-allergic toxicity is due to circulating food proteins<sup>5</sup> or to other circulating

environmental allergins,<sup>6</sup> to which the children receiving the serum had a hereditary or acquired specific sensitivity. If this is so, one evident precaution would be to withdraw no serum from donors until at least eight hours had elapsed after the last protein meal. Less plausible explanations are based on the still hypothetical differences in tissue and serum specificity between young children and adults,<sup>7</sup> on the possibility of allergic shock due to the use of adult serums of an alien blood group and on the conceived possibility of "reversed anaphylaxis."<sup>8</sup> The latter would be due to the presence of specific or nonspecific "antibodies" in many normal adult circulations<sup>9</sup> against antigens conceivably present in certain children. Thus far, but one case of iso-allergic serum disease has been reported in American literature.<sup>10</sup> There are several still unreported cases, however, in the recent California experience. No fatality is as yet on record directly attributable to iso-anaphylactic shock.<sup>11</sup>

### FACTORS IN THE REGENERATION OF HEMOGLOBIN

For more than a decade it has been evident that iron is not always the only factor that needs to be supplied to the body in conditions that call for regeneration of the blood cells. Obviously the ferruginous blood pigment hemoglobin cannot be synthesized in the absence of available iron, which is one of its component elements. It has been established since 1920 that liver contains abundant material, still undetermined in character, that can be converted by anemic animals into hemoglobin and red blood cells. One might well expect, therefore, that in protracted anemia, such as can be produced by repeated hemorrhage, the rich store of hemoglobin production factors in the liver of the affected individual would be greatly diminished. The recent studies of Whipple and Robscheit-Robbins<sup>1</sup> at the University of Rochester School of Medicine and Dentistry afford the surprising information that such depletion is by no means a regular occurrence. Thus it was noted that anemic horse liver contains no less of the hemoglobin production factors than do the normal controls. Evidently the normal liver guards its reserve of hemoglobin production factors with the utmost care, and repletion must be prompt and effective. In human cases of pernicious anemia and aplastic anemia, Whipple and Robscheit-Robbins have reported a surplus accumulation of these hemoglobin producing factors in the liver, due possibly to the lack of outlet for this material, as the body cannot fabricate red cells due to a deficiency factor (pernicious anemia) or to lack of red marrow (aplastic anemia). Only in severe liver disease with signs of failure of liver func-

6 Cohen M B, Ecker E E, Breitbart, J R and Rudolph J A  
J Immunol 18 419 (June) 1930

7 Picado C Compt rend Soc de biol 102 631 (Nov 29) 1929

8 Opie E L J Immunol 17 329 (Oct) 1929

9 Friedberger E, Bock G, and Furstenheim A Ztschr f Immunitätsforsch 64 294 1930

10 Dooley Parker Serum Disease J A M A 99 1778 (Nov 19) 1932

11 The recent California death was due to a grossly incompetent technician the injected serum containing a highly virulent strain of Staphylococcus hemolyticus. To obviate this danger all California laboratories are now under effective control of the state board of health.

1 Whipple G H and Robscheit Robbins F S Hemoglobin Production Factors in the Anemic Horse Liver Am J Physiol 108 270 (May) 1934

1 Netter A Compt rend Soc de biol 78 505 1915

2 Nelli A R Rinasc med 7 523 (Nov 1) 1930

3 Manwaring W H California & West Med to be published

4 Marie P L Compt rend Soc de biol 79 149 1916

5 Donnelly H H J Immunol 19 15 (July) 1930

tion did they find a significant fall in the concentration of hemoglobin production factors in the human liver. This does not mean that the store of iron is not depleted in the anemic individuals. Whipple and Robschert-Robbins venture to argue that the liver is busy with the manufacture of parent hemoglobin building material and that during moderately severe anemia caused by loss of blood this mechanism is accelerated and no depletion of reserve is permitted in spite of a severe drain from loss of hemoglobin by bleeding. In fact, if one considers the observation that the iron content is much decreased in these anemic livers and that iron has a definite influence on hemoglobin regeneration, they add, one may properly hold that the anemic liver actually contains more of the organic factors that promote hemoglobin regeneration than does the non-anemic control liver. One therefore may be driven to the admission that the liver in moderate anemia (compared with controls) does contain much less iron and therefore more organic factors that promote hemoglobin regeneration.

## Association News

### THE ATLANTIC CITY SESSION

#### Eighty-Sixth Annual Session to Be Held in June

The Eighty-Sixth Annual Session of the American Medical Association will be held in Atlantic City N. J., June 10 to 14, 1935.

### MEDICAL BROADCASTS

#### Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, Central daylight saving time. The speaker will be Dr. W. W. Bauer. The next three broadcasts will be as follows:

July 26	The First Month
August 2	Dog Days
August 9	Death Angel

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Personal**—Dr. Charles A. Mohr, Mobile, resigned as health officer of Mobile County, effective July 1.—Dr. Charles A. Thigpen, Montgomery, recently received the honorary degree of doctor of laws from the University of Alabama.—Dr. Robert L. Allen has assumed his duties as medical officer in charge of the marine hospital at Mobile, succeeding Dr. William S. Bean Jr.

### ARKANSAS

**Society News**—The Ouachita County Medical Society was recently addressed in Camden by Drs. Henry F. DeWolf on "Lymphogranuloma Inguinale", Ernest H. White, "Pituitrin in Obstetrics" and Daniel R. Hardeman, Little Rock, "Some Phases of Intravenous Medication".—At a meeting of the Madison County Medical Society in Huntsville, June 5, speakers were Drs. William R. Brooksher, Fort Smith, value of the roentgen ray to the general practitioner, Sidney J. Wolfertmann, Fort Smith, bedside diagnosis of diseases of the upper abdomen, and Frank N. Gordon, Fayetteville, policies of the

veterans' administration.—The Tri-County Clinical Society was addressed in Hope, recently, by Dr. William S. Kerlin on "Angina Pectoris", Forno M. Talbot, D.D.S., "Dietary Deficiencies as Related to Dental Diseases," and Dr. Douglas L. Kerlin, Shreveport, treatment of the psychoneuroses.—Speakers before the Ninth Councilor District Medical Society at Eureka Springs, June 5, included Drs. Milton C. John, Stuttgart, on "Office Treatment of Hemorrhoids", Ira F. Jones, Fort Smith, "Intestinal Obstruction," and Fergus O. Mahony, El Dorado, "The Practitioner of Medicine in this Changing World."

### CALIFORNIA

**Department of Legal Medicine Created**—The College of Medical Evangelists, Los Angeles, has recently created a department of cultural and legal medicine. Dr. Percy Tilson Magan, professor of public health, has been appointed to head the new department.

**Changes at Stanford**—Stanford University School of Medicine, San Francisco, announces the following changes on its faculty, effective September 1:

Dr. Frank H. Rodin promoted to assistant clinical professor of surgery (ophthalmology).

Dr. Alfred Baker Spalding, emeritus professor of obstetrics and gynecology.

Dr. Dohrmann Kaspar Pischel, associate clinical professor of surgery (ophthalmology).

**Committee to Study Health Insurance**—At the recent annual convention of the California Medical Association, a committee was appointed to make a survey of health insurance. Members are Drs. Alson R. Kilgore and Rodney A. Yoell, San Francisco, Robert A. Peers, president-elect of the California Medical Association, William R. Molony, Los Angeles, president of the state board of medical examiners, and Harry H. Wilson, Los Angeles, secretary, Los Angeles County Medical Society. Dr. Peers, who is going abroad soon, is expected to study health insurance in Europe.

**Death from Rabies**—The first death from rabies in a human being in California in two years occurred in April in a child 3 years of age. Bitten on the right cheek by a stray dog, March 30, the child was taken at once to a clinic. Antirabic treatment was started within three hours after the child had been bitten and twenty-one doses were administered. On the twenty-second day, one day after the treatment had been completed, symptoms of rabies developed. The child died on the third day. The diagnosis was confirmed by finding characteristic intracellular Negri bodies in the brain. Other children were bitten by this dog, which was located and placed under observation. It died four days later.

### CONNECTICUT

**Personal**—Dr. Samuel C. Harvey, professor of surgery, Yale University School of Medicine, has been elected president of the Association of the Yale Alumni in Medicine.—Dr. Harvey Cushing, New Haven, was awarded an honorary degree by Syracuse University, Syracuse, N. Y., June 4.

**Public Health Meeting**—The Connecticut Public Health Association held its annual meeting at the Laurel Heights State Tuberculosis Sanatorium, Shelton, June 27, under the presidency of Dr. John L. Rice, now health officer of New York. Dr. Edward J. Lynch, superintendent of the sanatorium, gave the address of welcome.

**Dr. Greenburg Named Acting Health Officer**—Dr. Leonard Greenburg, assistant clinical professor of public health at Yale University School of Medicine, has been appointed acting health officer of New Haven. Dr. Greenburg succeeds Dr. Herbert R. Edwards, who is now directing the tuberculosis program in New York City under Health Commissioner John L. Rice, formerly health officer of New Haven. In 1923 Dr. Greenburg received the degree of doctor of philosophy from Yale University and in 1930 the degree of doctor of medicine. He was a member of the U. S. Public Health Service from 1918 to 1932.

### DISTRICT OF COLUMBIA

**Society News**—Dr. Elizabeth A. Kittredge was elected president of the Women's Medical Society of the District of Columbia at its recent annual meeting. Dr. Edith Seville Coale read a paper on "Undulant Fever".—Dr. Sterling Ruffin was recently elected president of the Washington Heart Society and Dr. James W. Esler, secretary.

**Personal**—Georgetown University conferred the honorary degree of doctor of laws on Major Edgar Erskine Hume at its annual commencement June 11. Dr. Hume is librarian of the Army Medical Library.—Alice C. Evans, bacteriologist

of the U S Public Health Service, received the honorary degree in medicine from the Woman's Medical College of Pennsylvania, Philadelphia, June 6 —Dr James P Leake, senior surgeon, U S Public Health Service, has been relieved from duty in the division of sanitary reports and statistics and assigned to duty in the division of scientific research, effective June 23

**Health at Washington**—Telegraphic reports to the U S Department of Commerce from eighty-six cities, with a total population of 37 million, for the week ended July 7, indicate that the highest mortality rate (188) appears for Washington and for the group of cities as a whole, 108. The mortality rate for Washington for the corresponding period last year was 145, and for the group of cities, 96. The annual rate for eighty-six cities for the twenty-seven weeks of 1934 was 12 as against a rate of 115 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

## ILLINOIS

**Society News**—Speakers before the Whiteside County Medical Society in Prophetstown, June 26, were Drs Walter H Nadler and Merritt Paul Starr, Chicago, on diabetes and control of edema in congestive heart failure by diuresis, respectively.

### Chicago

**Society News**—Dr Charles H Phifer was installed as president of the Chicago Medical Society at its recent annual election, and Dr Julius H Hess was named president elect —Dr Edward L Cornell was named president elect of the Chicago Gynecological Society, June 22, and Dr Irving F Stein was installed as president. Dr Charles Edwin Galloway is secretary.

**University News**—Dr Harry L Huber has been promoted to associate clinical professor of medicine, Division of Biological Sciences, University of Chicago, effective July 1. Dr Rudolph Schindler, Munich, has been appointed visiting professor of medicine in the division —Dr Albert E Luckhardt was recently appointed associate clinical professor in the department of medicine at Loyola University School of Medicine.

## INDIANA

**Personal**—Dr Charles P Emerson, formerly dean Indiana University School of Medicine, was awarded the honorary degree of doctor of science by Amherst College, Amherst, Mass., his alma mater —Dr Leslie M Jones has been appointed superintendent of Epworth Hospital, South Bend effective June 11.

**University News**—A collection of thirteen medical works written from seventy-five to a hundred years ago, has been contributed to the Indiana University Medical Center Library by Dr Stephen B Sims, Frankfort —The departments of occupational and physical therapy at the Indiana University Medical Center, Indianapolis were recently consolidated to promote efficiency and economy.

**Outbreak of Typhoid**—Eleven cases of typhoid were reported in an outbreak in New Bethel, June 20. Eight of the eleven persons attended a public dinner in the town, May 8. Dr Oscar D Ludwig, health commissioner of Marion County, was of the opinion that a carrier was responsible, although at the time of his report a definite source for the outbreak had not been determined. New Bethel has a population of about 350.

## IOWA

**Personal**—Dr John H Peck, Des Moines, has resigned as president of the Iowa Tuberculosis Association because of his increasing work as medical director of the organization. T P Eslick, attorney, was elected president for the interim until the annual meeting of the association in Cedar Rapids in September —Dr Frank Harold Reuling, Waterloo, received the merit award of Northwestern University Alumni Association on 'illumination night' in Evanston, Ill., preceding the commencement exercises June 15. The award is given annually to alumni for 'worthy achievement which has reflected credit upon their alma mater'.

**Twin Lakes Assembly**—A dry diagnostic clinic constituted the program of the twelfth annual assembly of the Twin Lakes District Medical Society at Burns' Alhambra Pavilion, Twin Lakes, Rockwell City, June 21. A talking motion picture on 'Forceps Delivery,' made by Dr Joseph B De Lee, Chi-

cago, opened the program. Dr Edward Starr Judd, Rochester, Minn., conducted a clinic in general surgery, Dr Karl A Menninger, Topeka, Kan., neuropsychiatry, Dr Adolph Sachs Omaha, heart disease, and Dr Henry F Helmholtz, Rochester, Minn., pediatrics. An address was delivered by Dr Edward H Skinner, Kansas City, on "Collective Individualism versus Regimentation in Medical Practice." Dr William M Shipley, Ottosen, was elected president at this session, and Dr Paul W Van Metre, Rockwell City, reelected secretary. The Twin Lakes District Medical Society is composed of the medical societies of Calhoun, Carroll, Greene, Hamilton, Humboldt, Ida, Sac, Kossuth, Pocahontas, Webster and Wright counties.

**Society Conducts Laboratory Course**—The speakers' bureau of the Iowa State Medical Society is conducting a laboratory course in Des Moines, July 16-28. Round table discussions are led by the following physicians:

Clarence W Baldrige Iowa City and Frederick H Lamb Davenport Hematology  
Julius S Weingart Des Moines and Milford E Barnes Iowa City Immunology  
Daniel J and Mrs Glomset Des Moines Blood Chemistry  
John L Kestel Waterloo Urinalysis  
Irving H Borts Iowa City Bacteriology  
John T Strawn Des Moines Gastric Analysis and Stool Analysis  
Frank P McNamara Dubuque Tissue Examination  
Herbert W Rathe Waverly Metabolism  
Benjamin F Wolverson Cedar Rapids Electrocardiography  
Harold Dabney Kerr Iowa City and Thomas A Burcham Des Moines Roentgen Rays

Laboratory demonstrations in these subjects are also a part of the course.

## MICHIGAN

**Society News**—Dr John E Gordon gave a paper before the Muskegon County Medical Society in Muskegon, June 22, on "Comparison of American and European Practice in Control of Communicable Diseases." —At a meeting of the Saginaw County Medical Society, June 19, Dr William S O'Donnell, Detroit, spoke on nephritis in children —Dr Hans von Hattingberg, professor of psychotherapy, Berlin University, addressed the Detroit Society of Neurology and Psychiatry, June 28, on "The Psychotherapeutic Movement."

**Faculty Changes at State University**—Announcement is made of the following promotions on the faculty of the University of Michigan Medical School, Ann Arbor, effective July 1:

Dr John Morris Dorsey associate professor of psychiatry  
Dr Cameron Haight assistant professor of surgery  
Dr Harold William Jacox assistant professor of roentgenology  
Dr Vincent C Johnson assistant professor of roentgenology  
Dr Edgar A Kahn associate professor of surgery  
Dr Konstantin Lowenberg assistant professor of neuropathology in psychiatry  
Dr Eugene Breckenridge Potter associate professor of surgery

## MINNESOTA

**Personal**—Dr Edward C Rosenow, Rochester, received the honorary degree of doctor of science from Carleton College, Northfield, June 11, and Dr Donald C Balfour, Rochester, the degree of doctor of laws —Dr Robert B J Schoch has been appointed city health commissioner of St Paul, he was chief deputy coroner of Ramsey County from August 1919 until he resigned in 1926 —Dr Charles W Moore, Eveleth, was recently the guest of honor at a testimonial dinner given by professional and business friends —Dr Charles H Mayo, Rochester, Minn., received the merit award of the North western University Alumni Association on 'illumination night' in Evanston, Ill., preceding the commencement exercises, June 15. The award is given annually to alumni for "worthy achievement which has reflected credit upon their alma mater."

## MISSISSIPPI

**Personal**—Dr Hugh L McKinnon has been appointed superintendent of the Mississippi School and Colony for Feeble minded, Ellisville, succeeding Dr Hubert H Ramsay —Dr Russell R Welch, assistant superintendent of the state insane hospital at Jackson, has been named superintendent of East Mississippi Hospital, Meridian, succeeding Dr Matthew J L Hoyer.

**County Societies Merge**—The consolidation of the Clarksdale and Six Counties Medical Society and the Delta Medical Society culminated in a meeting in Clarksdale recently. The combined group will be known as the Delta Medical Society. Dr Leon H Brevard Dundee, was named president to take office January 1. Until that time Dr Richard C Smith, Drew, outgoing president of the old Delta Medical Society, will serve. Dr Frank M Acree Jr, Greenville, is the secretary. Representative committees of the two societies approved this merger in December at which time the Clarksdale group

had already voted for the union. However, no further action was taken until the recent meeting of the Delta society. Three meetings a year will be held at Clarksdale, Greenville and Greenwood in rotation.

### MISSOURI

**Personal**—Dr John W. Vaughan recently completed fifty years in the practice of medicine, all of which have been spent in St. Louis—Dr David P. Barr, St. Louis, sailed for Melbourne, Australia, June 16, where he will give a course of lectures on diseases of the endocrine glands at the University of Melbourne—Dr Bransford Lewis, St. Louis, was presented with a bronze plaque at the annual banquet of the American Urological Association in session at Atlantic City in recognition of his services in editing "The History of Urology"—Dr Hugo Ehrenfest was recently promoted to professor of clinical obstetrics and gynecology at Washington University School of Medicine, St. Louis.

### NEBRASKA

**Society News**—The obstetric department of the University of Nebraska College of Medicine has created an Oliver Wendell Holmes trophy to be awarded annually to the counselor district showing the best record in obstetric mortality—Speakers at a meeting of the Sixth Councilor District Medical Society, David City, June 7, were Drs Edwin Davis, on "Prostatic Obstruction", Rodney W. Bliss, Omaha, The Kidney in Prostatic Obstruction, and Warren Thompson, Omaha, "The Heart in Prostatic Hypertrophy".

### NEW MEXICO

**Personal**—It is reported that Dr Frank S. Fellows of the U. S. Public Health Service, who is now medical director of the Indian Bureau in Alaska, has been transferred to the southwest with headquarters in Albuquerque, to succeed Dr Langdon R. White, who has been transferred to the territory surrounding Minneapolis. The southwest territory includes Arizona, New Mexico and southern Colorado.

**Measles Epidemic at Jemez**—Twenty children died in an epidemic of measles, which began about June 1 in the Indian pueblo of Jemez and had attacked 130 of the 147 children in the pueblo by June 28, according to newspaper reports. A temporary hospital was set up by physicians and nurses of the Indian Medical Service but some of the parents refused to allow their children to be taken to the hospital. It was said that none of those who were properly cared for died. The population of the pueblo is about 650.

### NEW YORK

**State Stops Distribution of Toxin-Antitoxin**—The division of laboratories and research of the state department of health has discontinued distribution of diphtheria toxin-antitoxin and will hereafter provide only toxoid. Distribution of toxoid was begun two years ago, but toxin-antitoxin has been supplied on request. Accumulated experience is considered to have demonstrated the superiority of toxoid and requests for the older material have diminished so that its preparation is no longer warranted, the department announces. Immunity is more speedily acquired with toxoid and the percentage of persons immunized is greater and in addition it does not contain horse serum, to which many persons are hypersensitive.

**Dr Davenport Retires**—Charles B. Davenport, Ph.D., for thirty years director of the Station for Experimental Evolution of the Carnegie Institution, Cold Spring Harbor, has announced his retirement. Albert T. Blakeslee, Ph.D., assistant director, has been appointed his temporary successor. Dr Davenport served as associate professor of zoology at the University of Chicago until his appointment to the Carnegie post in 1904. In 1910 he became director also of the Eugenics Record Office at Cold Spring Harbor. Dr Davenport has served as president of the American Society of Zoologists, the Eugenics Research Association, the Galton Society and the International Federation of Eugenics Organizations and as vice president of the American Association for the Advancement of Science, the American Society of Naturalists and the National Institute of Social Sciences. He will continue his research privately with headquarters at the Eugenics Record Office according to the New York Times.

### New York City

**Scarlet Fever Isolation Period Reduced**—Uncomplicated cases of scarlet fever may now be released from isolation after twenty-one days as a result of an order recently issued by the health department. A trial of the twenty-one day isolation period was inaugurated in Brooklyn in 1932,

while in other boroughs uncomplicated cases were held till the thirtieth day. Study of the results of this test showed that the number of secondary cases from the reduction was so small that this disadvantage was outweighed by the advantages of shorter isolation. Complicated cases will be subject to the same regulations as before.

**Advisory Obstetric Council Appointed**—Dr John L. Rice, commissioner of health, has appointed a council of obstetricians and gynecologists to make a complete study of the maternal and infant mortality situation in the city. The new council will study institutional obstetrics, including a survey of facilities for maternity cases, with special reference to environment, equipment and adherence to accepted hospital standards, organization and control of hospital staffs, proprietary hospitals and nursing homes, prenatal care services throughout the city, the status, control and teaching of midwives, and the value of confinement at home and its limitations and methods for instruction of the public in adequate maternity care. Dr Rice is chairman of the council, Dr Alfred E. Shipley vice chairman and Dr George W. Kosmak secretary. Members are the following physicians:

Donald E. Law	Daniel V. Catalano	John H. Telfair
Benjamin P. Wat on	Joshua Ronsheim	Arthur C. Butts
George Gray Ward	Alfred C. Beck	Harry P. Mencken
Henricus J. Stander	O. Paul Humpstone	George J. J. Lawrence
Frederick C. Holden	Harvey B. Matthews	John P. C. McManus
Charles A. Gordon	Harry Aranow	

**Vacancy in Health Department**—The Municipal Civil Service Commission of New York invites applications for the position of director of district health administration until 4 p. m., August 2. Application blanks will be mailed on request, provided 3 cents in postage stamps accompanies the request. Applicants who are summoned for the examination will be required to pay a fee of \$6.50 before taking the first assembled test. The examination is open to all citizens of the United States more than 21 years old and the requirement that every application must bear certificates from four persons living in New York is waived for persons living outside the state, who must, however, present such certificates from persons engaged in business or resident elsewhere. Candidates will be graded on their experience, a written test on the duties of the position and an oral test. Those who receive a passing mark in experience will be summoned for the duties test, which will be held only in New York. Candidates must be graduates from approved medical schools and must possess licenses to practice medicine. They must have had at least six years of medical experience, three years of which shall have been in responsible positions concerned with public health administration. At the time of the written test each candidate must present his license, and those who live outside New York must have their licenses endorsed by the board of regents of the University of the State of New York before their names can be certified for appointment. The position includes administrative charge and executive supervision of district health center administration, direction of activities of medical inspectors and other employees, lecturing and writing concerning activities of the department, contact with department officials, the public and cooperating agencies and keeping of records of the division. The salary is \$6,500 a year.

### NORTH CAROLINA

**Society News**—Among the speakers at the spring meeting of the Tenth District Medical Society in Marion May 16, were Drs Frederic M. Hanes, Durham, on "Intracranial Hemorrhages" and Fred E. Motley, Charlotte, on sinusitis.

### OHIO

**Appointments to Medical Board**—Dr John H. J. Upham, Columbus, chairman board of trustees, American Medical Association, was recently reappointed a member of the State Medical Board of Ohio for the fourth time. Dr Louis T. Franklin Chillicothe was appointed to succeed Dr John Stewart Hagen Cincinnati.

**Society News**—Speakers at a meeting of the Adams County Medical Society in Batavia, June 20, were Drs Parke G. Smith Cincinnati on "Anatomy of the Prostate Mechanism of Prostate Obstruction and Present Status of Prostatic Surgery," Otto J. Seibert, Cincinnati, "Cancer of the Breast" and Carl Minning Williamsburg, "Gonorrhea in the Male"—Dr Cecil Striker Cincinnati, addressed the Darke County Medical Society Greenville May 18 on treatment of diabetes—Dr Clement L. Jones Springfield addressed the Miami and Shelby County Medical Societies June 7 in Sidney on angina pectoris—Dr James R. Tillotson Lima, discussed



fractures at a meeting of the Hardin County Medical Society, Kenton, May 17—Dr Charles L. Brown, Ann Arbor, Mich., addressed the Mahoning County Medical Society, Youngstown, June 19, on "Diagnostic Survey and Medical Management of Chronic Gallbladder Disease"—Dr John H. J. Upham, Columbus, addressed the Stark County Medical Society, Alliance, in May, on "Modern Aspects of Heart Disease in Middle Age"—Dr Harold K. Shawan, Detroit, addressed the Marion Academy of Medicine, Marion, June 5, on "Cranio-cerebral Injuries" and "Surgical Management of the Toxic Goiter Case"

### OKLAHOMA

**University News**—Dr Rufus Qutman Goodwin was recently promoted to assistant professor of medicine at the University of Oklahoma School of Medicine, Oklahoma City, Dr Raymond Lester Murdock to associate professor of surgery, and Dr Herbert Dale Collins to assistant professor of surgery

### OREGON

**Society News**—Speakers at the annual meeting of the Southern Oregon Medical Society in Medford, May 8, included Drs George W. Swift, Seattle, on "Treatment of Head Injuries", Ralph A. Fenton, Portland, "Early Diagnosis of Middle Ear and Mastoid Disease," and Albert H. Ross, Eugene, "Protein and Edema"—Dr George I. Hurley, Eugene, addressed the Lane County Medical Society, Eugene, May 17, on "Medical Economics and State Medicine"—Drs Warren B. Penney, Tacoma, Wash., and Thomas M. Joyce, Portland, addressed the Central Willamette Medical Society, Eugene, May 3, on "Cardiac Arrhythmias" and "Treatment of Goiter," respectively—Dr Charles E. Hunt, Eugene, presented a paper before the Portland Society of Obstetricians and Gynecologists, May 23, on "Recent Trends in Obstetric Analgesia"—Dr James E. Campbell, Sutherlin, has been appointed health officer of Douglas County, succeeding Dr Bertram R. Shoemaker, Roseburg

### PENNSYLVANIA

**Fifty Years in Practice**—Dr Alice Rogers Easby, Media, and Dr Florence May Sibley Lee, Haverford, received gold medals at the annual commencement of the Woman's Medical College of Pennsylvania, June 5, in celebration of fifty years of medical practice. They were members of the class of 1884

**Personal**—Dr William L. Estes Sr, Bethlehem, received the honorary degree of doctor of science at the annual commencement of Lehigh University, June 12. Dr Estes lectured on physiology and hygiene at Lehigh from 1883 to 1923—Dr William B. Fulton, Pittsburgh, has succeeded Dr Elizabeth B. Bricker, Litz, as head of the industrial hygiene and sanitation section of the state department of labor and industry, Harrisburg—Dr Henry F. Ulrich has been appointed coroner of Snyder County to succeed the late Dr A. Jerome Hermann, Middleburg

### VIRGINIA

**Personal**—Dr Lawrence T. Price has resigned as professor of clinical genito-urinary surgery at the Medical College of Virginia, Richmond—Dr Albert Eugene Casey of the Rockefeller Institute for Medical Research, New York, has been appointed associate professor of pathology at the University of Virginia School of Medicine

**Society News**—At the quarterly meeting of the Southside Virginia Medical Association in Suffolk, June 12, speakers included Drs Martillus H. Todd, Norfolk, on "Abdominal Emergencies", Thomas Dewey Davis, Richmond, "Diagnosis of Chronic Appendicitis," and Philip Jacobson, Petersburg, "Surgery of the Normal Thyroid"—The Bedford County Medical Society was recently reorganized with Dr Charles H. Bondurant, Bedford, president, and Dr Joseph A. Rucker, Bedford, secretary. At the first meeting speakers were Drs Samuel Beverly Cary, Roanoke on "Transurethral Resection", Collins D. Nofsinger, Roanoke "Diabetes," and Eddie L. Johnson, Bedford "History of Medicine During the Past 125 Years"—Drs James M. Hutcheson and Wilbur R. Bracey, Richmond among others, addressed the Mecklenburg County Medical Society, Clarksville, May 8 on "Cardiac Therapy" and "Cancer of the Lung," respectively—Dr Carrington Williams, Richmond, addressed the Lynchburg Academy of Medicine May 7, on "Lesions of the Stomach"—Dr Wyndham B. Blanton, Richmond, among other speakers, led a discussion of medical economics at a meeting of the Post-Graduate Medical Society of Southern Virginia Farmville May 15

### WISCONSIN

**Society News**—At the tenth annual meeting of the Seventh District Medical Society in Whitehall, May 16, speakers were Drs Elmer L. Sevringhaus, Madison, on "Glandular Therapy", Fred R. Thompson, Rochester, Minn., "Present-Day Management of Prostatic Obstruction", Thomas J. O'Leary, Superior, "Surgery of the Gallbladder," and Joseph G. Mayo, Rochester, "Secondary Anemias." Mr J. George Crownhart, executive secretary, State Medical Society of Wisconsin, also made an address on medical economics—Dr Lawrence V. Littig, Madison was elected chairman of the radiology section of the State Medical Society of Wisconsin at the annual meeting in Janesville in May—Drs Fremont A. Chandler, Chicago, and Joseph W. Gale, Madison, among others, addressed the Ninth Councilor District Medical Society at Stevens Point, May 10, on "Back Injuries, with Special Relation to the Lumbosacral Region" and "Surgical Treatment of Pulmonary Tuberculosis," respectively

### GENERAL

**Dr Kracke Awarded Medal**—Dr Roy R. Kracke, associate professor of bacteriology and pathology, Emory University School of Medicine, Emory University, was awarded the Ward-Burdick Medal of the American Society of Clinical Pathologists at its meeting in Cleveland, June 7-11, for his work on agranulocytic angina. Dr Frederick H. Lamb, Davenport, was installed as president. Dr Foster M. Johns, New Orleans, was named president elect, Dr Benjamin S. Kline, Cleveland, vice president, and Dr Alfred S. Giordano, South Bend, Ind., reelected secretary

**Another Kind of Impostor**—Dr Fred Baker, Point Loma, Calif., recently reported that a young man using the name Walter J. Sherman had approached him asking for money to tide him over the difficulties incident to an automobile mishap. He claimed that he had just graduated from Cornell University Medical School, New York, and was on his way to take his internship in a Seattle hospital when he ran into a sheriff, who arrested him and confiscated his money for bail. He claimed to be a grandson of Mr. Walter J. Sherman, Toledo, Ohio, and wore a Delta Kappa Epsilon pin. Mr. Sherman in a report to Cornell University Medical College states that he has no Sherman grandsons and that this young man is a fraud

**Regulations on Tuberculosis Eradication**—New regulations have been approved by the secretary of agriculture to govern the emergency animal disease eradication program. The first allotment of funds, totaling \$2,000,000, will be used for cattle tuberculosis work alone and will be spread over twenty-five states. The new regulations differ from those used in the regular conduct of the work principally in allowing states to participate in eradication work whether or not they expend any of their own funds for indemnities or for the cost of testing. Payments for cattle found to be tuberculous will be made on the basis of a maximum of \$20 a head of federal money for grade cattle and \$50 for registered pure bred cattle.

**International Congress of Veterinarians**—The twelfth International Veterinary Congress will be held in New York at the Waldorf-Astoria, August 13-18, under the presidency of Prof. E. Leclanche, Paris. Among subjects listed on the program of interest to physicians are research on filtrable viruses, research on contagious abortion, eradication, immunity and protective inoculation against tuberculosis, psittacosis, pasteurization of milk, and unification of methods of meat inspection. Among speakers listed are Dr. Gaston Ramon, assistant director, Pasteur Institute, Paris, Prof. O. Bang, Copenhagen, Denmark, Dr. Charles Guerin, Paris, Prof. G. Forsell, Stockholm, Sweden, Karl F. Meyer, Ph.D., San Francisco, and John R. Mohler, chief, bureau of animal industry, U. S. Department of Agriculture. This is the first congress of its kind to be held outside of Europe. Physicians are eligible to extraordinary membership, the cost of which is \$5 and which includes the complete proceedings.

**Impostor in Texas**—A physician of Midland, Texas, reports that a man claiming to be a Philadelphia physician borrowed money on the strength of a hard luck story and omitted returning it. The man was traveling in a Packard car, with a woman, a little girl and a boy. He said that he had lost his billfold and that he would return the money as soon as he reached El Paso, where he was known. He gave a card on which was printed "Hedrik Von Tromp, M.D., Phone Penn 6780, Physician and Surgeon, 1712 Chester Ave., Philadelphia, Pa." He also wrote on the card his license number, Pennsylvania 51931, and stated that he had practiced in Philadelphia since 1900. When the money was not returned the next day as promised, the Texas physician investigated

and found that a 1916 directory of Philadelphia did not give his name. Records of the American Medical Association do not contain such a name and the Philadelphia County Medical Society reported that the name was unknown there.

**News of Epidemics**—Thirty-six cases of typhoid, with one death, were recently reported in an outbreak at the village of Auburn, Ky. Four cases in Brooklyn have been traced to the eating of raw clams dug at Canarsie Beach in violation of health department warnings; there have been forty-five cases in New York since April 1. Clams were also suspected as the source of seven cases in Newport, Va., reported June 15. In Lebanon, N. H., four cases were traced to the use of polluted spring or well water, June 8. Sporadic cases were also reported in Toledo, Ohio, and Albuquerque, N. M. —Two cases of Rocky Mountain spotted fever were recently identified in Mecklenburg County, N. C. The belief was expressed that the disease was transmitted by ticks on a mule lent to a family by relief agencies. One child died after an illness of four days. —The Wisconsin state board of health reported that 8,167 more cases of measles occurred in the state in May than in May 1933.

**Society News**—Dr. Louis A. Bue, Rochester, Minn., was elected president of the American Proctologic Society at its recent annual meeting, and Dr. Frank G. Runyon, Reading, Pa., reelected secretary. The next annual session will be held in Atlantic City. —Dr. Henry H. Forbes, New York, was elected president of the American Bronchoscopic Society at its annual session, June 11, and Dr. Lyman G. Richards, Boston, reelected secretary. —At the annual meeting of the American Academy of Pediatrics, June 11, Dr. Thomas B. Cooley, Detroit, was installed as president. Dr. Henry Dietrich, Los Angeles, named president-elect, and Dr. Clifford G. Grulee, Evanston, Ill., reelected secretary. —Dr. Edward W. Archibald, Montreal, was elected president of the American Surgical Association, June 4-6, and Dr. Vernon C. David, Chicago, reelected secretary. The next annual session will be held in Boston. —Dr. Sara Josephine Baker, New York, was chosen president-elect of the Medical Women's National Association at the annual meeting in Cleveland. Dr. Lena K. Sadler, Chicago, was installed as president and Dr. Alice I. Conklin, Chicago, was made secretary.

#### PHILIPPINE ISLANDS

**Society News**—At a recent meeting of the Manila Medical Society, speakers were Drs. Candido M. Africa and Eusebio Y. Garcia, on "Parasitology of Schistosomiasis Japonica"; Jose Albert and Moises B. Abad, "Leukemoid Blood Picture in Acute Infectious Diseases"; Drs. Albert and Julian L. Paguyo reported a case of agranulocytosis. —Dr. Jose O. Nolasco reported a case of cardiac aneurysm and Dr. Casimiro B. Lara presented excerpts from the annual report of the Culion Leper Colony at a recent meeting of the Culion Medical Society.

#### FOREIGN

**Centenary of Medical School**—The University of Liverpool celebrated the hundredth anniversary of the founding of its medical school, May 11. Honorary degrees were conferred on the following, among others: Sir Thomas Lewis, Mr. Wilfred B. L. Trotter, Mrs. May Mellanby, London, Dr. Henry R. Dean, Cambridge, and Prof. William Blair-Bell. Professor Blair-Bell held the chair of obstetrics and gynecology in the university from 1921 to 1931.

**British Medical Association**—The one hundred and second annual meeting of the British Medical Association will convene in Bournemouth, July 24-28, under the presidency of Dr. Thomas G. Moorhead, regius professor of physic, Trinity College, Dublin. The annual representative meeting will begin at the Grand Hall, Town Hall, July 20 to continue on the following three week days. Prof. Vernon H. Mottram will give the popular lecture at the Grand Hall, Municipal College, July 27, on "Foods, Fads and Fashions." A feature of the meeting will be an exhibition of pictorial art of the medical profession at the Russell-Cotes Art Gallery. Dr. S. Watson Smith, London, will be installed as president at this meeting.

**Society News**—The International Society of Geographic Pathology will hold a congress in Utrecht, July 26-28, subjects for discussion are cirrhosis of the liver, arteriosclerosis and organization of the society which was founded in 1927. —The fourth session of the International Office of Documentation for Military Medicine was held in Liege, June 28-30. Medical aspects of aviation, organization of the sanitary service at the base, international registration of wounds and diseases, immunization against infection of wounds, bacteriologic warfare, processes of disinfection, disimpregnation of the

linen and clothing of the gassed and interchange of sanitary formations during a campaign were among the subjects discussed.

**University News**—The University of Birmingham will open a department of industrial hygiene and medicine in October to undertake research in the application of medicine to industry and to offer special training to physicians now connected with industry or wishing to apply for such positions. —A gift of £15,000 has been made by Mr. S. A. Courtauld to the Middlesex Hospital to found a clinical research unit, to be under the direction of the council of Middlesex Hospital Medical School and for the intensive and exclusive investigation of such diseases as may be selected from time to time. The *British Medical Journal* reports that "it is without precedent in this country for a medical school to be given direct access to and a large measure of control over, beds in the associated hospital."

**Cancer Research at Hebrew University**—A fund of about \$200,000 has been created by anonymous donors to establish and maintain a department at the Hebrew University, Jerusalem, for cancer research. Study will be directed first toward radiobiology, physiologic chemistry and the study of cells and tissues. At a recent meeting of the American members of the board of governors of the institution in New York, it was voted to nominate Dr. Ludwig Halberstaedter, formerly of the staff of the Cancer Institute of Berlin, now with the Rothschild Hadassah Hospital in Jerusalem, as head of the department of radiobiology, Dr. Georg Goldhaber, formerly Dr. Halberstaedter's assistant, as his assistant in the new department, Dr. H. A. Krebs, formerly of Berlin and now at Cambridge University, England, as head of the department of physiologic chemistry, and Dr. Leonid Doljansky, formerly of the Institute of Pathology, University of Berlin, and now at the University of Copenhagen, as head of the new department to be devoted to tissue culture research and morbid anatomy.

#### Deaths in Other Countries

Dr. Carlos Heuser, Buenos Aires, author of many articles on radiography and gynecology, collaborator of *La semana medica*, died, March 28. Dr. Heuser was the guest of the Radiological Society of North America at its 1931 meeting in St. Louis and received the society's gold medal in recognition of his work in methods of making roentgenograms for the study of pregnancy (*THE JOURNAL*, Dec. 19, 1931).

### Government Services

#### Wellcome Medal and Prize

Competition for the Henry S. Wellcome Medal and Prize, consisting of a gold medal and a cash prize of \$500, is open for the best paper on "The Civilian Doctor's Part in a National Military Emergency." Competition is open to all medical department officers, former officers, acting assistant and contract surgeons of the army, navy, public health service, organized militia veterans' administration, U. S. Volunteers and the reserves of the United States, commissioned medical officers of foreign military services, and all members of the Association of Military Surgeons of the United States. Five copies of the competitive paper must be furnished, identified by a nom de plume. They must be forwarded to the secretary of the association of military surgeons not later than August 15 accompanied by a sealed envelop marked on the outside with the fictitious name or device assumed by the writer and enclosing his true name, title and address. The length of the essays is fixed between a maximum of 10,000 words and a minimum of 3,000 words. Further information may be had from the secretary of the association, Army Medical Museum, Washington, D. C.

#### Change in Typhoid-Paratyphoid Vaccine

As the result of investigations into the quality and protective value of the army typhoid prophylactic over a period of many years, it has been decided to discard the paratyphoid A fraction and to increase the content of typhoid bacilli to 2,000 million per cubic centimeter, the dosage (0.5 l and 1 cc). The method of administration will remain as at present. The new vaccine will be placed in use at all army installations on August 1, when the old vaccine is either to be discarded or returned to the Army Medical School. In 1928 the paratyphoid B fraction was discarded as being no longer required.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

June 23, 1934

#### The National Health

In the house of commons, Sir E. Hilton Young, minister of health, introduced a vote of \$9,800,000 for the salaries and expenses of the ministry. He pointed out that between 1919 and 1934 the vote had increased as a whole by the enormous figure of \$290,000,000, rising from \$65,000,000 to \$355,000,000. Half of that increase, however, had been caused by the derating bill, which transferred cost from local to national taxation. Of this expenditure of \$355,000,000, \$200,000,000 was the block grant to local authorities, \$57,000,000 was the state expenditure on pensions and \$70,000,000 on housing. The whole expenditure depended entirely on the policy laid down by the house of commons and was not susceptible of increase or decrease by any administrative action, except over a small margin.

He next dealt with the standard of the national physique and health, as shown by the incidence of disease in the country and the resistance to it. On this matter it was possible to give a more positive opinion than with regard to malnutrition, because the results were reflected much more in actual figures. The most conclusive was the general death rate, which was sensitive to epidemics. It took a sharp rise in the influenza year of 1929. The general death rate showed a downward tendency, which was the best proof of the general maintenance of national health and physique. Today the death rate was 10 per cent lower than five years ago, in spite of the fact that the population, owing to the fall in the birth rate, was getting older in its average age.

#### THE INFANT DEATH RATE

During the last ten years the improvement in the infant death rate was such that every year 40,000 more infants under the age of 1 year are saved than were at the beginning of the century. This was due to education of mothers in the care of infants. He paid a tribute to the magnificent work done at the 1,300 antenatal clinics and 2,800 infant welfare centers, also to the thousands of health visitors and nurses who worked in the houses of the people. In the last fifteen years the death rate of children under 5 years of age had been brought down by one half in the three diseases most fatal to them—bronchitis, diarrhea and measles. Where one person in 1932 died from whooping cough, diphtheria, scarlet fever and typhoid, the figures at the beginning of the century were respectively four, four, seven and twenty-two. Brilliant successes had been made in this field, where the positive carrier could be studied—in water, milk, some insect or food. The difficulty was where infection was carried from person to person. Overcrowding was the principal cause of this and clamored for a national remedy. Compared with ten years ago the death rate from tuberculosis had declined 22 per cent.

#### STERILIZATION OF THE MENTALLY DEFICIENT

The reports as to lunacy and mental deficiency were less favorable. He had been impressed by the report of the committee recommending voluntary sterilization of the mentally unfit. But it was a novel question and one not yet thought out by the mind and heart of the nation. It would be wrong to press a national policy without making sure that it would give no offense to the national conscience.

#### THE MATERNITY DEATH RATE

Though there had been a decrease in the maternity death rate, the position was not as favorable as it should be. They must

press for a better development of maternity services. During the year, 147 more clinics had been opened.

#### SLUM CLEARANCE

There had been tremendous activity in the slum clearance campaign. During 1933-1934 some 2,250 slum areas had been declared, covering 37,000 houses and 172,000 people. There had been a boom in the building of small houses, which were being constructed at the rate of 300,000 a year, and of these 155,000 were for lower paid wage earners. But rents were still not low enough and were excessive in comparison with the cost of other necessities.

#### Tax on Carbon Arc Lamps Used in Hospitals

In the house of commons an amendment was moved to reduce the duty on carbon arc lamps of more than 14 mm in diameter from \$1.25 to 36 cents, because such lamps are used in therapeutics. A member stated that the consulting engineer of St. Bartholomew's Hospital told him that after long and laborious experiments he found that the imported article was the only carbon that could be relied on to give perfect treatment without risk to the patient and to the satisfaction of the physician. Replying for the government, Dr. Burgin, secretary of the board of trade, made a point of the fact that the hospitals had not made representations to him on the tax, but he was reminded that the reason for this was that they were reluctant to mix in a political matter and that the duty would raise the cost of light therapy. Dr. Burgin said that the duty was granted under conditions by which the consumer was protected, ignoring, as usual, with taxes of imports, the fact that the free entry of the foreign article was the best possible protection for the consumer, and therefore objectionable to the manufacturers here.

#### Memorial to Sir Walter Fletcher

A committee including Mr. Stanley Baldwin, the president of the Royal Society and the Royal Colleges of Physicians and Surgeons, has appealed in the *Times* for subscriptions to establish a laboratory as a memorial to Sir Walter Morley Fletcher, the first secretary of the Medical Research Council, who died a year ago when in the height of his powers. A brilliant investigator and influential teacher at Cambridge, he became known over the world as a great organizer of research. It is proposed to place a portrait bust in the entrance hall of the National Institute for Medical Research and to build a Walter Fletcher Laboratory to be devoted particularly to those nutritional studies in which he was keenly interested.

#### Quarantine Farms for Tuberculous Cattle

A correspondent of the *Times*, Mr. B. H. G. Arkwright, brings forward a novel method of dealing with tuberculous cattle in dairy herds. He points out that the chief difficulties in any system of eradication lies in the insanitary buildings and segregation possibilities. These difficulties could be overcome by having quarantine farms for animals reacting to the tuberculin test. All animals yielding tuberculous milk should be destroyed and no milk cow that reacted to the contagious abortion test should be admitted to the quarantine farm. The advantages of the scheme are as follows: 1. The cows admitted need not be at once destroyed, because their milk would be fit for consumption after pasteurization for if 40 per cent of dairy stock, as estimated, would react to the tuberculin test and if, as also estimated, only 0.5 per cent of dairy stock yield tuberculous milk, the bulk milk from the quarantine farm would be a purer supply than that from a farm in which a milk from reactors, nonreactors and undetected yielders of tuberculous milk is bulked (for all the yielders of tuberculous milk have been eliminated). 2. The difficulties of segregation of reactors from nonreactors have been abolished. 3. The

reconditioning of buildings might (after drastic disinfection subsequent to removal of the reactors to the quarantine farm) be done in a more economical manner. 4 The calves of high yielding reacting cows born in the quarantine farm could be saved to their owners on condition of removal at birth from their dams to uninfected surroundings, since almost no calves are born tuberculous. 5 The present temptation to pass deep-milking reacting cows round the markets, so disseminating infection, would lose its economic urge, since the owner would not be deprived of the profit from a cow that he wishes to discard but cannot afford to sacrifice.

#### The Payment of Physicians for Road Accidents

In view of the enormous amount of service rendered by physicians in the treatment of road accidents for which no payment is received, members of the house of commons who are specially interested decided that the following new clauses be proposed for the road traffic bill now before parliament. 1 Where medical or surgical treatment or examination is immediately required for bodily injury (including fatal injury) caused by a road accident the owner of the vehicle shall pay to the physician (a) a fee of \$3 in respect of each person injured and (b) a sum in respect of any distance in excess of two miles of the journey from and back to the place from which the physician is summoned of 12 cents for every complete mile or part of a mile of that distance. 2 Where emergency treatment is carried out in a hospital the foregoing fee shall be paid to it.

#### The Training of Midwives

The sixth congress of the International Midwives' Union was held in London, when over 300 delegates from fifteen countries were present. The first subject of discussion was 'The Training and Education of Midwives'. Miss E. M. Pye, president of the congress and president of the Midwives' Institute, said in her presidential address that it was agreed that a midwife must be highly trained and skilled, but there were amazing differences of opinion as to what that training should be. The length of time considered necessary varied in different countries between six months and three and one-half years. The United States where maternal mortality was high had ignored almost entirely the midwife problem and was only now beginning to realize that it demanded urgent attention. The habit in England (where there were about 56,000 midwives on the roll but only about 14,000 practicing) for most trained nurses to take their midwifery diploma without any intention to practice midwifery led to great waste of teaching material. On the question of the limitation of the number of pupils accepted for training, the principal factors affecting it were the falling birth rate, the increasing number of women who went into institutions for childbirth, and in some countries the competition of the medical profession. In Great Britain there was a strong and increasing demand for sedatives and analgesics to deaden pain, and also a demand both from the midwives and from the public that midwives should be allowed to use all the alleviations that were safe in their hands and taught their use. In the subsequent discussion Mrs. Mitchell, deputy chairman of the Midwives' Institute, said that it was essential that something should be done to improve the financial position of midwives and that there should be some limitation to the number trained. Mme. Roger stated that in France the number of midwives did not exceed 10,500 but that there was a surplus. It was absolutely necessary to stem the ever increasing flow of candidates. French midwives were unanimously opposed to the principle of supervision or control, which they considered would undermine their prestige. Mme. Rembaut described a similar overcrowding of the profession in Belgium.

#### PARIS

(From Our Regular Correspondent)

May 30, 1934

#### New Diseases in the Paris Region

In Professor Nicolle's book, analyzed in a recent letter, it was predicted that, while certain infectious diseases will gradually disappear under the efforts of preventive hygiene and therapeutics, others will appear in areas in which they were unknown, owing to the greater facilities for their dissemination and the rapidity with which, because of the newer means of transportation, their causative agents are propagated. It is quite likely that some day yellow fever will be carried from Senegal to northern Africa and possibly to the European countries on the Mediterranean, as a result of the transportation of certain species of *Stegomyia* by commercial airplanes. In the environs of Paris, a case of mouse typhus and a case of autochthonous malaria have occurred in a restricted area in which these two diseases have been previously unknown. The case of mouse typhus was naturally wrongly diagnosed at first by the physicians who observed it, as they had never encountered a case before. The patient was a young woman in whom an intense fever was observed over a period of eight days, with generalized macular erythema, a meningeal syndrome and spinal leukocytosis. Serodiagnosis ruled out the paratyphoids. The correct diagnosis was not made until a month after recovery by a positive Weil-Felix reaction of 1:500, which became negative a month later. The patient lived near a farm infested with rats. Professor Brumpt discovered, a short time ago, in the brain of rats captured in Paris and the environs, the presence of typhus virus. This fact causes anxiety, for it awakens the fear that the disease, heretofore unknown in Paris, may make its appearance.

R. Marin Chassigneux and Rouesse, in a communication presented by Mr. Marchoux to the Academy of Sciences, have reported a case of autochthonous malaria in a woman living in the vicinity of the Asile de Maison Blanche, where there are hospitalized a number of patients with dementia paralytica to whom malaria therapy has been previously applied. The transmission of inoculation malaria being experimentally possible, the reported observation appears to reveal the danger associated with the placement in rural hostels of dementia paralytica patients who have been inoculated with malaria since the common culex is capable of transporting occasionally the hematoozon from an infected to a healthy subject if his bite is sufficiently deep and reaches the blood capillaries. A number of such cases were observed during the war in the vicinity of camps of colonial troops. But that never resulted in the creation of indigenous foci of autochthonous malaria.

#### Studies on a Pathogenic Principle of Neoplasms

In a communication presented to the Academy of Sciences by Besredka and Gross, these authors reported the results of research at the Institut Pasteur de Paris on the pathogenic principle contained in neoplasms produced by inoculation in the mouse. The tumor involved was the Ehrlich sarcoma, the virulence of which was considerably increased by serial reimplantation. This principle, not yet isolated, is found not only in the neoplastic tissues but also in the blood and the other organs of the infected mouse. It is not known whether a filtrable virus is involved, and it does not appear to be cultivable but it is affected by physical agents and may be destroyed by heat (between 40 and 43 C., depending on the duration of the exposure). The principle is extracted from fresh tumors finely ground and emulsified, the emulsion being afterward clarified by repeated centrifugations. The fluid inoculated in infinitesimal doses in mice causes the constant appearance of the same type of sarcoma. The inoculation may be negative

if the animal has already received a previous positive inoculation. An excision of the tumor, although complete, is usually followed by a rapid recurrence at the same site or a generalization by metastasis. Inoculation of the residues of centrifugation, composed of ground cells changed beyond recognition, is negative. The idea of a graft can therefore be discarded. Consequently, Besredka advances the hypothesis that the more or less malignant tumor is a defense reaction of the organism toward a virus that is widespread in nature, as is the staphylococcus, for example, but much more delicate than the staphylococcus. It can be easily destroyed by physical or mechanical agents and cannot develop spontaneously other than in tissues whose natural immunity has been diminished. The sensitiveness of this virus to heat may serve to explain the rarity of sarcomas in tropical countries and likewise spontaneous recoveries sometimes observed during the progress of erysipelas, while it justifies also trials of treatment with induced hypothermia and pyretotherapy.

### BERLIN

(From Our Regular Correspondent)

May 28, 1934

#### A Discussion of the Vitamins and the Weather

The meeting of the Gesellschaft für Verdauungs- und Stoffwechselkrankheiten, was held this year, jointly with the Gesellschaft für innere Medizin in Wiesbaden. Stepp of Breslau presented a paper on the vitamin theory giving a survey of the changes in the conceptions during recent years. Injuries due to lack of vitamins may, under certain conditions, he said, come to light only after many years or even in the next generation.

Rominger of Kiel spoke on the significance of vitamin D for metabolism and nutrition. He brought out that it was not yet proved whether the antirachitic active principle of cod liver oil is identical with viosterol. Through the irradiation of ergosterol, toxic by-products arise, which in nonrachitic animals lead to hypercalcemia, dystrophia and sclerosis of the arteries and of most internal organs. In the absence of proper indications, the administration of vitamin D to a nonrachitic organism is not without its dangers. That rickets is a disease due to the absence of vitamins is doubtful since cod liver oil heated to 120° C. can cure rickets. Under the present conditions of nutrition in Germany only a small quantity of vitamin D is ingested, for which reason rickets is in central Europe the most frequent avitaminosis. Hypophosphatemia is a characteristic symptom. Before the appearance of a negative calcium balance a negative phosphorus balance is present. The rachitic disturbance of metabolism arises when a certain calcium-phosphoric acid compound needed for bone building, and for the formation of which vitamin D is required, is absent. The ideal prophylaxis would be the distribution to the population of milk with a constant vitamin D content.

Further communications dealt with the mechanism of vitamin action. Kulman of Breslau brought out that the vitamins are not markedly specific for certain diseases. The avitaminoses are due, in the last analysis, to a disturbance of the normal correlation of diet factors.

Szent Gyorgyi of Szeged told how he attained the isolation of vitamin C. The first source of the vitamin was Hungarian paprika. Later he established the identity of vitamin C with ascorbic acid. Its synthetic preparation has been accomplished. The daily dose for infants is 20 mg., a hypervitaminosis in infants need not be feared.

Abderhalden of Halle presented a paper on the physiology of nutrition. Attention was called to experiments on the protein minimum. With the ingestion of a small quantity of protein (25 Gm.) complete bodily and mental performance was main-

tained over a period of four years. In the event of intercurrent diseases, the quantity of protein must be temporarily increased. From 60 to 80 Gm. of protein daily is, on the average, sufficient. An exclusive bread diet is not adequate. The old view of the passage of fatty acids through the intestine in the form of soaps must be discarded, since the reaction of the small intestine is not sufficiently alkaline to effect saponification. Abderhalden holds that the human organism is able to form purine derivatives from other substances besides purine bodies. It is highly probable that also uric acid can be decomposed in the human organism. In human nutrition the diet must not only be adequate and complete but must also offer variety. It is an error to assume that the farmer is always nourished in the best manner, for frequently his diet is lacking in variety.

Grafe of Würzburg presented material on the progress in the pathology of nutrition. The problem of obesity is still unsolved, but the condition is probably due to a disturbance of balance. The reasons for the varying forms of distribution of the fat intake are unknown. Water metabolism must be particularly considered in connection with the problem of obesity. In the condition of undue leanness, there are usually disorders of appetite.

Von Tyszka, statistician of Hamburg, spoke on "Economics in Relation to Nutrition." As against the prewar period, the degree to which Germany is self sufficient from the standpoint of food supply has greatly increased.

#### DISEASE IN RELATION TO WEATHER

The weather, as W. Hilgers of Magdeburg brought out, is not limited to meteorological happenings—to measurable, visible and tangible meteorological elements. The troposphere surrounding the whole earth is a covering of air, which in its rotations acts on man. This influence is exerted through the so-called bodies of air, whose contacts with one another are termed "fronts." By studying the meteorological elements, the barometric changes and the nature and velocity of the winds, the approach of these bodies of air can often be foretold. They appear to be highly charged with electricity, which influences the nature of the air that opposes their advance, the effects of which extend for hundreds of kilometers. De Rudder assumes that these electrical charges, by way of the vegetative nervous system, are capable of producing disorders, which may induce complications of infectious diseases and may influence the growth of the causative agents in the body and thus contribute to the dissemination of infectious diseases. There is no evidence of a causal influence exerted by the weather on infectious agents. The course of infectious diseases, however, is probably greatly influenced by changes of weather. Many infections have a tendency to be so-called seasonal disorders, as, for example, intestinal disorders and infantile paralysis in the fall, and catarrhal disorders, pneumonia and tuberculosis in the spring. These outbreaks at different seasons may not be ascribed to changes in the weather, without further investigation.

#### Tasks Assigned to Certain Universities

In accordance with an order of the new minister of public instruction the University of Breslau, in collaboration with the universities of Göttingen, Kiel and Königsberg, has been assigned certain special scientific and political tasks. On these universities devolves the task of presenting a perfect realization of the idea of a national-socialist institution of higher learning for German youth. It is emphasized that, in the new Germany, university study constitutes a high privilege, and that particularly at the University of Breslau the student will be faced with great problems of a political and scientific nature, which he must do his utmost to master, in order that he may serve properly the Germany of the future.

## VIENNA

(From Our Regular Correspondent)

May 18, 1934

## Cancer of the Bronchus

In connection with the regular postgraduate courses at the Faculty of Medicine in Vienna, Prof Dr Kohler recently held a seminar on the diagnosis of cases of bronchial cancer in which metastases have developed. The diagnosis of the site and type of primary tumor is important. Certain tumors, such as sarcomas, which show a marked clinical resemblance to the metastasizing bronchial cancer, are easily influenced by roentgen treatment, whereas cancer of the bronchus does not yield readily to such treatment. Tumors of other organs frequently lead to metastases in the lungs, for example cancer of the breast, prostate, thyroid and stomach, and hypernephromas. Mediastinal stasis may develop in bronchial cancer, and it is often associated with compression of the superior vena cava. One observes also edema of the face and the upper extremities, likewise a dilatation of the veins of the thorax and the back. Differentiation of a primary tumor of the mediastinum from malignant goiter is often difficult. An exact history will aid. If, for some weeks or months before the appearance of mediastinal stasis, cough, expectoration and dyspnea were present, that points to cancer of the bronchus. The roentgenologic picture and the examination of the sputum may support this diagnosis. Repeated mild attacks of hemoptysis point to a primary focus in the lung or bronchus, likewise elastic fibers, leucine and tyrosine in the sputum.

Multiple tumor areas in both lungs point away from a primary tumor in the respiratory organs. 'Miliary carcinosis' of the lung is always secondary. This condition has often been observed in connection with cancer of the stomach, in which the symptoms such as appear in miliary pulmonary tuberculosis (but without fever) appeared and the diazo reaction remained negative.

Sometimes a primary tumor of one lung leads to metastases in the other lung. The different appearance of the roentgenograms of the primary tumors, as compared with the secondary tumors, aids in the diagnosis.

Metastases of the liver occur in many cases of cancer of the bronchus. The primary tumor is usually small and difficult to discover. These liver metastases often grow rapidly and always involve the whole liver, whereas cancer of the gall-bladder causes metastases only in the right lobe of the liver. In cancer of the stomach and intestine there are also frequently diffuse liver metastases.

The rare primary liver carcinoma is always associated with a tumor of the spleen and early and severe icterus, which is long absent in secondary tumors of the liver. When there are multiple metastases to the bones, one must suspect not only cancer of the bronchus but also cancer of the prostate and multiple myeloma. Metastases of the bronchial cancer in the brain and spinal cord constitute a special chapter. These are often the chief symptoms of the disease and the lung manifestations may be secondary, so that the examiner is inclined to suspect primary disorders of the central nervous system. Nevertheless, a precise examination of the lungs will usually furnish a suggestion, particularly if the possibility of the primary bronchial tumor is kept in mind. The prognosis of all these cases is unfavorable, but not infrequently they take a surprisingly slow course.

## Tuberculosis of the Mediastinal Glands

From observations made at an old people's home in Vienna (6000 beds) during the past ten years Dr Arnstein recently lectured before the Vienna Medical Society on Tuberculosis of the Mediastinal Glands in Aged Persons. In contradistinction to this disease in children which takes the form of swelling

of the lymph nodes, there developed in aged persons a shrinkage and softening of the tissues, inflammations and infections in the region of the bronchi, the esophagus, the blood vessels and the nerves. One observes traction diverticula of the esophagus, bronchitis deformans, paralysis of the recurrent nerve (usually of the left side) and also atypical infiltration processes in the lung, hemoptysis, often quickly fatal, arises from erosion of blood vessels in the bronchi or esophagus, with softening of the lymph nodes. Cases that have come to necropsy show a pre dominance of the female sex. Anthracosis of the lung, which is observed rather frequently in Vienna, is often associated with tuberculosis of the lymph nodes and may involve other organs, but as Professor Sternberg emphasized during the general discussion, it should be borne in mind that the mere filling of the lymph nodes with coal dust (without tuberculosis) is sufficient to produce necroses. The invasion of the lung by the contents of a tuberculous node that has been quiescent for years may produce in an aged person severe inflammatory processes. The course of such processes is atypical, and the roentgenograms are deceiving. The course of events points to almost any other condition than to perforation of the mediastinal gland. In the discussion, all speakers agreed that the perforation in the child takes place differently than in aged persons. Dr Arnstein found in aged persons an average of 0.001 Gm as the titer for the intracutaneous test. It is evident that pure coal dust alone is rather harmless if it is not inspired in exceedingly large quantities. The danger is not great unless it is combined with tuberculous material in persons of advanced age.

## Coutard's Method of Treatment of Cancer of Larynx

In spite of excellent results that modern surgical methods have secured, treatment of cancer of the pharynx and the larynx with roentgen rays and radium has gained favor. The type of high dosage of roentgen rays recommended by Coutard has been tried out in Vienna by Professor Hajek in a series of cases. The results of these observations were reported at a recent session of the Vienna Laryngologic Society by Dozent Dr Wessely. In the past two years, 100 cases of operable and inoperable cancer have been treated by the Coutard method of irradiation. In a period of from four to six weeks a total of from 4,000 to 7,000 roentgens was administered in fractioned doses at as evenly divided intervals as possible, according to the degree of the reaction. The intensity of the reaction is measured by the appearance of a fibrinous inflammation of the mucosa. This fibrinous reaction on the mucosa is regarded by Coutard as an absolute proof of correct dosage, whereas other investigators regard it as the limit of toleration. The retrogression of the tumor begins in the second half of the series of irradiations and continues for some time after their completion. Many tumors disappeared so completely that the larynx regained its normal configuration. Occasionally remnants are left that may constitute 'tumor-containing' tissues or that may be "tumor free". In a few cases however, one observes rapid growth of the tumor beginning a considerable time after the irradiation was completed. The regeneration of the glands is usually less complete. The fibrinous coating on the mucosa, which is regarded by Coutard as the test of adequate dosage, is difficult to eliminate. Yet one gets the impression that the epithelium under the coating is well preserved. Resistance and duration of the fibrinous exudation on the mucosa vary with the individual. During the irradiation, and sometimes for several months afterward edema of the larynx may develop that will necessitate tracheotomy. Also necroses of the cartilages occur with aspiration pneumonia which has a bad prognosis. Operative interventions during the stage of the mucosal reaction and for some time afterward are dangerous because of the increased danger of infection and the weak resistance of the tissues. Diffuse tuberculosis semiliv and cachexia



are contraindications to irradiation. Irradiation should not be continued if a "field" has been given the maximal dosage without effect, if true cachexia appears, if there is fever or if the mucosal reaction appears early and in an aggravated form. An operation after the irradiation is impossible, although the reverse is favorable, but recurrences after operation appear to react less promptly to irradiation. As the Coutard method has been in use but a short time, it is impossible to pronounce a final judgment on its permanent value. In any event it is excellent for inoperable cases, in which it gives at least temporary aid, and for patients who have an abnormal fear of operation, and in cases in which permanent mutilation is dreaded, for such mutilation is inevitable following a radical operation on cancer of the larynx. Operable cases, however, should be treated by operation, because modern operations show no higher mortality than irradiation, while the permanent results are possibly better.

#### Deaths

Prof Dr O Weltmann, who was suffering from rheumatism and neuritis, yesterday took his own life. The decedent was only 48 years old. He was a prominent internist, whose addresses before the Gesellschaft der Aerzte always awakened great enthusiasm. His chief interest was in serology.

A second severe loss was the unexpected death of Hofrat Dr Simon Kruger, medical director of the Statliche Schwefelbader (sulphur baths under state supervision) in Baden, near Vienna. As general secretary of the German Balneological Society he had performed meritorious work in this field.

### JAPAN

(From Our Regular Correspondent)

May 28, 1934

#### The International Red Cross Congress

The fifteenth International Red Cross Congress, which will be held in Tokyo, October 17-29, will be the first to be opened in the Orient. More than 100 representatives have already stated their intention to attend, including John Barton Payne from the United States. More than 300 members are expected to be present, including delegates from sixty-three nations, which are the member countries of the International Red Cross Society, delegates from fifty-eight Red Cross societies of the world, and representatives of twenty-eight international organs. The program is as follows:

Wednesday, October 17, meeting of the executive committee

Thursday, October 18, assembly of the council of governors of the societies

Friday, October 19, assembly of the governors of the societies in the morning, and assembly by the council of delegates in the afternoon

Saturday, October 20, inaugural meeting

Sunday, October 21, excursions

Monday, October 22, plenary session in the morning, and meeting of the committees in the afternoon

Tuesday and Wednesday, October 23 and 24, various committee meetings

Thursday October 25, assembly of the councils of governors of the societies

Friday, October 26, plenary session of the conference

Saturday and Sunday, October 27 and 28 excursions

Monday, October 29, closing meeting

The business agenda on the program of those meetings is as follows:

1 The duties of the Red Cross and other international organizations in international relief work.

2 The progress of ratification of the Geneva convention of 1929.

3 The bill of agreement for the fate of noncombatants or civilians in the enemy's territory or in land to be occupied.

4 Application of the Geneva convention and the prisoner code in a resort to arms without declaration of war.

5 Standardization of medical supplies.

6 Protection of civilians in time of war.

7 The duty of the Red Cross in the rapprochement of all nations.

8 The equipments of the Red Cross.

These are some of the important items to be discussed in the meetings.

#### Women in Medicine

Of more than 3,000 women doctors in Japan, only seven have received the highest title of "Igaku-Hakushi", that is, "Doctor of Medicine." Recently Prof Kuni Toda of the Tokyo Women's Medical College received this title from the education office. Owing to various unavoidable difficulties, women have found it hard to continue their studies long enough to be honored with this title, which is given on presentation of a thesis. The present condition of the women doctors is rather disappointing, for they fall short of expectation. As for the men, there are 6,591 who have that high title among over 48,000 doctors. The Tokyo Women's Medical Society, which was organized in 1932, now has more than 1,200 members.

#### Abolition of Licensed Prostitution

After a fifty year campaign, licensed prostitution in Tokyo will before long be abolished. The brothels will be changed into restaurants or hotels or inns, and the prostitutes will become waitresses or barmaids. The system of unlicensed prostitution will, in truth, be approved. The notorious red light districts called "yoshiwara" in Tokyo, which for 400 years have been the center of public amusement, will be abolished. The prevention of venereal diseases is now under investigation by the police authorities. Out of fifty-seven prefectures, ten have already abolished licensed prostitution and six have ordered the prostitutes to change their occupations. According to reports from these prefectures, venereal disease seems to decrease year after year. If this decrease is really proved in Tokyo to be a fact, licensed prostitution will disappear all over the country in the course of time.

#### Medicinal Springs

About thirty years ago the medical department of Kyushu Imperial University established for the first time an institute at Beppu, the most noted watering place in Japan. Later, both the army and the navy established a sanatorium at the same town, chiefly for wounded soldiers. Various communities did likewise, but scientific research on the hot spring treatment has not yet definitely been done. Recently the Japan Medicinal Spring Society was organized with Dr Haruo Hyashi, ex dean of the medical department of the Tokyo Imperial University, president. The society will issue a monthly magazine and will hold a general meeting once a year.

In the Kagoshima prefecture, where hot springs abound, a medicinal spring research institute has been established under supervision of the local office.

#### The Academy Prize

The Academy Prize, which is the highest prize for scientific studies, for 1933 was given to Dr Hiroshi Kon of the pathologic section of the medical department of the Hokkaido Imperial University for his studies on the silver reaction of protoplasm.

#### Physical Examinations of Conscripts

The war office has made public the results of a seven years statistical investigation of the health of conscripts. In 1927 there were 597,000 conscripts and in 1933 there were 565,000. The level of their health has shown a gradual fall of late, especially in those from the cities.



## Marriages

JOHN DENISON SPRING, Nashua, N H, to Miss Ethel Almira Benham of Clifton, N J, in New York, June 9

HERBERT W WORTHMAN to Miss Margaret McShane, both of Louisville, Neb, June 4

FRANCIS M TUSHLA to Miss Ruth J Shelley, both of Auburn, Neb, June 4

ELMER C McALEER to Miss Virginia B Milstead, both of Peru, Neb, recently

ARTHUR JAY PHILIP to Miss Ruth Ortman, both of Brooklyn, June 24

## Deaths

Otto Henry Schultze, Huntington, N Y College of Physicians and Surgeons in the City of New York medical department of Columbia College, 1889, member of the Medical Society of the State of New York formerly professor of medical jurisprudence, Cornell University Medical College, New York, coroner's physician for New York County, 1896-1897, borough of Manhattan, 1902-1915, medical assistant to the district attorney of New York County for many years, aged 67, died, July 4

Olga A Hoffman, North Madison, Ind, Indiana University School of Medicine, Indianapolis, 1931, member of the Indiana State Medical Association, on the staff of the Madison State Hospital, aged 33 died, June 15, in the Methodist Episcopal Hospital, Indianapolis, of meningitis, following a mastoid operation

James Lester Junk @ Connellsville Pa, University of Pennsylvania School of Medicine Philadelphia, 1907, past president of the Fayette County Medical Society, served during the World War, aged 54, on the staff of the Connellsville State Hospital where he died, May 20, of ruptured abdominal aortic aneurysm

John E Safford @ Stamford N Y, College of Physicians and Surgeons, Baltimore, 1895, formerly secretary of the Delaware County Medical Society at one time medical superintendent of the Stamford Hospital, aged 72 died May 12, in the Parshall Private Hospital, Oneonta, of heart disease

George W Gregg @ Canandaigua, N Y, Eclectic Medical Institute, Cincinnati, 1906, since 1931 city health officer aged 58, medical director and superintendent of the Canandaigua Health Home, where he was instantly killed June 2 when he was crushed between the elevator cage and the door

Llewellyn Roberts Johnson @ Los Gatos, Calif Cooper Medical College San Francisco 1903, served during the World War formerly superintendent of the Hewlett Emergency Hospital, Stockton, aged 52, died May 25, in St Luke's Hospital, San Francisco, of pulmonarv tuberculosis

Sheridan Alfred Lockwood, San Diego Calif American Medical Missionary College Chicago, 1900, member of the California Medical Association aged 59 for many years on the staff of the Paradise Valley Sanitarium, National City, where he died, May 29, of pneumonia

Joseph Edward Gandy, Spokane, Wash, University of Michigan Medical School, Ann Arbor 1873 Civil War veteran, formerly member of the state legislature and member and president of the city council, aged 86, died June 2, of acute dilatation of the heart

Herbert William Casey, Brooklyn Long Island College Hospital, Brooklyn 1899 member of the Medical Society of the State of New York on the staffs of St Catherine's and St Mary's hospitals, aged 66, died, June 21, of subacute bacterial endocarditis

Edgar Allen Hawk, New Palestine Ind Central College of Physicians and Surgeons Indianapolis 1905 member of the Indiana State Medical Association president of the Hancock County Medical Society aged 55 died June 12 of gastric carcinoma

James Leonidus Fields, Jackson Tenn (licensed in Tennessee in 1911) member of the Tennessee State Medical Association aged 46 died May 26 in the United States Penitentiary Hospital Leavenworth Kan of carcinoma of the cecum

William Andrew Nield @ New Bedford Mass, Baltimore Medical College, 1902, formerly on the staffs of the Sassaquin Sanatorium and St Luke's Hospital, aged 59, died suddenly, June 12 in the Baker Memorial Hospital, Boston, of thrombosis

Harry Everett Nelson, New Orleans, Medical Department of the Tulane University of Louisiana, 1912, member of the Louisiana State Medical Society, on the staff of the Hotel Dieu Hospital, aged 48, died, May 16, of sarcoma

James H Ingram, Peiping, China, University of Pennsylvania School of Medicine Philadelphia, 1883, member of the Medical Society of New Jersey, for many years a medical missionary, aged 75, was shot and killed by bandits, June 15

Donald Platt Osborne, Kalamazoo, Mich, University of Michigan Medical School, Ann Arbor, 1902, member of the Michigan State Medical Society, aged 55, on the staff of the Borgess Hospital, where he died, April 28, of pneumonia

Ada Theodosia Hobby, Brooklyn, New York Medical College and Hospital for Women, New York, 1886, on the staffs of the Prospect Heights and Brooklyn Maternity hospitals, aged 75, died, June 13, of cerebral hemorrhage

Silas Warren Saxton @ Steubenville, Ohio, Jefferson Medical College of Philadelphia, 1903, served during the World War, aged 55, died May 16, in the Mercy Hospital, Pittsburgh, of uremia and chronic nephritis

Plomer Julius Gustin, Bedford, Iowa, University of Nebraska College of Medicine Omaha, 1927 member of the Iowa State Medical Society, aged 39, died, May 27, in Fort Meade S D, of a gunshot wound

Arthur Harry Meyers @ Mystic, Conn, Medico-Chirurgical College of Philadelphia, 1902, past president and secretary of the New London County Medical Society, aged 54, died, June 2, of heart disease

Samuel Goldstein @ New York, University of the City of New York Medical Department, 1892, aged 64, for many years on the staff of the Midtown Hospital, where he died, May 20, of uremia and nephritis

Samuel Lawrence Joyner, Ashland, La, Memphis (Tenn) Hospital Medical College 1903, member of the Louisiana State Medical Society, aged 58 died, May 28, in a sanatorium at Shreveport, of chronic nephritis

Kate Anna Mason Hogle, Mount Vernon, Iowa, Northwestern University Woman's Medical School, Chicago, 1885, member of the Iowa State Medical Society, aged 74, died, June 1, of cerebral hemorrhage

John Ramsey Dodenhoff, Springfield, S C, Medical College of the State of South Carolina, Charleston, 1912 aged 48 died, June 7, in the Columbia (S C) Hospital, of myocarditis and hypertension

Vernon Curry Morton @ Rantoul, Ill, College of Physicians and Surgeons, Keokuk, Iowa, 1897, on the staff of the Mercy Hospital, Champaign, aged 58, died suddenly, June 19, of angina pectoris

Edward Aloysius Treacy, Philadelphia, Jefferson Medical College of Philadelphia, 1913, aged 50, died, June 1, in the Frankford Hospital, of carcinoma of the cecum and peritonitis

Charles Wilbur Stroup, Ludlow, Ky, Cincinnati College of Medicine and Surgery, 1902 veteran of the Spanish-American and World wars, aged 54, died, May 26, of coronary embolism

Ulysses Grant Auer, Marion, Ind, University of Michigan Medical School, Ann Arbor, 1901, formerly on the staff of the Peoria (Ill) State Hospital, aged 65, hanged himself, June 1

George Edward Penn, Marvell, Ark Louisville (Ky) Medical College 1886 served during the World War aged 69 died May 31, in the U S Veterans' Hospital, Memphis, Tenn

William A Johnston, Roanoke, Va, College of Physicians and Surgeons Baltimore, 1881 aged 71, died, May 30, at his home in South Roanoke of carcinoma of the stomach

Thomas Blakeney Holmes @ Oakland, Calif Medical Department of the University of California, 1891 aged 68, died May 12 in the Peralta Hospital of myocarditis

Noah Danley, St. Joseph, Tenn Vanderbilt University School of Medicine Nashville 1901 member of the Tennessee State Medical Association aged 75 died May 6

Augustus Charles Schwartz, Toledo Ohio Howard University School of Medicine Washington D C 1890, aged 74 died June 8 of carcinoma of the esophagus

**Martin Luther Finkbner**, Parkerford, Pa., Medico-Chirurgical College of Philadelphia, 1906, aged 64, died, May 30, of cerebral hemorrhage with dementia

**Winston Rives Haynes**, Silver Spring, Md., Georgetown University School of Medicine, Washington, D C, 1923, aged 42, was found dead, June 8, of heart disease

**Frederick Aloid Sedlacek**, Omaha, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1897, aged 67, died, May 30

**Herbert Carroll Ober** Ⓢ Newton, Mass., Boston University School of Medicine, 1916, aged 48, died, June 10, in the Winchester (Mass.) Hospital, of pneumonia

**Robert C Talbot**, Broken Bow, Neb., Miami Medical College, Cincinnati, 1870, formerly member of the school board and city council, aged 87, died, May 12

**Romuald Tessier**, Montreal, Que., Canada, School of Medicine and Surgery of Montreal, 1897, served during the World War, aged 59, died, May 10

**David Reeves Stockton**, Lancaster, Pa., Hahnemann Medical College and Hospital of Philadelphia, 1900, aged 66, died, May 4, of chronic endocarditis

**Thomas Robert Plumer** Ⓢ Trivoli, Ill., Northwestern University Medical School, Chicago, 1930, aged 28, was killed June 24, in an airplane accident

**Burton Dwight Stone**, Baltimore, University of the City of New York Medical Department, 1882, aged 74, died, May 13, of carcinoma of the prostate

**Malcolm M Crowder**, Kensington, Ga., Southern Medical College, Atlanta, 1886, member of the Medical Association of Georgia, aged 74, died, May 7

**Walter Ervin Seay**, Jacksonville, Fla., Kentucky School of Medicine, Louisville, 1904, aged 61, died, May 11, of perforated ulcer of the stomach

**Arthur C Bell**, Oklahoma City, University of Louisville (Ky.) School of Medicine, 1891, aged 74, was found dead, May 13, of heart disease

**Samuel Sheldon Robinson**, Tulsa, Okla., Kansas City (Mo.) Hahnemann Medical College, 1903, aged 74, died, May 25, in a local hospital

**James A Stothart**, Savannah, Ga., University of Georgia Medical Department, Augusta, 1888, aged 80, died, May 13, of cerebral hemorrhage

**Newton R Eastman**, Mount Vernon, Ohio, Starling Medical College, Columbus, 1895, aged 62, died, June 16, of heart disease

**Leroy S Barnes**, Lynn Haven, Fla., Pulte Medical College, Cincinnati, 1881, Civil War veteran, aged 92, died, April 21

**Peter G Pritchett**, Timberlake, N C (licensed in North Carolina, year unknown), aged 87, died, April 10, of myocarditis

**William Elias Whyte**, Philadelphia, Howard University School of Medicine, Washington, D C, 1920, aged 47, died, June 6

**Jacob Carson Tilson**, Marshall, N C, Tennessee Medical College, Knoxville, 1892, aged 74, died, June 15, of heart disease

**Edgar W Rine**, Winchester, Ind., Starling Medical College, Columbus, 1885, aged 75, died, June 5, of heart disease

**Fannie Emanuel**, Chicago, Chicago Hospital College of Medicine, 1915, aged 61, died, March 31, of diabetes mellitus

**Benjamin Lee Jean**, Delrose, Tenn., Vanderbilt University School of Medicine, Nashville, 1896, aged 62, died, June 3

**Harry Homer Goyer**, North Little Rock, Ark., Memphis (Tenn.) Hospital Medical College, 1909, aged 48, died, May 12

**Joseph Warren Sanborn** Ⓢ Waldoboro, Maine, Medical School of Maine, Portland, 1894, aged 65, died, March 5

**V J Brown Sr**, Buckhead, Ga., Tennessee Medical College, Knoxville, 1905, aged 56, died, May 30

**John C Buttemiller**, Cincinnati, Medical College of Ohio, Cincinnati, 1877, aged 80, died, May 18

**W Mark Patterson**, Seattle, Eclectic Medical Institute, Cincinnati, 1886, aged 81, died, May 29

**Kince Manly Counce**, Martin, Tenn. (licensed in Tennessee in 1905), aged 58, died, April 22

**James M Adkins**, Liberty, Mo., Kansas City Medical College, 1880, aged 76, died, June 2

**Joseph A Farmer**, Milstead, Ga., Atlanta Medical College, 1891, aged 76, died, May 15

## Bureau of Investigation

### MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE The abstracts that follow are given in the briefest possible form (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the composition, (4) the type of nostrum, (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product]

**Var ne sis for Rheumatism**—Var ne sis Co., Lynn, Mass. Composition Essentially sodium salicylate extracts of plant drugs including licorice with alcohol and water. Fraudulent therapeutic claims—[N J 18052 18053 18057 August 1931]

**Marshall's Cubeb Cigarettes**—James B Horner Inc., New York, N Y. Composition Ground cubeb. For catarrh, hay fever, asthma, etc. Fraudulent therapeutic claims—[N J 18054 August 1931]

**Hydras**—John Wyeth & Bro., Philadelphia, Pa. Composition Essentially extracts of plant drugs including hydrastis with alcohol, glycerin, sugar and water. For female disorders. Fraudulent therapeutic claims—[N J 18056 August 1931]

**Pike's Centennial Salt Rheum Salve**—J J Pike & Co., Chelsea, Mass. Composition Essentially petrolatum with a small amount of sassafras oil. For salt rheum, corns, diphtheria, etc. Fraudulent therapeutic claims—[N J 18063 August 1931]

**Potasafras**—Columbia Chemical Corp., Columbus, Ohio. Composition Essentially potassium iodide compounds of sodium and magnesium sulphates, a trace of phosphate, benzoic acid, extracts of plant drugs including licorice with sugar, alcohol and water. For blood disorders, etc. Fraudulent therapeutic claims—[N J 18065 August 1931]

**Herst's Intestinal Cleanser**—Health Food Laboratories, Kansas City, Mo. Composition Essentially ground senna, alfalfa, licorice, chamomile and anise. Fraudulent therapeutic claims—[N J 18072 August 1931]

**Antiseptic Konoids**—Konoid Co., New Orleans, La. Composition Essentially tannin, salicylic acid and boric acid in cocoa butter. For female troubles. Fraudulent therapeutic claims—[N J 18073 August 1931]

**Gold Thread Syrup Compound A**—Gold Thread Syrup Co. Inc., South Berwick, Me. Composition Essentially creosote extracts of plant drugs with sugar, water and mint flavoring. For coughs, bronchitis, indigestion, etc. Fraudulent therapeutic claims—[N J 18076 August 1931]

**Burton's Relief**—Carolina Medicine Co., Littleton, N C. Composition Small quantities of extracts of plant drugs with colchicin and water and red coloring. For rheumatism, blood disorders, etc. Fraudulent therapeutic claims—[N J 18077 August 1931]

**Neo Cullol**—Arlington Chemical Co., Yonkers, N Y. Composition A Bacillus Acidophilus preparation. For auto-intoxication. Misbranded and adulterated. Fraudulent therapeutic claims—[N J 18079 August 1931]

**Hakka Cream Compound**—Hakka Chemical Co., Boston, Mass. Composition Essentially petrolatum, boric acid, menthol, camphor and traces of carbolic acid and hexylresorcinol. For catarrh, hay fever, etc. Fraudulent therapeutic claims—[N J 18080 August 1931]

**Thall's Rheumatic Tablets**—Thall's Home Remedy Laboratory, Manchester, N H. Composition Acetphenetidin (acetanilid), 2 grains per tablet; quinine (15 grains per tablet); small proportions of extracts of plant drugs and caffeine. Fraudulent therapeutic claims—[N J 20157 June 1933]

**Tal O Rub**—McKesson Hall, Van Groder Co., Cleveland. Composition Essentially extract of red pepper with eucalyptol, menthol and camphor in a petroleum ointment base. For croup, lumbago, rheumatism, etc. Fraudulent therapeutic claims—[N J 20152 June 1933]

**Granger Liver Regulator**—Granger Medicine Co. (Estorge Drug Co.), New Iberia, La. Composition Essentially senna and a small amount of other plant material. For dyspepsia, kidney and liver disorders, etc. Fraudulent therapeutic claims—[N J 20155 June 1933]

**Thall's Antiseptic Roots**—Thall's Home Remedy Laboratory, Manchester, N H. Composition Coarsely ground bitter dock and cranesbill. For leucorrhoea and gleet ulcers and sores. Misbranded because of fraudulent therapeutic claims. Adulterated because of low strength drugs—[N J 20157 June 1933]

**Thall's Cough Syrup**—Thall's Home Remedy Laboratory, Manchester, N H. Composition Plant drug extracts, a benzoic acid compound, tar, a small quantity of creosote with sugar, alcohol (5.24 per cent) and water, flavored with caramel. Fraudulent therapeutic claims—[N J 20157 June 1933]

**Thall's Female Tonic**—Thall's Home Remedy Laboratory, Manchester, N H. Composition Essentially plant drug extracts, sodium benzoate, sugar, alcohol (4.9 per cent) and water. For profuse menstruation, menorrhagia, etc. Fraudulent therapeutic claims—[N J 20157 June 1933]

**Thall's Female Tablets**—Thall's Home Remedy Laboratory Manchester N H Composition Extracts of plant drugs and strychnine (0.023 grain per tablet) For menstrual irregularities Fraudulent therapeutic claims—[N J 20157 June 1933]

**Indian New Discovery**—Justice Drug Co Greensboro N C Composition Essentially chloroform, ether ammonium volatile oils including camphor, turpentine and sassafras with alcohol and water For rheumatism etc Fraudulent therapeutic claims—[N J 20151 June 1933]

**Thall's Kidney Tonic**—Thall's Home Remedy Laboratory Manchester N H Composition Essentially plant drug extracts including valerian a trace of alkaloids and small quantities of volatile oils including peppermint with sugar alcohol (4.46 per cent) and water Fraudulent therapeutic claims—[N J 20157 June 1933]

**Thall's Nerve Syrup**—Thall's Home Remedy Laboratory Manchester N H Composition Essentially plant drug extracts including valerian and licorice a trace of alkaloids with sugar alcohol (4.28 per cent) and water caramel flavored For epilepsy hysteria convulsions etc Fraudulent therapeutic claims—[N J 20157 June 1933]

**Thall's Lung Tonic**—Thall's Home Remedy Laboratory, Manchester N H—Composition Essentially plant drug extracts including wild cherry and licorice with sodium benzoate sugar alcohol (2.0 per cent by volume) and water Fraudulent therapeutic claims—[N J 20157 June 1933]

**Thall's La Grippe Capsules**—Thall's Home Remedy Laboratory Manchester, N H Composition Quinine sulphate (0.7 grain per capsule) ammonium chloride camphor and extracts of plant drugs Fraudulent therapeutic claims—[N J 20157 June 1933]

**Creme Crede**—Scientific Products Laboratories Lincoln Neb Composition Essentially boric acid, tragacanth glycerin a small amount of lactic acid traces of phenolic compound and a volatile oil and water For female disorders and feminine hygiene Fraudulent therapeutic claims—[N J 20158 June 1933]

**Hutchison's Big Head Liniment**—Hutchison Medicine Co, Texarkana Tex Composition Essentially turpentine oil petroleum oil and a trace of mercuric chloride Fraudulent therapeutic claims—[N J 20159 June 1933]

**Hutchison's Magic Oil**—Hutchison Medicine Co Texarkana Tex Composition Essentially oleoresin of red pepper with small amounts of camphor peppermint oil a salicylate and tannin alcohol a trace of chloroform and water Fraudulent therapeutic claims—[N J 20159 June 1933]

**Biz**—Henderson & Skipworth San Francisco Composition Essentially carbolic acid camphor and alcohol (6.3 per cent) For skin disorders Fraudulent therapeutic claims—[N J 20160 June 1933]

**Sinapole Ointment**—The Sinapole Co Los Angeles Composition Petrolatum with volatile oils including mustard oil For pleurisy rheumatism pneumonia, etc Fraudulent therapeutic claims—[N J 20164 June 1933]

**Scarlet Red Salve**—Heilkratt Medical Co Boston Composition Petrolatum boric acid a zinc compound eucalyptus oil and a red dye (Scarlet R) For varicose ulcers eczema etc Fraudulent therapeutic claims—[N J 20165 June 1933]

**Armstrong's Granular Effervescent Lithia Compound**—Armstrong Chemical Co Boston Adulterated because below professed standard in strength and purity Misbranded because claimed to contain caffeine citrate which it did not—[N J 20166 June 1933]

**Arlium**—Fuller Morrison Co Chicago Composition in each tablet 2.6 milligram of radium and 0.02 milligram of strychnine Misbranded because statement Radium in Tablets was false and misleading since they also contain strychnine also because of false and fraudulent therapeutic claims—[N J 20168 June 1933]

**Brander's No 7**—Haley M O Co Inc Geneva N Y Composition Essentially small quantities of soap phenols glycerin and water (99%) For feminine hygiene female disorders etc Not antiseptic when diluted with equal volume of water Fraudulent therapeutic claims—[N J 20171 June 1933]

**W H D Special Stomach Medicine**—W H D Special Mfg Co Woodston Kan Composition Essentially the carbonates of calcium and magnesium with baking soda Fraudulent therapeutic claims—[N J 20175 June 1933]

**Caf Acetan**—John Wyeth & Bro, Inc Philadelphia Pa Adulterated and misbranded because represented to contain 10 grains of acetanilid to the ounce whereas the correct amount was 8.4 grains—[N J 20551—February 1934]

**Papoose Root Beer**—E A Zatarain & Sons, Inc New Orleans Composition Essentially extracts of plants with glycerin and water colored with caramel and flavored with sassafras and wintergreen Fraudulent therapeutic claims—[N J 20553—February 1934]

**Diano for Diabetes**—Samaritine Co Philadelphia Composition Essentially chloride of lime (approximately 1 per cent) a trace of chlorine glycerin (approximately 16 per cent) and water (approximately 83 per cent) Fraudulent therapeutic claims—[N J 20555—February 1934]

**LaSalle's Diutone Tablets**—LaSalle Medicine Co Los Angeles Composition Extracts of plant drugs including buchu and juniper with salt peter For kidney and bladder disorders etc Fraudulent therapeutic claims—[N J 20577—February 1934]

**LaSalle's Uter Tonic Tablets**—LaSalle Medicine Co Los Angeles Composition Plant material including tannin with resins valeric acid and volatile oils For female disorders Fraudulent therapeutic claims—[N J 20557—February 1934]

## Correspondence

### PYRETHRUM SENSITIZATION COMPLICATING HAY FEVER

*To the Editor*—Commercial "Pyrethrum" is widely used for its toxic effects in various types of insecticides. The flowers of certain species of pyrethrum plants, of the genus *Chrysanthemum*, are used for the preparation of the substance, and closed flowers, which contain much pollen, apparently are the most satisfactory. For some years it has been known that dermatitis and allergic manifestations in the respiratory tract may occur as the result of exposure to this toxic material.

Ramirez (Pyrethrum, *J Allergy* 1 149 [Jan] 1930) reported two cases, one of sensitiveness to grass and the other to ragweed pollen, in which sensitization rhinitis occurred after the regular pollen seasons had terminated. These patients were found to be sensitive to pyrethrum and had been exposed to insecticides containing it.

Feinberg (Pyrethrum Sensitization, *THE JOURNAL*, May 12, 1934, p 1557) called attention to the frequency of sensitization to pyrethrum in the ragweed pollen sensitive group. He believes that sensitivity to it occurs only in ragweed pollen sensitive patients because both plants in question belong to the order of *Carduales*. This author feels that such sensitivity is the cause of hitherto unexplained attacks of hay fever or asthma during months exclusive of the usual hay fever season.

Pyrethrum sensitization offers still another problem in hay fever other than postseasonal allergic symptoms. It is the matter of exposure to insecticides containing pyrethrum as an explanation of apparently unsuccessful treatment with pollen extracts one season, whereas in previous years such treatment had been successful. Such cases have been seen. One was that of an individual sensitive to ragweed pollen, and the other that of a patient sensitive to Russian thistle in a part of the United States where ragweed is of minor importance.

A young woman sensitive to giant ragweed had received very satisfactory relief in the preceding two years by treatment with injections of pollen extract. In the summer in question, after at least half the ragweed season had been passed asymptotically the patient began to suffer from the symptoms of sensitization rhinitis. A widely used "fly powder" was suspected as the result of questioning. Skin tests were positive for pyrethrum, and relief was obtained by discontinuing the use of the insecticide.

A young man sensitive to Russian thistle had been quite satisfactorily relieved from hay fever by pollen extract treatment in previous summers. Though relief had not been complete, results were satisfactory as contrasted to the severe symptoms he had had before treatment. One summer he began to clerk in a grocery store during the Russian thistle season and noted the symptoms of hay fever almost every evening. He suspected "Flit," which was liberally sprayed about the store at closing hours. A positive skin test to pyrethrum was obtained. Elimination of insecticides was followed by relief of hay fever symptoms.

It may be concluded that

- 1 Pyrethrum, commonly used in insecticides, may cause hay fever and asthma.
- 2 A patient may have coexistent sensitivity to this substance and to pollens of grasses and weeds.
- 3 Exposure of such an individual to an insecticide containing pyrethrum may explain the apparent failure of desensitization for hay fever in a case theretofore successfully treated.

R. H. KAMPMEIER M.D., New Orleans  
Assistant Professor of Medicine Louisiana  
State University Medical Center

## PSORIASIS AND CLIMATE

*To the Editor*—I was much interested in your answer to Dr Albert M Crance of Geneva, N Y, in *Queries and Minor Notes* (THE JOURNAL, June 2, p 1873), concerning the frequency of psoriasis in tropical countries. Although I agree that the disease in question seems to be less frequent in the tropics, it is by no means a rarity. Kayser, quoted by Ormsby (*Diseases of the Skin*, New York, Lea & Febiger, 1921, p 261), states "In the tropics, the subjects of psoriasis are few, and the symptoms of the disease, when they develop at all, are rudimentary, the typical eruption being scarcely ever produced." Kayser writes of the disease in the Dutch East Indies and his contentions may be true so far as they concern the colored races, in which psoriasis is very rare. In the whites residing in the tropics the disease is frequent and offers the same

*Disease in Tropical Countries*

	Personal Statistics	Statistics of American Dermatological Association *
Psoriasis	1 121 per cent	2 650 per cent
Lupus erythematosus	0 922 per cent	0 356 per cent
Vitiligo	1 022 per cent	0 250 per cent
Lupus vulgaris	0 071 per cent	0 234 per cent

\* J Cutan Dis April 1914 p 312

characteristics observed elsewhere. Another cutaneous disease that is thought by many to be rare in the tropics is lupus erythematosus. Contrary to this statement, lupus erythematosus seems to be more frequent in Cuba than in the United States. Vitiligo, which is supposed to be very common in tropical countries, is actually less frequent than psoriasis in Cuba. Tuberculosis of the skin, lupus vulgaris in particular, is very rare. The following statistics are self explanatory. My own observations are based on a total of 7,042 cases of skin diseases exclusive of syphilis.

V PARDO CASTELLO, M D, Havana, Cuba

## PRISON PHYSICIANS

*To the Editor*—I have read with great interest the communication in THE JOURNAL May 19, by Dr James L McCartney, director of the Classification Clinic of Elmira Reformatory and secretary of the Medical Section, American Prison Association.

My knowledge of prisoners and prisons has been gleaned only from one prison during twelve years of medical service as resident physician State Institutions Howard R I, over a decade ago. I have had the impression that the medical service of the prisons in the United States was excellent and that under such a service the condition of the prisons and the state of the prisoners' health was benefited and conserved. From what I have read of the methods of modern penology, there has been a great uplift all the way along, both in the prisoners' morale and in his physical environments. Those physicians whom I had met at some of the prison conventions, far from being the "derelicts of medicine," appeared to be men well versed in modern methods of treatment, had pride in their work, and apparently had the confidence and esteem of the prison warden. In fact in the days to which I refer the outstanding trio or triple alliance, was the warden, the prison physician and the chaplain. The combined efforts of these men usually was of great importance to the prison morale, for discipline was tempered with the kindness and mercy that are the feature of medical and religious training.

There are several factors to be taken into consideration in the employment of the medical service of prisons and other

penal or reformatory institutions. In the first place, the annual appropriation in all such institutions is woefully inadequate and is usually gotten through the legislature by a good deal of jockeying and paring down in all departments. The less assertive and usually subordinate departments, as the medical, are apt to remain stationary. Increases in salary are small and promotion is slow, and the incumbents of these positions remain as they were engaged, e g, "prison physician." If there is difficulty in obtaining appropriations for medical service and supplies, this service tends to remain stationary, if not retrogressive.

It would seem as if the advancement of the medical service in prisons might well be urged by THE JOURNAL, and that this important social service be not left entirely to the care of the "derelicts" and "cast offs" of the medical profession.

In all prisons there is ample opportunity for the physician to do good work, for the building up both of the morale and of the physical condition of the prisoners, for in many instances when they fall sick and are removed for a time to the hospital ward, away from the irritating discipline of the daily routine, the more kindly treatment and atmosphere of the medical environment has been in many instances the first step toward the reformation and the redemption of the prisoner, and that really should be the ultimate aim of all those engaged in this form of service. Certainly the lamentations of Dr McCartney would be a timely topic for discussion before the Medical Section of the American Prison Association at its next meeting.

HENRY A JONES, M D, Auburn, R. I.

*Queries and Minor Notes*

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

## VOMITING IN INFANCY

*To the Editor*—For four months a girl aged 20 months has vomited nearly every night after one or two hours of sleep. She awakens crying. If left lying quiet she will vomit and also if she is taken up. Her nutrition and growth are fair. The only illnesses have been infections of the upper respiratory tract sometimes accompanied by otitis media. A slight rise in temperature is usually accompanied by a mild convulsion. The vomiting occurs nightly regardless of whether she is sick or well. Her parents are very nervous. Except for probable laxness in habit training she has been well cared for. What are possible causes for such a condition? How may a diagnosis be arrived at? Please give suggestions for treatment. Kindly omit name. M D Michigan

ANSWER—It does not seem possible to answer this question categorically. It is obvious that vomiting as it occurs in a baby aged 20 months may be due to a variety of causes, and in order to arrive at a definite conclusion a painstaking examination will be required in order to exclude a number of possibilities. It seems, however, that the significant points, as stated in the query, are the previous history of otitis media, and fever accompanied by convulsions associated with vomiting. Vomiting may be due to pyloric stenosis, though this usually occurs in young infancy and does not come up for consideration in this case. Infants suffering from gastro intestinal diseases or peritonitis usually have abdominal pains as well as vomiting and a variety of other symptoms that have not been noted in the case of this infant. Vomiting may occur also during an attack of catarrhal jaundice or may result from the presence of foreign bodies in the gastro-intestinal tract. It also should be noted that vomiting may be caused by various vegetable and mineral poisons, such as acids, alkalis, poisonous gases and a variety of drugs, especially emetics and expectorants, and it may also be due to the ingestion of spoiled food. The history of the patient would indicate the presence or absence of any of these factors. Vomiting may occur also as the result of nephritis, chronic uremia, cystopyelitis and diabetes. Repeated examination of the urine would clear up the diagnosis, if any of these factors should be present.

One would also think of cyclic vomiting which, however, occurs more frequently during the day and is usually associated

with persistent moderate fever and great prostration. In these cases the urine nearly always shows the presence of acetone and diacetic acid, and the breath has a sweetish aromatic odor.

Vomiting may occur also in chronic nasal and faucial infections, adenoid vegetations, hypertrophy of the tonsils and acute sinusitis, though aside from the ethmoid sinuses the others are not developed at this early age. In acute otitis media in young life, vomiting, convulsions and delirium with a rise in temperature are frequently observed. Vomiting may be associated with epileptic seizures as well as with the rarely occurring attacks of migraine at this age. In epilepsy the convulsive seizures are characteristic, in migraine there would be evidence of pain and great restlessness.

One should bear in mind the possibility of an intracranial process in this case. The history of recently suppurating ears is significant.

One would think of the possibility of a brain abscess or localized septic meningitis or thrombophlebitis, more remotely of a brain tumor, hemorrhage of the brain and encephalitis or cerebral sclerosis. In a thrombophlebitis the temperature is apt to be remittent, whereas in a septic meningitis the temperature is continuously high, and in brain abscess the temperature may be only slightly elevated with irregular remissions below normal. The vomiting in these conditions may be projectile but is more frequently regurgitant. The most common symptoms of brain abscess are vomiting, headache, choked disk, constipation, subnormal temperature and slow pulse. Not all of these symptoms are present in any one case, nor are they all present as a rule at the onset of the disease. Next to headache, vomiting is the most frequent symptom, though in an encysted abscess the vomiting may be entirely absent. The important point about vomiting, if it is present, is that it may be projectile sometimes regurgitant, and it occurs without nausea. Choked disk, if present, signifies increased intracranial pressure and constitutes an important link in the diagnosis of abscess or tumor.

It is true that vomiting may occur in the course of acute otitis media, but, if it persists, an intracranial complication should be suspected.

In short, the solution of the problem at hand depends on the process of reasoning by exclusion. A carefully elicited history and examination of the blood and especially the urine, and a complete neurologic examination with the investigation of the special sense organs, should aid materially in differentiating an organic lesion from a functional disorder.

#### ERYTHEMA NODOSUM

To the Editor—A farmer's son always healthy, developed at the age of 2 a circumscribed red swelling on the dorsal surface of the right forearm. This swelling was hard and somewhat tender and about 38 mm. in diameter. The boy was then taken to a physician who thought that, with heat the swelling would suppurate and would then have to be opened. Accordingly heat was applied but this did not result in any change in the lesion. All treatment was discontinued and the lesion disappeared spontaneously in about three weeks. A larger lesion of the same type and appearance appeared at the same site two years later at about the same period of the year as far as I could learn. This time an ice pack was applied with the same negative results. The lesion disappeared about two weeks after the discontinuance of treatment three and a half weeks after its inception. When seen by me on about the middle of November when the patient was 9 he had been free from the ailment for the last six years. Physical examination revealed absolutely nothing of significance as far as the various systems were concerned. The family history was also entirely negative. There was no elevation of temperature. On the right forearm extending from the midline of the dorsal side to about the midline of the medial border and from about two fingerbreadths above the wrist to about the same distance caudad from the elbow appeared an oval area of dark red induration and elevation. The swelling rising to about 20 mm above the rest of the forearm was sharply delimited but the redness faded gradually into the natural color of the rest of the body. The lesion was firmly attached to the muscles underneath and was somewhat tender to the touch. The patient stated however that he could sleep well on that side. The skin over the lesion did not seem particularly hot. The father was concerned principally because of the danger of the lesion involving a joint at some future attack. He stated that the lesion never grew in size once established the whole area was involved at the outset. The child felt perfectly well and played with other children all day. Laboratory examination revealed: Urinal: no albumin sugar nor casts specific gravity 1.022 reaction alkaline. Blood: white count 8,200 polymorphonuclears 72 per cent, large lymphocytes 9 per cent small lymphocytes 11 per cent large mononuclears 7 per cent mast cells 0 eosinophils 3 per cent blood pressure 108 systolic 44 diastolic. A biopsy was suggested but refused. The patient was urged to come back but did not. He can be located however if necessary. What is your suggestion as to the diagnosis and treatment of this case? Kindly omit name and town.

M D Wisconsin

ANSWER—It is always hazardous to make a diagnosis from a written description but the description of the lesions together with the location and the fact that the lesions persisted for

about three weeks would strongly suggest the diagnosis of erythema nodosum. This condition is not uncommon and in the United States is regarded as due to influences similar to those which cause rheumatic disturbances, although the disease is not a part of rheumatic fever. The fact that there were 72 per cent of the polymorphonuclear leukocytes in the blood, a high figure for a boy of 9, would tend to confirm the diagnosis of an infectious process. The treatment of erythema nodosum is symptomatic and salicylates have commonly been used with relief of symptoms. Foci of infection should be searched for and eradicated if found.

The differential diagnosis would involve such other conditions as urticaria and tularemia, but urticaria is never characterized by a persistent lesion. The wheals in this condition come and go, and while the whole condition may last over long periods of time the individual lesions rarely persist more than one or two days and are characterized by white centers and by itching. The 3 per cent eosinophilia must be considered normal and not indicative of urticaria.

In tularemia the history of contact with rabbits and the presence of a local ulcer should make the diagnosis clear. Furthermore, tularemia does not recur.

#### DIFFERENTIAL DIAGNOSIS OF SKIN LESION

To the Editor—I have under my care a woman aged 28 who has two fixed eruptions on her body, one being on the left side of her neck and about 30 mm in diameter, the other over the right scapula being about 38 mm in diameter. These areas appeared two years ago three days after parturition. The labor and puerperium were otherwise normal. These areas are flat are purplish brown become sore near each menstrual period and then become scaly on top. The scales come off and there is no more sensation until the next menstrual period. Occasionally (every three or four months) these areas become studded with blebs ranging in size from a pinhead to a split pea. These last for a number of days and spontaneously disappear without rupturing. When these blebs are in evidence the areas itch severely. At the time these areas appeared the patient was taking fluidextract of ergot and no other drug. At the time of their appearance they were very small and are continuously enlarging. The Wassermann and Kahn blood reactions are negative as is the past history. Could you from this description supply me with a diagnosis and an adequate treatment? Kindly omit name.

M D Kentucky

ANSWER—This case might be (1) a fixed drug eruption, (2) recurrent herpes simplex, (3) dermatitis factitia—self-inflicted injury, or (4) dermatitis dysmenorrhoeica symmetrica of Matzenauer and Pollard.

1 Fixed eruptions due to arsphenamine, neoarsphenamine, antipyrine, phenolphthalein, amidopyrine and alurate (allyl-isopropyl-barbituric acid) a constituent of allonal (allyl-isopropyl-barbituric acid with amidopyrine), are well known and not rare. The case under discussion seems to fit the description of these fairly well, the lesion becoming inflamed and sometimes vesicular or bullous after the ingestion of the drug. This inflammation then subsides and leaves pigmentation of the whole area involved. At the next use of the drug the same process occurs, usually involving a greater area and often one or several new areas. It is stated that no drug except fluidextract of ergot was being taken. Patients often forget to mention to the doctor drugs considered household remedies. They have been known to deny repeatedly the use of phenolphthalein, for instance only to confess finally that they did take it but considered it unimportant. This matter must be thoroughly investigated.

2 Herpes simplex sometimes recurs in the same place at frequent intervals. This is particularly apt to occur at the menstrual periods. It is usually confined to one area and seldom leaves much pigmentation. It is nearly always vesicular, while vesicles occurred in only two of the attacks. Local roentgen treatment with small doses, one-fourth erythema dose once a week for not more than eight doses, and the administration of calcium in large doses, 3 or 4 Gm of calcium lactate three times a day after eating are the best methods of treatment.

3 Self-inflicted injury to the skin occurs in hysterical patients for the purpose of attracting interest or sympathy or to obtain compensation. The lesions are often of a peculiar shape angular or with a streak below the main patch where the liquid cauterant used usually phenol, has run down. Often one or several areas of hysterical anesthesia may be found. Proof of the guilt of the patient may be obtained by sealing the involved area with a dressing that prevents access to the skin. It must really prevent access to the skin, for these patients are shy and often outwit the doctor. If the lesions are self-inflicted they quickly heal by this method. Further proof may be obtained by suggesting that at a certain time a new lesion will appear in some particular area.

4 The dermatitis of Matzenauer and Pollard is characterized by a succession of (a) burning or tingling sensations, (b) erythema, (c) edema, (d) vesiculation, (e) exudation, (f) hemorrhage, (g) crust formation and (h) pigmentation, some cases going on to necrosis. It was held by many critics to be dermatitis factitia, for the patients are neurotic and the lesions on the extremities are elongated. The authors recognized that this would be claimed and made every effort to prove that the lesions were not self inflicted. The case under discussion occurred first soon after parturition and no mention is made of dysmenorrhea, which is an important feature of the Matzenauer and Pollard disease. Nothing is said of follicular exudate or hemorrhage, which are also important. The fact that the lesions are not exactly symmetrical may be disregarded, for in Wise and Parkhurst's case (So-called Dermatitis Dysmenorrheica, *Arch Dermat & Syph* 2 725 [Dec] 1920) they were unilateral. Treatment should be directed to relief of the dysmenorrhea. This may not succeed, however, in preventing the dermatitis.

#### INCUBATION PERIOD OF RABIES IN DOGS

To the Editor—I should like to know for how long a period it is advisable to keep a dog under observation for the development of rabies after it has bitten a person. I should also like to know in case a dog has been inoculated against rabies whether the examination of its brain would reveal actual changes and if so for how long a period after inoculation these would probably last. In other words is a positive report on a dog that has been inoculated to be interpreted always as proof that the dog has rabies? Kindly omit my name.

M D North Carolina

ANSWER—The average period of incubation of rabies in the dog is said to be from twenty-one to forty days. The period of incubation is dependent, in the main, on the place of the wound of entrance, its relation to nerves, and of course the amount and virulence of the virus introduced. It may be recalled that in dogs rabies may be diagnosed from the symptoms, from finding Negri bodies and certain characteristic anatomic changes in the central nervous system, and by inoculation of animals. The symptoms are often highly suggestive and occasionally even highly characteristic, but the final diagnosis in most cases will rest on the examination of the nervous system and, in special cases, on animal inoculation. In the present state of knowledge, the finding of typical Negri bodies in a dog must be regarded as proof of the presence in the dog of rabies even if the dog in question has been inoculated with killed rabies vaccine.

#### RINGWORM INFECTION OF HANDS AND FEET

To the Editor—A man aged 33, has an intractable tinea infection of the toes feet right hand and scalp. The primary focus was in the fourth interdigital spaces of the feet and was incurred about 1920 while the patient was residing in southern Florida. Iodine dusting powders and Whitfield's ointment were used and apparently kept the infection in check. However the original infection was never completely eradicated. In 1927 a body rash caused the patient to seek the advice of an eminent dermatologist in Cincinnati. It responded well to the treatment but the primary focus between the toes was not eliminated. In 1931 a vesicular eruption which itched severely was noted on the fingers of the right hand. A roentgen therapist gave a course of roentgen treatments which caused an apparent cure for six months. Economic circumstances prevented a continuance of treatment. In 1933 severe itching of the scalp was noted. At present the infection involves the plantar surfaces of the feet the toes the right palm and fingers and the scalp. Epidermophyton was isolated from the toes and the vesicles on the hand. The eruption at present is dry scaling and fissured. The palm of the right hand is red. Kindly outline the management of this case particularly in relation to the hand and the scalp. X rays are out of consideration because of the remote location. Please omit name.

M D Indiana

ANSWER—The condition as described is in all probability an eczematoid ringworm infection of the hands and feet. As ringworm involvement of the scalp is exceedingly rare in adults, it is improbable that the disorder in this location has any connection with the eruption on the extremities and it is impossible to suggest treatment for this condition without having an idea as to its probable nature.

With regard to the infection of the hands and feet, this disorder in these locations is in many instances notably rebellious to all treatment and it is necessary to try one or another of the parasitocidal preparations which vary greatly in the results produced in different individuals. In the chronic stage of the disorder such as is now presented the preparation of phenylmercuric nitrate as described by Levin in *THE JOURNAL*, Dec 26 1933 has been successfully used in a number of cases. Preparations containing sulphur salicylic acid or tar and dyes such as Castellani's carbolfuchsin paint are useful. Ultraviolet radiation is also of value in some cases of this type and may be given a trial particularly if roentgen treatment is not available.

#### SYPHILIS IN PREGNANCY

To the Editor—Mr K aged 30 husband of Mrs K aged 37 presented himself to me three and one half years ago as a blood donor to Mrs K then Miss D and I discovered that he had a 4 plus Wassermann reaction. I immediately commenced active antisyphilitic treatment on Mr K consisting of nearsphenamine four courses bismuth compounds four courses mercury compounds five courses and bismuth arspenamine sulphate one course (three years). Miss D gave negative reactions in 1931 1932 and 1933 though she was exposed to infection during this time. Miss D has not received any antisyphilitic treatment. The Wassermann reports on Mr K in 1933 were negative twice (February and July). In December 1933 Mr K and Miss D were married and one month later Mrs K became pregnant. At present Mr K is receiving 0.6 Gm of nearsphenamine monthly (since negative reports) and Mrs K has a negative Wassermann report (six weeks pregnant). What routine ought I to follow in these cases bearing in mind that Mr K has never presented any syphilitic symptoms papillary changes skin signs or neurologic symptoms. Mrs K has been well and during her pregnancy has had only slight morning sickness. Would you subject both Mr and Mrs K to active antisyphilitic treatment taking necessary precautions for a normal child? The child is due October 1. Would you repeat monthly Wassermann tests? Would you consider them as noninfectious? What instructions would you give these patients?

M D New Jersey

ANSWER—The probability is that this couple will have a normal healthy child whether treatment is administered during pregnancy or not. It would be safer, however, to give Mrs K at least a short course of treatment at this time as an added precaution. A monthly Wassermann test does no harm. It is difficult to answer the question of noninfectiousness without knowing more of the facts, that is, dosage of drugs used, number of treatments in each course, physical observations, spinal fluid, and so on. No special instructions need be given at this time. A little more instruction in birth control prior to marriage would have been more pertinent in view of the husband's known syphilitic infection. McKelvey and Turner's article entitled "Syphilis and Pregnancy. An Analysis of the Outcome of Pregnancy in Relation to Treatment in 943 Cases" (*THE JOURNAL*, February 17, p 503) should be consulted.

#### SPREAD OF SCARLET FEVER

To the Editor—1 What are the modern ideas concerning contagion in scarlet fever? Is it spread solely by nasal and throat secretions? 2 In view of the fact that the undisputed (?) etiologic factor is the non spore forming *Streptococcus scarlatinae* cultures of which can be obtained only in certain mediums under certain conditions of pH and temperature is it conceivable that rooms books clothing and the like can convey infection to other individuals? 3 Apart from the legal aspects is quarantine recommended for scarlet fever or infectious precautions as in pneumonia? In either case for how many days? Does injection of potent antiscarlatinal serum shorten this period? Please omit name and address.

M D China

ANSWER—1 Scarlet fever is usually spread by nose and throat secretions of persons who have scarlet fever are convalescent from the disease, or are immune carriers. It may also be spread by discharges from otitis media, mastoiditis or other suppurative conditions associated with scarlet fever. The spread of scarlet fever by milk is sometimes responsible for epidemics.

2 It has been shown that the air in a room occupied by a scarlet fever patient may be contaminated. Articles in the room may likewise be contaminated. The streptococci do not live long on such objects as books and clothing. Most cases of scarlet fever attributed to using books or clothing long after a case of scarlet fever occurred in the family have probably been due to recent contact with an unrecognized carrier of scarlet fever streptococci.

3 Quarantine is recommended for scarlet fever. The quarantine should be maintained until cultures on blood agar plates are negative for scarlet fever streptococci or until susceptible persons with whom the patient may come in contact are immunized. If a potent scarlet fever antitoxin is injected early in the disease it usually shortens the period of infectivity.

#### OUTFIT TO DETERMINE ICTERUS INDEX

To the Editor—Please tell me what rating the La Motte Chemical Products Company has. How accurate are its blood chemistry outfits and especially how reliable is the icterus index test as compared with standard methods?

M D Illinois

ANSWER—The various La Motte blood chemistry outfits have been designed for clinical use and probably answer this purpose very well, especially when a clinician is interested in the estimation of a single blood constituent. (The matter has been discussed in *Queries and Minor Notes* in *THE JOURNAL*, Nov 23 1929 p 1673 July 11, 1931 p 126 and June 4 1932 p 2011). The Icterus Index Comparator is a good illustration



of the principle used in most of these outfits. The method of R C Pigford (Simplified Apparatus and Technic for the Determination of the Icterus Index, *J Lab & Clin Med* 13 658 [April] 1928) is employed. A series of eleven bichromate standards equivalent to icteric indexes of 1, 2, 3, 5, 6, 7, 10, 15, 20, 25, 50 and 100, in small tubes of uniform bore, are employed for comparison against twenty drops of serum or plasma, obtainable from 3 to 5 cc of blood. Although one probably would not be able to determine the exact icteric index without diluting the serum, it should be possible to gage the severity of any icterus present by comparison with these various standards.

#### WARTS ON EYELID

*To the Editor*—A girl aged 4, has five small warts on one eyelid. They are of the variety usually known as seed warts. They are not pigmented. Recently one has begun to show signs of irritation probably because the child rubs it unconsciously although the mother never has noticed her touching it. A roentgenologist has advised me not to use x-rays over the eye in view of the tarsal plate being present and also because of possible retinitis. Have you any references on removal of warts from such a location? There is no indication of their gradual disappearance; on the contrary, they are gradually increasing in size. Please omit name.  
M D Pennsylvania

**ANSWER**—One or two very light applications of solid carbon dioxide will often make small warts disappear. The instantaneous application of a high frequency spark (electrodesiccation) may effect the desired result, also the instantaneous application of the actual cautery. Approximately 50 per cent of warts will disappear as a result of one or two intramuscular injections of sulpharsphenamine (0.1 or 0.2 Gm for a child) at intervals of one month. Weekly intramuscular injections of a bismuth compound (0.065 Gm for a child) for several weeks appears to be equally efficacious. In fact, injections of distilled water may suffice. Allington was able to obtain about the same results with distilled water as with other drugs indicating that the effect may often be psychic, which tends to corroborate the psychic experiments on warts conducted by the late Bruno Bloch and others and to explain the disappearance of warts after the application of various innocuous substances. Because of possible danger to the eyes it is preferable to avoid x-rays and radium. Acids, because of the difficulty of controlling the depth of action and of confining the application to a tiny area, might unnecessarily injure normal tissue.

#### DROWNING

*To the Editor*—Please give the most reliable method for examining the lung tissue from a body submerged in a river with the idea of determining whether the body was dead before being thrown in the water, or whether the victim was drowned by falling in the river. Please omit name.  
M D Mississippi

**ANSWER**—By examining the lung tissue only, it may not be possible to tell whether death resulted from drowning or not in all cases, but if the microscopic examination reveals in the air passages and alveoli of the lungs particles of gravel, sand, dirt or vegetable material such as may be found in water or at the bottom of water, it would be justifiable to conclude that the person was alive when he entered the water.

#### ENLARGED THYMUS

*To the Editor*—Would you be good enough to enlighten me on the following problem. A man and his wife both in good health with no significant family history had a female child ten years ago. Five or six months after her birth the child developed symptoms of thymic asthma. Roentgenograms taken by a pediatrician showed an enlarged thymus. High voltage roentgen therapy was instituted with only fair results. She had periods of remission of varying lengths of time. Finally at the age of 5 a blood smear was taken and showed chronic lymphatic leukemia. The child died a year later of this disease. The problem I have at hand now is this. The mother is pregnant again (two months) and needless to say is markedly upset. She fears that this child will also have an enlarged thymus and the leukemia. Is there any connection between the thymic condition and the leukemia? What possibilities are there of this child being afflicted either with the thymus the leukemia or both?  
HENRY L PELKUS M D Boston

**ANSWER**—There is no reason to suppose that the second child will also have an enlarged thymus, as this is not a hereditary condition. For the same reason the mother should be assured that the development of a leukemia is not to be expected, a pediatrician with a wide experience states that he has not come across two leukemias in the same family. There is no connection between the enlarged thymus and the subsequent development of leukemia.

## Council on Medical Education and Hospitals

### COMING EXAMINATIONS

ALASKA Juneau Sept 4 Sec Dr W W Council Juneau  
AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written (Group B candidates)* The examination will be held in various centers throughout the country Oct 1 *Oral (Group A and Group B candidates)* San Antonio Texas Nov 13 16 Sec Dr C Guy Lane 416 Marlborough St Boston  
AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written (Group B candidates)* The examination will be held in various cities of the United States and Canada Nov 3 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh  
AMERICAN BOARD OF OPHTHALMOLOGY Chicago Sept 8 *Application must be filed sixty days prior to date of examination* Sec Dr William H Wilder, 122 S Michigan Blvd Chicago  
AMERICAN BOARD OF OTOLARINGOLOGY Chicago Sept 8 and San Antonio, Texas Nov 16 Sec Dr W P Wherry, 1500 Medical Arts Bldg Omaha  
CALIFORNIA Los Angeles July 23 26 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento  
CONNECTICUT *Endorsement* Hartford July 24 Sec Dr Thomas P Murdock 147 W Main St Meriden  
NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia  
NEVADA *Reciprocity* Carson City Aug 6 Sec Dr Edward E Hamer Carson City  
PUERTO RICO San Juan Sept 4 Sec Dr O Costa Mandry Box 536 San Juan

### Ohio Reciprocity and Endorsement Report

Dr H M Platter, secretary, Ohio State Medical Board, reports 16 physicians licensed by reciprocity and 2 physicians licensed by endorsement, April 3, 1934. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Rush Medical College		(1930)	Wisconsin
State University of Iowa College of Medicine	(1930)	(1931)	Michigan
Johns Hopkins University School of Medicine	(1929)	(1929)	W Virginia
University of Maryland School of Medicine and College of Physicians and Surgeons	(1926)	(1926)	Maryland
Detroit College of Medicine and Surgery	(1933)	(1933)	Michigan
University of Michigan Medical School (1928)	(1930)	(1931)	Michigan
St Louis University School of Medicine	(1933)	(1933)	Missouri
University of Buffalo School of Medicine	(1930)	(1930)	Pennsylvania
Leonard Medical School N Car	(1913)	(1913)	W Virginia
Eclectic Medical College	(1929)	(1929)	Kentucky
Jefferson Medical College of Philadelphia	(1930)	(1930)	Pennsylvania
Vanderbilt University School of Medicine	(1931)	(1931)	Tennessee
University of Wisconsin Medical School	(1929)	(1929)	Wisconsin

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Cincinnati College of Medicine	(1929)	(1929)	N B M Ex
Western Reserve University School of Medicine	(1930)	(1930)	N B M Ex

### Hawaii April Examination

Dr James A Morgan, secretary, Board of Medical Examiners, reports the oral and written examination held in Honolulu, April 9-12, 1934. Four physicians were examined, all of whom passed. One physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Stanford University School of Medicine	(1932)	(1932)	83.4
Rush Medical College	(1934)	(1934)	81.4
Creighton University School of Medicine	(1933)	(1933)	86.1
University of Pennsylvania School of Medicine	(1932)	(1932)	88.6

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Toronto Faculty of Medicine	(1931)	(1931)	N B M Ex

### Washington January Report

Mr Harry C Huse, director Department of Licenses, reports the written examination held in Seattle Jan 18-20, 1934. The examination covered 7 subjects. A grade of 60 per cent in each subject was required to pass. Sixteen candidates were examined, all of whom passed. Thirteen physicians were licensed by reciprocity and 1 physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad	Per Cent
University of California Medical School	(1933)	(1933)	78.4
Loyola University School of Medicine	(1928)	(1928)	70
Northwestern University Medical School	(1933)	(1933)	81.5



Rush Medical College	(1930)	75
University of Illinois College of Medicine	(1933)	84 * 86 4 *
University of Michigan Medical School	(1927)	76 5
University of Minnesota Medical School	(1932)	81 2 *
Creighton University School of Medicine	(1933)	77 7
University of Nebraska College of Med	(1931) 74 1,	(1932) 87 1
University of Oregon Medical School	(1932)	76 5

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Northwestern University Med School	(1932)	California	(1933) Oregon
Rush Medical College		(1933)	California
State University of Iowa College of Medicine		(1932)	Iowa
Tulane University of Louisiana School of Medicine		(1922)	Louisiana
Univ of Michigan Medical School	(1928)	Minnesota	(1929) Penna
St Louis University School of Medicine		(1920)	Missouri
Creighton University School of Medicine		(1931)	California
University of Oklahoma School of Medicine		(1932)	Oklahoma
University of Oregon Medical School	(1929)	(1932)	California
Jefferson Medical College of Philadelphia		(1926)	Minnesota

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Minnesota Medical School		(1932)	N B M Ex

\* This applicant has completed his medical course and will receive his M D degree on completion of internship

## Book Notices

**Brucella Infections in Animals and Man Methods of Laboratory Diagnosis** By I Forest Huddleson Department of Bacteriology and Hygiene Michigan State College Introduction by Ward Giltner Dean Division of Veterinary Medicine Michigan State College Cloth Price \$2.25 Pp 108 with 24 illustrations New York Commonwealth Fund London Oxford University Press 1934

This concise, lucid and timely monograph is offered by the author as an aid to the laboratory worker in the study of *Brucella* (*Alcaligenes*) diseases. It is also designed to provide the clinician with an interpretation of the results derived from the use of laboratory methods of diagnosis. Huddleson defends the thesis that there are three separate species of *Brucella* organisms: *Brucella melitensis* (Bruce), the true host of which is the milch goat, *Brucella abortus* (Bang), the cause of infectious abortion of cattle, and *Brucella suis* (Traum), associated with swine infection. All three species are known to be capable of producing undulant (Malta) fever in human beings, either as the result of the ingestion of raw dairy products containing living organisms or by way of the skin through contact with infected animals and their excretions. Many students of the disease question the belief that there are three separate species of *Brucella*. The similarity of the morphologic appearance of the organisms, cultural characteristics, behavior in agglutinin-absorption tests, and the similarity of the diseases which they produce in human subjects lead many observers to conclude that the apparent differences in virulence, world distribution, nitrogen and dextrose metabolism, carbon dioxide requirements, growth behavior toward aniline dyes, and the differences in nitrate and nitrite reduction are explainable on the basis of host adaptation. The methods of isolation of the organisms, the pathology bacteriology and serology of the disease, in animals and man are adequately treated. The clinician will be particularly interested in the chapters that treat of the diagnostic significance of the allergic (skin-test) methods, the opsonocytotoxic test and the agglutination test.

**You Must Relax A Practical Method of Reducing the Strains of Modern Living** By Edmund Jacobson M.D. Cloth Price \$1.50 Pp 201 with 27 illustrations New York & London Whittlesey House McGraw Hill Book Company Inc 1934

This is a popular presentation of the material found in the author's 'Progressive Relaxation' and is intended primarily for the layman. Relaxation is advocated, in general, as an everyday remedy against the effects of strenuous modern living, and specifically as a means of curing or alleviating, by itself or in combination with other treatment a variety of conditions ranging from 'overactive nerves' and sleeplessness to high blood pressure and mucous colitis. The author repeatedly points out the differences between his method and those employed by advocates of autosuggestion and similar cults. He encourages skepticism on the part of both the physician and the patient. He warns of the danger of self-treatment and self-training in relaxation, as one is often mistaken as to whether he has been successful and consequently may fall into wrong habits of tension. Real progress in relaxing can be determined only

by electrical measurements with a delicate and costly apparatus developed by the author. The book would be of great practical value if the author had already succeeded in 'selling' his theory and practice of progressive relaxation to the medical profession and now wished to tell the lay public what it was all about. Unfortunately the only instrument that will differentiate between 'cultivated' and 'ordinary' relaxation is the one in the author's possession, and he clearly cannot take care of all the millions of people who 'must relax.' However, the book is of some educational value. It is well written in a facile conversational style and should prove of interest not only to laymen but to physicians as well.

**Bacteriologia** Pelo Dr José Pedro de Carvalho Lima Director do Instituto Bacteriológico de São Paulo Paper Pp 563 with illustrations São Paulo Sociedade Imprensa Paulista 1933

This book is patterned after well known English and American textbooks on bacteriology. Jordan, Ford, Zinsser, Park and Williams, Topley and Wilson and many others are not only referred to frequently but the author handles the subject in much the same way as the English writers. The book is divided into five parts. The first or introductory part is a treatise on the bacteria in general. The second part discusses infection and immunity. This portion is concise and short. It touches only the most important aspects of this phase in bacteriology. The third part describes the salient characteristics of the pathogenic bacteria. The arrangement of this part is not as detailed, systematic or accurate as that found in English textbooks of bacteriology, the differentiating morphologic and cultural characteristics are not discussed in sufficient detail. Only the more common and well known pathogens are included, and closely related bacteria are omitted. In the genus *Mycobacterium*, for example, only the tubercle and lepra bacilli are described, and differentiating characteristics of other acid-fast organisms are not stated. The fourth part describes infectious diseases in which the causative organism is as yet undetermined. The author describes a 'typhus exanthematicus of São Paulo' in which he has demonstrated 'Rickettsia brasiliensis' in the endothelial cells in the peritoneum of guinea pigs inoculated with virus. In this fourth part a chapter on bacteriophage is included. The underlying principles are briefly discussed. The fifth part, consisting of only three pages, outlines the bacteria commonly found in milk and water. A supplementary portion describes the common pathogenic fungi and protozoa. This part is of little value to students or physicians, since the descriptions are too brief and there are no illustrations.

**Practical Pedodontia or Juvenile Operative Dentistry and Public Health Dentistry An Introductory Text for Students and Practitioners of Dentistry** By Floyd Eddy Hogeboom D.D.S. Professor of Children's Dentistry College of Dentistry University of Southern California Special chapters by Forrest Anderson M.D. Sc.D. Director Child Guidance Clinic of Los Angeles and Pasadena Harold Hawkins D.D.S. Thaddeus P. Hyatt D.D.S. F.A.C.D. Director Dental Department Metropolitan Life Insurance Co. and Harry E. Straub D.D.S. Special Instructor in Exodontia and Minor Surgery Third edition Cloth Price \$6.50 Pp 327 with 259 illustrations St. Louis C.V. Mosby Company 1933

This is intended as a textbook and reference authority for students and practitioners of dentistry for children. In his introduction the author properly emphasizes the importance of dentistry for children. He stresses the fact that all children require the consultation and assistance of a dentist and that adequate dental care in childhood would prevent a large proportion of the dental difficulties of maturity. The chapters on the management of children in the dental office and on mental hygiene, the latter by Forrest N. Anderson are fully as interesting and important to those having the responsibility for the care of children as to the doctor. The fourth chapter, on embryology is a brief and sketchy outline of the early stages of embryologic development. Since most dental students have two years of preprofessional collegiate training, the inclusion of such a chapter in a textbook becomes less and less important. It cannot be made extensive enough to satisfy the demands of those who are interested. The fifth and sixth chapters are devoted to the growth and development of the individual as well as to the development of the teeth and dentures. These subjects are of great importance to all interested in the care of children and it is gratifying to see them occupying more space in such textbooks. In general the technical

chapters are excellent, included are cavity preparation, filling materials, roentgenography and the various operative phases of the subject. The directions with reference to extraction of the first permanent molars should be modified to emphasize the seriousness of the loss of this tooth. The sentence "The erupting second permanent molar will move forward and fill the space without tipping" (page 137) should either be removed or be modified. At present it leaves an erroneous impression. Dr Thaddeus P. Hvatt's chapter, based as it is on the examination of more than 12,000 persons, is worthy of careful consideration. The chapter of Dr Harold F. Hawkins, on prevention of dental caries by nutrition, is an excellent presentation of the work of this investigator. While the theoretical explanations may or may not be correct, his clinical methods are giving gratifying results in the control of dental disease. The chapter on endocrinology and its relation to dentistry summarizes the generally accepted beliefs in this field. The chapter on public health in dentistry deserves special commendation, especially is the inclusion of this subject in such a work to be commended. The book will be found interesting and profitable for students in this field.

*Les dilatations des bronches. Clinique pathogénie diagnostique et traitement.* Par Michel Léon Kildberg, médecin des hôpitaux de Paris. Paper. Price 22 francs. Pp 126 with 19 illustrations. Paris: Masson & Cie 1934.

This is an excellent presentation, in compact form, of the views of one of the highest authorities in France on the subject of bronchiectasis. For diagnosis the author advises the use of two methods: one, the introduction of iodized poppy-seed oil by the catheter passed through the nose; the other, bronchoscopy. Minute instructions are given for a special technic in the making of the roentgenograms. The advantages of bronchoscopy in the author's opinion are that it not only enables a diagnosis but gives valuable information as to the condition of the mucosa, the abnormalities at the bifurcation, the diameter of the bronchi at various levels, the pathology of the narrowings, and the presence or absence of neoplasms. In connection with the description of the clinical features the matter of treatment is carefully considered. The author's experience has been unfavorable with lobectomy except in extremely rare cases. Progressive emphysema is regarded as involving excessive risk, though occasionally curative. Collapse he regards as but rarely indicated. In the final paragraph the following statements are made: "Almost always bronchoscopic methods constitute the treatment of choice. It is palliative in most of the cases and if used early has resulted in definite cures without any risk. The technic of bronchoscopy is not given. The author is an internist who has seen much of the bronchoscopic work of Andre Soulas."

*Recent Advances in Psychiatry.* By Henry Devine, OBE, MD, BS, Medical Superintendent, Holloway Sanatorium, Virginia Water, Surrey, England. Second edition. Cloth. Price \$4. Pp 364. Philadelphia: P. Blakiston's Son & Company, Inc. 1933.

When the first edition of this book was reviewed, it was pointed out that it was an excellent summarization of the best of the tremendous literature in the fields of neurology and psychiatry. The same comment can be made of the present edition. The book serves as a worthy supplement to the conservative psychiatric textbooks and it is carefully done. As in the earlier edition, one finds that the organic and physiologic factors in the psychoses are chiefly stressed and there is much emphasis placed on those changes in the psychoses which may be artificially produced. The larger number of chapters deal with the infectious toxins and somatic factors as well as with somatic conditions in the psychoses. For some time the literature of psychiatry has been much in need of some of the material in this book, particularly that which summarizes such subjects as those discussed in part IV under the titles "blood sugar studies," "basal metabolism," "deficient oxidation," and the "psychogalvanic reflex." Some space is given to the biopsychic types and also to certain phases of psychology as applied to the psychoses. The last section deals chiefly with psychology from the Freudian point of view, with an occasional mention of Jung. Psychotherapy, child psychiatry and nursing are but briefly touched on, but this brevity is only to be expected in view of the obvious limitations of space imposed

on the writer of a book such as this one. All in all, the book remains an excellent summary of the literature, and the new chapters and paragraphs that have been inserted have added greatly to the usefulness of this study. The leaning toward the organic, which has been mentioned as characterizing this volume, is excusable in view of the fact that there is a companion volume treating of the psychoneuroses.

*Science and Sanity. An Introduction to Non-Aristotelian Systems and General Semantics.* By Alfred Korzybski. Cloth. Price, \$5.50. Pp 798 with illustrations. International Non-Aristotelian Library Publishing Company, Lancaster, Pennsylvania. Science Press Printing Company, 1933.

In spite of its title, this book is neither scientific nor sane, it is merely ponderous. It is the first volume of a series of books dealing with non-Aristotelian logic. As the volume runs to almost 800 pages it is not susceptible to summarization, particularly since it is so abstract. The chief principle of Aristotelian logic is an attempt to find similarities, and the present author criticizes this saying that abstractions should be found, and hence that the most valid science that can be brought to bear on life is mathematics. He feels that mathematics is a group of patterns of relational language, which reveals at its various steps the workings of the human mind, and he stresses the fact that much of the difficulty that the human mind experiences is in grasping meanings which he calls "semantic structures." The entire book is a combination of various abstruse interpretations of linguistics and mathematics, which will be found rather difficult of comprehension for one who is not trained in logic—and algebraic logic, at that. This author's information is derived from such varied sources as Aristotle and Niels Bohr, Isaac Newton and C. S. Sherrington and William A. White. Since he points out that mental adjustment is a purely linguistic matter, this author would seem to be well adjusted, but to the psychiatrist there seems to be little of value in the book. There are vast chapters dealing with abstruse mathematical problems and others treating of linguistics, only two of which can be definitely tied up with psychiatry and these only from the aspect that they represent a summing up of such ideas about the nervous system as may bear a relationship to the author's theories. However, future issues, which are to discuss more specific subjects, may add something to make this type of thinking more palatable.

*Beiträge zur Kenntnis der septischen Pleuraempyeme unter besonderer Berücksichtigung der Spätergebnisse.* Von Evert Schildt, Med. Lic. Inaugural Dissertation zur Erlangung der medizinischen Doktorwürde. Uppsala. Paper. Pp 205 with illustrations. Uppsala: Almqvist & Wiksells Boktryckeri a. B. 1931.

This monograph, which is an inaugural dissertation with a selected bibliography, consists of a general discussion of type, etiology, pathogenesis, diagnosis, bacteriology, complications and treatment of acute and chronic empyema and their complications, with results as to permanent healing, recurrence, causes of death and degree of rehabilitation. It includes 289 case reports. The treatment for the most part was by open drainage by means of subperiosteal rib resection or intercostal incision. In seven cases immediate symptoms were suggestive of acute collapse of the lung with mediastinal flutter. Four of these patients died shortly following operation. The closed method of drainage was used in only four cases. The total mortality was 18.6 per cent. The study is thorough, systematic and comprehensive and is well worth careful perusal by those interested in the subject.

*The Hospital Manual of Operation.* By Warren P. Morrill, Ph.D., M.D. Cloth. Price \$3. Pp 315 with 19 illustrations. New York: Lakeside Publishing Company, 1934.

This contains chapters on organization, staff organization, planning and construction, admission and discharge procedures, purchase and issuance, nursing department, dietary department, housekeeping, mechanical department, special equipment, clinical records, fire protection, accounting and public relations. The author gives a valuable discussion on each of these subjects. The book does not pretend to be a complete guide for any single job in the hospital. It gives a great deal of information not included in similar works. The bibliography at the end of each chapter should be of assistance where the works referred to are available.

## Medicolegal

**"Mariguana" Defined**—The defendant, Navaro, was convicted on an information charging him with possessing marihuana, under the Utah statute providing that

'It shall be unlawful for any person firm or corporation to sell furnish or give away or offer to sell furnish or give away or to have in possession any cocaine opium morphine codeine heroin peyote (mescal button) alpha eucaine beta eucaine nova caine flowering tops and leaves extracts tinctures and other narcotic preparations of hemp or loco weed (*cannabis sativa* Indian hemp) *mariguana* or chloral hydrate or any of the salts derivatives or compounds of the foregoing substances or any preparation or compound containing any of the foregoing substances, or their salts derivatives or compounds excepting upon the written order or prescription of a physician dentist or veterinary surgeon licensed to practice in this State' *Comp. Laws Utah 1917 Sec 4432, as amended by Laws of Utah 1927 Ch 65*

On appeal to the Supreme Court of Utah, Navaro contended that the term "*mariguana*," as used in the statute, signified a plant, not a drug, that the statute did not forbid the possession of "*mariguana*" but forbade only the possession of its flowering tops and leaves and the tincture, extract, and other preparations of it, and that therefore the possession of "*mariguana*" was not an offense under the statute

The word "*mariguana*," said the court, is not found in most of the ordinary dictionaries of the English language and is not directly defined in any of the medical or scientific dictionaries available to the court. It is not a scientific name either of a plant or a drug, but is a word in local use, of comparatively recent origin in the United States. Several variants of the word are in use, all meaning the same thing, as *mariguana*, *marahuana*, *marajuana*, *maraguana*, and *marihuana*. The growing body of literature with respect to *marihuana* and its uses is found in magazines and newspapers, rather than in scientific works. The *Encyclopaedia Britannica*, edition 14 volume 2, page 420, however, correlates *marihuana* to *cannabis* when it defines hemp as *cannabis sativa* and says

Other forms are cultivated for the narcotic drug *cannabis* known in different forms and in different countries as *hasheesh* *blang* *gunga* *charras*, *kif* and *marijuana* in India Arabia, Africa and Mexico

Terry and Pellens, in "The Opium Problem," 1928, page 809, make a similar correlation, saying

More recently another group of drugs has found its way into the anti-narcotic laws of a number of the states. This group is included under the genus of *cannabis sativa* which includes the two species *cannabis indica* and *cannabis americana*. This drug is also known under the Spanish name of *Marihuana*

The use of the word *marihuana* by physicians, chemists and police officers, and by persons who smoke it, has been recognized by the Supreme Court of Utah in *State v Diaz*, 76 Utah 463 290 P 727, wherein the court quoted at length the testimony of a physician regarding the nature and effects of the preparation, and it was referred to again in *State v Franco*, 76 Utah 202, 289 P 100. In *State v Bonoa*, 172 La 955, 136 So 15 the defendant, charged with having possession of plants known as *marajuana*, under a statute making it unlawful to possess such plants, contended that there was no such plant and that the terminology of the statute conveyed to the people no conception of what was prohibited. But the court said

We do not find any difficulty in holding that the use of the word *marajuana* in connection with the word plant conveys to the mind exactly what the Legislature intended to convey namely the plant scientifically known as *Cannabis Indica* or *Cannabis America* [sic] though there possibly may be some slight and unimportant botanical difference between the two but apparently none in its effects upon the human system. It is true that the word is not found in dictionaries ordinarily used but it is found in the *American Illustrated Medical Dictionary* where it is spelt *Marihuana* and in the *Encyclopaedia Britannica* (1929 14 Ed) in the article on Hemp where it is spelt *Marijuana* and in the statutes of at least two other states namely New Mexico where it is spelt *Mariguana* (Chapter 42 of Laws of New Mexico 1923 p 58) and Texas where it is spelt *Marijuana* (Vernon's Annotated Criminal Statutes 1925 vol 2 Pen Code chapter 3 art 720). In these statutes the word seems to be used in reference to some drug or preparation from the plant *Cannabis Indica* or *Cannabis* [sic] *Sativa*. However the application of the name of the drug or preparation to the plant as for instance the plant known as *Marajuana* could hardly be misleading even assuming that the word more properly refers to the drug or preparation than to the plant itself

Laws of Colorado 1927, chapter 95, section 1 page 309, refer to "*Cannabis Indica*, or *Cannabis Sativa*, commonly known

as Indian Hemp, *Hasheesh*, or *Marijuana*" The Texas statutes (Complete Texas Statutes, 1928, art 720, p 1107 [Vernon's Ann P C, art 720]) refer to "*cannabis (cannabis) indica, cannabis (cannabis) sativa* or preparations thereof or any drug or preparation from any *cannabis (cannabis)* variety, or any preparation known as *marijuana*" Laws, New Mexico, 1923, chapter 47, section 1, page 58, refer to "*cannabis* [sic] *indica*, also known as *hashish* and *mariguana*" The Montana Statute (Rev Codes Mont, 1921, sec 3186, as amended by act of March 8 1927, ch 91, sec 1) refers to "*marihuana (Cannabis Indica)*" In the *American Journal of Police Science*, volume 2, page 257, Eugene Stanley, district attorney, parish of Orleans, New Orleans, says

*Marihuana* is the Mexican term for *Cannabis Indica*. The plant or drug, known as *Cannabis Indica* or *Marihuana*, has as its parent the plant known as *Cannabis Sativa*

It would seem said the Supreme Court, that the word "*mariguana*," when used without modifying words, indicates the product or preparation consisting of the flowering tops leaves and seeds of *Cannabis sativa*, rather than either the whole plant or the fibrous stocks thereof. Although it is used indiscriminately in some articles with reference to the plant, the drug or the flowering tops and leaves of *Cannabis sativa*, the preponderant use of the word, the court thought, clearly had reference to the product used for smoking. That use was so frequent and common that when the statute prohibited the unauthorized possession or sale of "*mariguana*" as a drug, no one could misunderstand its meaning. The information under which the defendant was convicted charged the unlawful possession of "*mariguana*," in the language of the statute, and that was sufficient

The contention of the defendant that he had been erroneously convicted because the state had not proved that he did not possess the *marihuana* found on his person, on the written order or prescription of a licensed physician, dentist or veterinary surgeon, the court held to be without merit, quoting 49 C J 1053

Where the statute relating to poisons or narcotic drugs contains exceptions a defendant desiring to avail himself of any of them by way of defense must show that he comes within its intent. Thus the burden is upon one accused of illegal possession to show that his possession was lawful under a proviso or exception of the statute under which he is being prosecuted

The judgment of the trial court was affirmed—*State v Navaro (Utah)*, 26 P (2d) 955

## Society Proceedings

### COMING MEETINGS

- American Academy of Ophthalmology and Otolaryngology Chicago Sept 9 14 Dr William P Wherry 107 South 17th Street Omaha Executive Secretary
- American Association of Railway Surgeons Chicago August 20 22 Dr Louis J Mitchell 21 East Van Buren Street Chicago Secretary
- American Congress of Physical Therapy Philadelphia Sept 10 13 Dr Nathan H Palmer 921 Canal Street New Orleans Secretary
- American Public Health Association Pasadena Calif Sept 3 6 Dr Kendall Emerson 50 West 50th Street New York Executive Secretary
- Colorado State Medical Society Colorado Springs Sept 19 22 Mr Harvey T Sethman 537 Republic Bldg Denver Executive Secretary
- Idaho State Medical Association Lewiston Sept 7 8 Dr Harold W Stone 105 North Eighth Street Boise Secretary
- Michigan State Medical Society Battle Creek Sept 12 14 Dr F C Warnshuis 148 Monroe Avenue Grand Rapids Secretary
- National Medical Association Nashville Tenn August 13 18 Dr C A Lanon 431 Green Street South Brownsville Pennsylvania General Secretary
- Nevada State Medical Association Reno Sept 21 22 Dr Horace J Brown 120 North Virginia Street Reno Secretary
- Northern Minnesota Medical Association Brainerd Sept 10 11 Dr Oscar O Larsen Detroit Lakes Secretary
- Pacific Northwest Orthopedic Association Seattle Sept 1 Dr J C Brugman 1215 Fourth Avenue Seattle Secretary
- Western Branch of American Public Health Association Pasadena Calif Sept 3 6 Dr W P Shepard 600 Stockton Street San Francisco Secretary
- Washington State Medical Association Spokane Sept 10 13 Dr Curtis H Thomson 1305 Fourth Avenue Seattle Secretary
- Wisconsin State Medical Society of Green Bay Sept 12 14 Mr J G Crownhart 119 East Washington Avenue Madison Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Ophthalmology, St Louis

17 475 578 (June) 1934

- Ocular Findings in a Series of Intracranial Fibroblastomas T B Holloway Philadelphia—p 475  
Practical Trial Lenses and a Trial Set E Jackson Denver—p 487  
Malingering Tests A B Bruner Cleveland—p 490  
Intracapsular Versus Extracapsular Extraction of Cataract H S Gracie Chicago—p 497  
Chemistry of Lens IV Nature of Lenticular Proteins A C Krause Baltimore—p 502  
Voluminous Orbitocranial Osteoma Consequent Cerebral Abscess of Nasal Origin J N Roy Montreal—p 515  
Causes of Reactions Following O'Connor Cinch Shortening Operation G N Hosford and A M Hicks San Francisco—p 520  
Extracapsular Cataract Extraction Combined with Posterior Capsulotomy D T Atkinson, San Antonio Texas—p 522

#### American Journal of Public Health, New York

24 433 570 (May) 1934

- Exposure as a Factor in the Age Distribution of Measles, Diphtheria and Poliomyelitis W L Aycock Boston—p 433  
Isolation Time of Scarlet Fever J E Gordon and G F Badger, Detroit—p 438  
\*Evidence that Bacillus Alkalescens (Andrews) May Be a Variant of Bacillus Typhosus Preliminary Report Ruth Gilbert and Marion B Coleman Albany N Y—p 449  
Practical Method for Public Health Laboratory Diagnosis of Infectious Syphilis H E McDaniels Chicago—p 452  
Standard Methods and New Procedures for the Isolation of Colon Bacilli from Water C E A Winslow New Haven Conn—p 456  
Studies on Acidophilus Milk C N Stark Ruth Gordon J C Mauer, L R Curtis and J H Schubert Ithaca N Y—p 470  
\*Vaccine Prepared from Chicken Embryo Cultures for Immunization Against Smallpox Julia M Coffey, Albany N Y—p 473  
Effect of Temperature of Incubation on Agar Plate Count of Milk C S Pederson and M W Yale Geneva N Y—p 477  
Microbiologic Examination of Fresh and Frozen Fruits and Vegetables F W Tanner, Urbana Ill—p 485  
Detection of Carriers Among Food Handlers in Connecticut D Evelyn West, E K Borman and F L Mickle Hartford Conn—p 493  
Differential Reactions in the Colon Group of Bacteria M Levine, S S Epstein and R H Vaughn Ames Iowa—p 505  
Relative Values in Tuberculosis Case Finding R E Plunkett Albany N Y—p 511  
Development of Public Health Administration in the Province of Quebec A Lessard Quebec—p 515  
Diphtheria Prevention in Chicago The Health Officer's Problem H N Bundesen Chicago—p 519  
Contribution of Public Health Nursing to Maternity Infancy and Pre-school Age Group Agnes G Talcott Los Angeles—p 525  
Child Hygiene Maternal Deaths, Brief Report of Study Made in Fifteen States R A Bolt Cleveland—p 527

#### Bacillus Alkalescens a Variant of Bacillus Typhosus

—Gilbert and Coleman offer information concerning eight cases of typhoid. Cultures of both Bacillus typhosus and B alkalescens were isolated from specimens from these patients. One of the cases represents a laboratory infection. The patient had been handling cultures of both species. Although typhoid bacilli were readily obtained from this patient's blood during the first two weeks of illness they were isolated with difficulty from the early fecal specimens while B alkalescens was apparently present in relatively large numbers. Later both types were numerous, and finally neither was found. The significance of B alkalescens in this case can only be conjectured. Its presence previous to the illness is unlikely, since it persisted and disappeared at about the same time as the typhoid bacilli. Therefore it can be concluded that either a strain of B alkalescens may have been the incitant which after entering the body, developed into a true typhoid bacillus, or, if B typhosus was ingested, the other species may have been its variant. The authors show that strains of bacteria having the properties of B alkalescens are present in approximately 1 per cent of all specimens submitted for bacteriologic examination for evidence

of enteric disease. Clinical and epidemiologic data suggest a close relationship to the typhoid bacillus. In the study of specimens from patients recovering from typhoid and in the search for carriers, the presence of this type of micro-organism seems of special import. Even though, in itself, it may have no pathogenic significance, the fact that in so many instances B typhosus has been isolated from the same or other specimens from the person concerned makes a thorough search for this micro-organism imperative, whenever strains of B alkalescens are found. When suspected typhoid carriers are concerned, it would seem important to examine a large series of fecal specimens and, if possible, duodenal contents.

**Chicken Embryo Cultures for Immunization Against Smallpox**—Coffey states that vaccine virus, when cultivated for long periods in a medium consisting of minced chicken embryo tissue suspended in Tyrode's solution, gradually decreases in potency according to the cutaneous reactions induced in rabbits. The potency of the culture virus can be regained by passage through the testicles of rabbits. Vaccines prepared from chicken embryo cultures can be stored at low temperatures for considerable periods without loss of potency if air is excluded. Children vaccinated with culture vaccine developed characteristic primary vaccinia, but the proportion of takes was lower than that among children vaccinated with calf lymph, when either the multiple puncture or single scratch method is used. Since the culture vaccine is both potent and stable, further study should be carried out to determine a method of preparing it for distribution so that it will equal calf lymph in efficacy.

#### Am J Roentgenol & Rad Therapy, Springfield, Ill

31 581 720 (May) 1934

- Duodenitis and Its Roentgenologic Characteristics B R Kirklin Rochester Minn—p 581  
Roentgen Diagnosis of Coronary Disease G Levene, F E Wheatley and Helen Matthews Boston—p 588  
Roentgen Evidence of Extensive Calcification of the Kidneys in Osteitis Fibrosa Cystica Alice Ettinger and H Magendantz Boston—p 593  
\*Roentgen Ray as Aid in the Diagnosis of Hemophilia E L Rypins Iowa City—p 597  
Diverticulum of the Gallbladder J H Vastine Philadelphia—p 603  
Roentgen Diagnosis of Diseases of the Colon Evaluation of Methods H M Weber, Rochester Minn—p 607  
Reaction of Transplantable Mouse Sarcoma No 180 to Radiations of Different Wave Lengths (200 kilovolt Roentgen Rays and Gamma Rays) K Sugura New York—p 614  
The Present Status of Roentgen Therapy with Voltages Above 200 Kilovolts Technical Development and Medical Application T Leucutia and K E Corrigan Detroit—p 628  
Quantitative Method for Studying the Roentgen Ray Absorption of Tooth Slabs S L Warren F W Bishop H C Hodge and G Van Huysen Rochester N Y—p 663  
\*Radon Ingestion and Its Possible Health Dangers H H Barker, New York—p 673  
Transverse Fracture of the Sacrum Report of Case W E Allen Jr, St Louis—p 676

#### Roentgen Ray as Aid in the Diagnosis of Hemophilia

—Rypins presents three cases of hemophilia, with comments on other cases in the literature, which, in his opinion, all showed characteristic changes in the roentgenograms. These roentgenograms revealed marked widening and deepening of the intercondylar fossa, with arthritic changes in the remainder of the joint. The blood supply in the knee joint enters at the intercondylar fossa. Klason considers that bleeding occurs at the point of attachments of the crucial ligaments, at the apex or the intercondylar fossa. Bleeding causes bone deterioration, and it is conceivable that the pressure from the bleeding would cause erosion, at this point, since at the apex of the intercondylar fossa there is no cartilage. However, Key believes that possibly intra-osseous hemorrhage plays an important part. While in tuberculosis of the knee joint there may be some widening and deepening of the intercondylar fossa it does not reach the extent that it does in hemophilia and there is apt to be more destruction of cartilage. Proliferative changes are readily explained by the receding hemorrhages. Since trauma is supposed to be the exciting cause of the hemorrhages, the knee joint is the most logical to study as it is more exposed to trauma and apt to show the more advanced changes. Hemorrhagic purpura sometimes causes bleeding into the knee joint but apparently does not cause enough bleeding to bring about changes demonstrable in the roentgenogram. Low grade infectious arthritis may cause widening and deepening of the intercondylar fossa,

although not commonly, but in this type of condition, in the cases which the author observed, there is apparently no proliferation. The hereditary history and the ordinary laboratory observations would, of course, tend to rule out other conditions. Klason considers the enlargement and widening of the intercondylar fossa an especially distinct feature of hemophilia. The one patient who received ovarian extract has done remarkably well. Heuffer reports that irradiation of the spleen has given some temporary benefit, on the basis that thrombokinase has been liberated.

**Radon Ingestion and Its Possible Health Dangers**—Barker points out that the exposure of an operator in a dial painting laboratory to the emanation in the atmosphere of the laboratory does not in all probability constitute a hazard. Based on typical working conditions the exposure to alpha rays is no more than it would be if 0.00004 microgram of radium element was permanently deposited in the system, a quantity insignificant in comparison with the safe tolerance of the individual. Alpha radiation resulting from the polonium formed from the active deposit is at the best nominal and probably about 2 per cent of the alpha radiation produced by the radon. The chances for any accumulation of the active deposit of slow change in the system are practically nil. The possibility of any harmful effects resulting from the ingestion of radon as administered therapeutically either by inhalation or by injection is remote.

### American Journal of Tropical Medicine, Baltimore

14 207 298 (May) 1934

Differential Pathology of Dysentery G. R. Callender, Baltimore—p. 207  
Studies on the Pathology of Amebic Enteritis in Dogs E. C. Faust and E. S. Kagy, New Orleans—p. 221

\*Studies on Effect of Feeding Ventriculin Liver Extract and Raw Liver to Dogs Experimentally Infected with *Endamoeba histolytica* E. C. Faust and E. S. Kagy, New Orleans—p. 235

\*Carbarsone Rectally in Amebiasis H. H. Anderson and A. C. Reed, San Francisco—p. 257

\*Untoward Effects of Antiamoebic Drugs H. H. Anderson and A. C. Reed, San Francisco—p. 269

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**Desiccated Hog Stomach, Liver Extract and Raw Liver in Experimental *Endamoeba histolytica***—Following a preliminary test of the benefit of feeding raw liver to dogs infected with *Endamoeba histolytica*, Faust and Kagy compared the relative efficacy of desiccated hog stomach, desiccated liver extract and raw liver, fed by mouth to infected dogs. The series includes five positive animals inoculated intracurally with human strains of *E. histolytica*, subsequently treated with desiccated hog stomach, five positive animals, similarly inoculated and subsequently treated with desiccated liver extract, and nine animals, similarly inoculated, of which seven were treated with raw liver before inoculation and two after infection was established. Ninety-four dogs similarly infected but untreated and others uninfected were used as controls. Desiccated hog stomach was found to be consistently harmful to the host, not only being ineffectual in checking the invasion of the amebas but actually reducing the resistance of the tissues of the wall to secondary bacterial invasion. Liver extract was found to be beneficial to the host, and it appreciably arrested the amebic process. This was indicated by the improved appearance of the animal, the tendency toward formed stools with sluggish or encysted amebas and the evidence of repair of the damaged tissues on gross and microscopic post-mortem examination. In most animals, however, the control was only partial and never produced spontaneous cure. Raw liver was found to be helpful in arresting the amebic process and in certain cases produced complete eradication of the pathogenic organism. Clinical "cure" is not conclusive evidence of complete eradication of the amebas. The evidence suggests that the efficacy of the liver feedings consists not in its stimulating action on the hematopoietic organs but by direct contact with the tissues which the amebas attack. It is not amebicidal but amebastatic. Growth and multiplication of the amebas are arrested; they may encyst in the tissues as well as in the lumen of the intestine, and the healing process is appreciably activated. The tendency of liver to neutralize the toxic effects of histamine and other degeneration products of proteins in the lumen of

the intestine conceivably aids the healing process and reduces the danger of bacterial invasion.

**Carbarsone Rectally in Amebiasis**—Anderson and Reed began treatment in twelve cases of amebiasis by instilling into the rectum, after a cleansing enema, 200 cc of a 2 per cent solution of sodium bicarbonate containing 1 per cent carbarsone. A rapidly acting sedative, such as sodium amylal orally in a dosage of 0.2 Gm, was given beforehand to induce sleep and allow the patient to retain the drug overnight, if possible. If the retention enema was expelled during the night, the treatment was repeated until at least five enemas were retained overnight. Usually this procedure was attempted on alternate nights until 10 Gm of the drug had been given. In the majority of cases prompt symptomatic relief followed. It was not necessary to place the patient in a hospital except when he could not be cared for at home. Since the treatment was given at night, it did not interfere with the usual daily activities of the patient. No untoward symptoms or contraindications to the method were noted. Dysenteric symptoms were relieved by using carbarsone rectally, but amebas were not eradicated completely. Oral therapy was resorted to, and eight of the group received the usual dosage of 5 Gm of carbarsone in ten days, given twice a day in gelatin capsules containing 0.25 Gm of the drug. In two cases this course was repeated, and in two more a third series of capsule administration was necessary. Other drugs were tried in combination with carbarsone. Seven of the group received adjuvants in addition to carbarsone rectally, and the stools of five of these remained negative during an average follow-up period of five and one-fourth months. The remaining five who had been given carbarsone alone, orally and rectally, were ameba free during the observation period. From three to six daily stool specimens were examined every two to four weeks during this period. Special search failed to reveal evidence of drug toxicity in any patient. No kidney, liver, eye or other damage from carbarsone was noted. Sigmoidoscopic examinations of nine patients following therapy revealed ulceration of the mucosa of the sigmoid area in only one case. This patient had been refractory to all forms of therapy tried over a period of twelve months but was clinically improved and had gained 7.5 Kg during the year of observation. Weight gains occurred in more than half of the series, and the symptom response was favorable in every case.

**Untoward Effects of Antiamoebic Drugs**—Anderson and Reed point out that emetine hydrochloride is toxic for most mammals, including man, in total doses from 10 to 25 mg per kilogram of weight. The heart muscle bears the burden of the toxic effect. The maximal safe total dose of emetine hydrochloride is 10 mg per kilogram of weight in patients with an amebic hepatitis and free from heart damage. No untoward effects have been observed with the use of the kurchu alkaloids. Acetarsone may exhibit toxic manifestations in one of every six cases treated. The case of a patient showing intolerance to 5 Gm of this agent taken over a period of twenty-eight days is reported. Acetarsone, in the authors' opinion, is too toxic for routine clinical use. Animal experiments emphasize this point. Carbarsone has been given to 330 patients in total doses (orally and rectally) ranging from 75 to 2,100 mg per kilogram of weight in divided amounts over a period of fifteen months. A single instance of intolerance is reported in a patient with acute hepatitis who had an untoward reaction to 5 Gm of the drug given in ten days. An arsenical should not be given in the presence of hepatitis. Slight gastric distress has also been noted, but no evidence of damage to the kidneys, optic nerve, skin or other tissues has been observed. Liver damage has been reported elsewhere from the use of chiniofon, but the authors have abandoned this agent because of its relative inactivity as an amebicide, using vioform in preference to chiniofon. Three of sixty patients given the drug orally in doses ranging from 100 to 1,000 mg per kilogram of weight over a period of twelve months have experienced gastric and other distress but no other definite untoward effects. The drug cannot be used rectally because of local irritation. Since the soluble hydrochloride of vioform causes local effects on mucous membranes, it is possible that a gastric hyperacidity may be responsible for the distress experienced by these three patients. Enteric coated capsules

may eliminate this difficulty. Bismuth subnitrate may cause methemoglobinemia and on this account the use of bismuth subcarbonate should be avoided. Heptylresorcinol irritates the mucous membrane of the gastroenteric tract and is not to be recommended as an amebicide until more adequate data on its efficiency are available.

### American Review of Tuberculosis, New York

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- Hematogenous Pulmonary Tuberculosis J A Miller New York —p 489
- A Fluid Valve in Pyopneumothorax H Sutherland London England —p 521
- \*Anatomic Changes in Diaphragm Following Phrenicectomy Report of Eleven Necropsies W S Stanbury Hamilton Ont —p 528
- \*Correlation of Shifting Electrical Axis of the Heart with X-Ray Observations in Artificial Pneumothorax I Treiger and C J Lundy Chicago —p 546
- A Portable Artificial Pneumothorax Apparatus E Bunta Chicago —p 558
- Effects of Tuberculin (MA 100) on the Course of Experimental Tuberculosis in Rabbits and Guinea Pigs K C Smithburn I R Sabin and J T Geiger New York —p 562
- Spontaneous Occurrence of a Nonacid Fast Form in a Culture of BCG S S Sidenberg and E E Ecker Cleveland —p 571
- Certain Aspects of Pulmonary Tuberculosis in Children with Especial Reference to Prognosis R Morgan Westfield Mass —p 577

**Anatomic Changes in the Diaphragm Following Phrenicectomy**—Stanbury gives an analysis of eleven cases of atrophy of the diaphragm following section of the phrenic nerve. In all but one case the operation of choice was evulsion by the method of Feltz. The duration of the paralysis varied from three weeks to six years. Atrophy of the diaphragm was evident as early as the third week after section of the phrenic nerve and was complete by the fourth month. After paralysis, one half of the diaphragm was elevated and everted into the thorax. With stretching it became a thin whitish membrane of parchment-like thinness. Histologically the atrophy of the paralyzed half of the diaphragm was seen to be complete and uniform. In one case a few normal muscle bundles were seen in one area, scattered among atrophic fibers. This probably represented an accessory nerve supply rather than actual regeneration. In view of the marked distortion of the abdominal viscera in ten of the cases, in three of which there was a fatal gastroduodenal obstruction, the author points out that the possibility of such complications must be considered when advising phrenicectomy for the treatment of pulmonary disease.

**Shifting Electrical Axis of the Heart in Artificial Pneumothorax**—Treiger and Lundy studied the shifting of the electrical axis of the heart measured by Einthoven's "triangle" in correlation with roentgen observations on the positional changes of the heart in thirty-one cases, seventeen presenting left and fourteen right pneumothorax. They observed that artificial pneumothorax without adhesions or fluid whether left or right, shifts the electrical axis to the right. The heart is displaced to the right by left pneumothorax and to the left by right pneumothorax. This displacement may be independent of the shifting of the electrical axis. The degree of shifting of the electrical axis in pneumothorax is in direct proportion to the quality of the pneumothorax. The average shifting of the axis to the right is greater in left than in right pneumothorax. Adhesions in pneumothorax may prevent the usual shifting of the electrical axis to the right in whole or in part, and may be associated with shifting of the electrical axis to the left. The degree of shifting of the axis in pneumothorax with adhesions is influenced by the location, quantity and quality of adhesions as well as by the quality of pneumothorax. Adhesions usually prevent the production of a complete and excellent pneumothorax and are associated with a partial pneumothorax of a lower grade thus diminishing or eliminating the factor of pneumothorax. Fluid in pneumothorax, similar to adhesions frequently is associated with shifting of the electrical axis to the left. This may be due to the presence of adhesions. However, it was seen that fluid without demonstrated adhesions also was associated with shifting of the axis to the left. Fluid in pneumothorax similar to adhesions, influences the quality of pneumothorax and frequently changes it from a complete and excellent pneumothorax into one of partial and of lower grade. Adhesions

develop frequently, especially after a partial absorption of fluid, and their action may overshadow the two other factors—pneumothorax and fluid.

### Annals of Medical History, New York

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- Another Glimpse of Medicine in the Seventeenth Century Beugheims Bibliography L Thorndike, New York —p 219
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- Physical Diagnosis from the Time of Roentgen W E Robertson Philadelphia —p 255
- Ancient Dentistry in the Old and New World B W Weinberger New York —p 264
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### Archives of Internal Medicine, Chicago

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- Etiology and Symptoms of Neurocirculatory Asthenia Analysis of One Hundred Cases with Comments on Prognosis and Treatment H R Craig and P D White Boston —p 633
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- Salmonella Suspestrifer Bacteremia with Acute Endocarditis B A Gouley and S L Israel Philadelphia —p 699
- \*Metabolic Exercise Tolerance Test Simplified Method S Soskin L N Katz P Markle and R Henner Chicago —p 706
- Metabolic Exercise Tolerance Test for Patients with Cardiac Disease Feasible Method for Using Excess Oxygen Consumption and Recovery Time of Exercise as Criteria of Cardiac Status L N Katz S Soskin W J Schutz W Ackerman and J L Plaut Chicago —p 710
- Congestive Heart Failure XIX Reflex Stimulation of Respiration as Cause of Evening Dyspnea W G Harrison Jr J A Calhoun J P Marsh and T R Harrison Nashville Tenn —p 724
- Nature and Significance of Heart Sounds and of Apex Impulses in Bundle Branch Block J K Lewis San Francisco —p 741
- Blood Cholesterol and Thyroid Disease. III Myxedema and Hypercholesteremia L M Hurvithal Boston —p 762
- Cerebrospinal Fluid Pressure and Venous Pressure in Cardiac Failure and Effect of Spinal Drainage in Treatment of Cardiac Decompensation W G Harrison Jr Atlanta Ga —p 782
- \*Heredity in Arterial (Essential) Hypertension Clinical Study of Blood Pressure of One Thousand Five Hundred and Twenty Four Members of Two Hundred and Seventy Seven Families D Ayman Boston —p 792

**Metabolic Exercise Tolerance Test**—Soskin and his associates outline the following method for determining the excess oxygen consumption during exercise and the time required for recovery by the metabolic exercise tolerance test. The spirometer is filled with oxygen from the first tank and if desired, the oxygen consumption during rest is determined or a basal metabolism test may be performed in the usual manner. When this is completed the clockwork drum is stopped and the spirometer is refilled from the first tank. By means of a fine needle valve oxygen is introduced into the spirometer from the second tank through the flowmeter at such a rate that the writing point continues to superimpose its record at the same constant expiratory level. The clockwork drum is now restarted and the record is observed for several minutes to ensure the existence of an exact balance between the oxygen consumed by the resting patient and the oxygen introduced from the second tank. Once this exact balance has been established the adjustment of the needle valve is left unchanged for the duration of the test. Reading of the flowmeter offers an additional visual check on the constancy of the supply of oxygen at all times. With the oxygen flowing into the spirometer at a rate equal to the oxygen consumption during rest the exercise of lifting two 2625 Gm weights through a distance of 375 cm at a rate of twenty times a minute for two minutes is performed and the observations are continued until a new constant expiratory level is recorded. The difference in height between the constant horizontal levels, before and after exercise, represents the excess oxygen consumption during the exercise. The time elapsing from the end of the exercise



to the point at which the final horizontal level is first established represents the time required for recovery. The difference between the horizontal lines may be read directly from the ruled paper in millimeters and converted to cubic centimeters of oxygen by multiplying by the conversion factors 20.73. The volume of gas is corrected to standard temperature and pressure in the usual manner.

**Heredity in Arteriolar Hypertension**—Ayman made a study of the blood pressure, height and weight of 1,524 members of 277 families. Of 780 members, aged from 14 to 39 years, of the second generation of the families, elevated systolic and diastolic blood pressure readings (140 systolic and 80 diastolic, or higher) occurred in 148 subjects. These subjects had the same average age and sex incidence as the entire group of 780 children, but they were 14½ pounds above the average weight compared to 4½ pounds above the average weight for normal children. The families studied were then grouped according to the presence or absence of arteriolar (essential) hypertension in one or both parents. In the families whose parents had absolutely normal blood pressures the incidence of elevated blood pressures in the children was only 3.1 per cent. In the families in which both parents had arteriolar hypertension the incidence of elevated readings in the children reached to 45.5 per cent. Of seventy brothers and sisters of parents with normal blood pressures 37.3 per cent had elevated blood pressure readings whereas of eighty-six brothers and sisters of parents with arteriolar hypertension 65.3 per cent had elevated blood pressure readings. Of eighteen families in which parts of three generations were available, the results were similar to those of the foregoing seventy brothers and sisters. The results presented show that there is an unusually high incidence of elevated blood pressure readings in the children, brothers, sisters and parents of subjects with arteriolar hypertension, as compared with similar relatives of subjects with normal blood pressure. These results are strong evidence for the existence of a hereditary factor in arteriolar (essential) hypertension.

### Arch of Physical Therapy, X-Ray, Radium, Chicago

- Surgical Tuberculosis 15 257 320 (May) 1934  
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\*Transurethral Surgery Its Indications and Limitations J R Caulk  
Id Review of Recent Reports and Some Personal Experiences H C  
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**Transurethral Surgery**—Caulk is convinced that transurethral surgery should be employed in at least 80 per cent of all vesical neck obstructions benign and malignant and that it could be employed in practically all obstructions but for his belief in the necessity for repeat operations. In dealing with prostates of tremendous dimensions he does not feel justified if the subjects are good surgical risks in subjecting them to such a long course of corrective transurethral procedures, but he thinks that these glands should be removed surgically. In the poor surgical risks the aim should be to give them a maximal result with a minimal sacrifice and this can be done only through repeated transurethral procedures over a long period. Transurethral surgery is indicated in practically all cancers of the prostate usually in conjunction with radium or high voltage roentgen therapy, polyps or congenital bands in the urethra, contractures of the neck in women and children as a complication of vesical tuberculosis and to close indolent suprapubic fistulas. The punch operation of the cautery type, such as the author's, or associated with coagulation is far superior to any of the electrical devices at present employed. He describes a modification of the cautery punch that meets the demand for a visual instrument which will remove tissue with the highest degree of safety.

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Anterior Pituitary Therapy S Hertz and A  
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p 421

**Calorigenic Action of Thyroid**—Lerman and Harington and an intermediary substance for comparing the physiological action of various types of thyroid substance. Daily oral administration of 0.5 mg of iodine in this form in five cases of myxedema produced approximately the same average daily intravenous injections of 0.5 mg of iodine in form into such patients. A single curative dose of iodine as polypeptide in two cases of myxedema in intravenous route somewhat more effective than the oral large dosage. On the other hand, intravenous polypeptide single large dose duplicated the effect of crystalline iodine given intravenously in equivalent dosage. Since the polypeptide is optically active and the crystalline thyroid racemic, it follows that neither optical activity nor linkage enhances the physiologic potency of thyroxine effect of whole gland was tested by daily oral administration of desiccated thyroid. In three cases of untreated myxedema patients reacted more rapidly than the standard reference subjects. Four other patients received from 0.69 to 0.77 mg of total iodine in the form of desiccated thyroid. The response of five patients receiving 0.42 mg of total iodine daily in the form of desiccated thyroid was slightly less than that of the control group. Comparative studies of the maintenance dose (in terms of iodine) of six lots of commercial thyroid in twenty cases of myxedema indicated that total organic iodine rather than thyroxine iodine was important. The results indicate that all the iodine in thyroglobulin is calorigenically active. They also indicate that thyroid substance should be assayed in terms of total organic iodine rather than thyroxine iodine. The significance of total organic iodine holds quantitatively not only for whole gland but also for thyroglobulin and the smaller degradation products. Assays of thyroglobulin from one patient having myxedema

toxic colloid' glands on two patients having myxedema indicated in effect that was better referred to the total organic iodine than to thyroxine iodine. Thyroxine peptone obtained by peptic digestion of human thyroglobulin gave similar results in two cases, whereas diiodotyrosine peptone previously fed to these patients, produced no metabolic effect. Therefore the results suggest that diiodotyrosine iodine is calorimetrically potent so long as it is part of the thyroglobulin molecule but loses its activity when separated from the thyroxine iodine fraction.

**Weight Changes in the Suprarenals**—Blumenfeld studied the suprarenals from 176 rats to determine the effects of dietary modifications on the estimated weights of the cortex and the medulla of the suprarenals. Weights were estimated from serial sections by the paper outline method and it was shown that sections taken at 240 micron intervals gave average results not significantly different from those with sections at 10 or 15 micron intervals. The first pregnancy in normal Wistar albino rats did not alter the weight of the cortex or the medulla. Rats deprived of vitamin E and killed during the second pregnancy had suprarenals the cortex of which was questionably hypertrophied but the medulla of which was definitely atrophied. Rats maintained on a vitamin E deficient diet and carried through a first pregnancy then refed vitamin E and killed during a second pregnancy had significantly enlarged suprarenals, owing entirely to cortical hypertrophy. The medulla returned to a normal weight. A fat-free diet produced in male and female albino rats a relative atrophy of the suprarenals, because of both cortical and medullary decrease. Curing the symptoms of this diet by feeding fatty acids, chiefly linoleic did not cause a return of the suprarenal weight to normal. The weight of the medulla did increase but the cortical weight remained practically unchanged. The differences between the cortex and the medulla of the various female groups were statistically significant, none of those in the male groups except the subnormal weight of the medulla in the test group, were significant.

**Hyperglycemia Previously Attributed to the Anterior Pituitary-Like Principle**—The experiments of Davis and his associates reveal that the hyperglycemia produced by injection of urine into rabbits is due to urinary constituents other than the anterior pituitary-like principle that is uric and hippuric acids and possibly other substances. It cannot be elicited in pseudopregnant rabbits or in rabbits that have received massive doses of follicular hormone. It depends on the presence of the suprarenal medulla even though it does occur when the suprarenal medulla has been deprived of its thoracolumbar sympathetic innervation.

### Georgia Medical Association Journal, Atlanta

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### Journal of Bacteriology, Baltimore

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- Antiseptic Effect on Tubercle Bacilli of Certain Recently Advocated Compounds M L Cohn Denver—p 517  
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**Differentiation of Hemolytic Streptococci by Precipitin Tests**—According to Edwards, it was possible to differentiate hemolytic streptococci of human and animal origin by the precipitin test when acid extracts of the organism were used as antigens. *Streptococcus equi*, type A animal streptococci and type B animal streptococci all belong to the same serologic group. Streptococci of human origin constitute a second group. No cross reactions occurred between the two groups.

### Journal of Biological Chemistry, Baltimore

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### Journal of Immunology, Baltimore

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**Leukocytes in Immunity to Herpes**—The experiments of Jamuni and Holden, on rabbits, suggest that leukocytes have a definite tropinizing function in destroying herpes virus in the presence of immune serum. Both normal and immune cells aided in the inactivation of the virus in the presence of immune serum when the latter alone was present in an amount insufficient to neutralize the virus. At times results almost equally good were obtained with immune cells in the presence of normal serum, which suggests that leukocytes or possibly tissue cells, may be even more important than the serum antibodies in active herpes immunity. Mononuclear cells are more efficacious than polymorphonuclear cells in the disposal of herpes virus. The authors believe that the enhancing action is due to phagocytosis of the opsonized virus although this statement cannot be verified lacking demonstration of whatever morphologic unit constitutes the virus. Their experiments indicate that immune or normal phagocytic cells bring about a greater virucidal effect than can be obtained with immune serum alone.

**Cataphoresis in Prevention and Treatment of Infections of the Respiratory Tract**—According to the obser-

vations of Rosenow, vaccines prepared from strains of streptococci isolated in studies of influenza and preserved in glycerin salt solution suspensions have been shown to be harmless and to have well marked antigenic, preventive and curative powers against the common cold, influenza and other acute and chronic streptococcal infections of the respiratory tract. These results are in accord with those obtained in prophylactic inoculations against pneumonia during the pandemic of influenza of 1918 to 1920. Cataphoresis has been found useful in controlling the specificity of the streptococcus as found in various infections of the respiratory tract and as incorporated in vaccines. Experimental basis for the commonly observed early good effects from the use of the vaccine in treatment is afforded by the markedly increased destruction of streptococci in the peritoneal cavity of mice, due, it would seem, to altered cellular response or "immunity" induced by intraperitoneal or subcutaneous injection of the vaccine twenty-four hours before

### Journal of Infectious Diseases, Chicago

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 \*Occurrence and Persistence of Type Specific Agglutinins and Protective Antibodies in the Serum of Rabbits Following the Inhalation of Living Pneumococci (Types I and II) E G Stillman New York—p 339  
 Classification of Brucella A Thomsen Copenhagen Denmark—p 345  
 Acid Fast Organism from Leprous Lesions Cultivation in Tissue Cultures and Other Mediums A J Sallie Berkeley Calif—p 347  
 Unsuccessful Attempt to Demonstrate Filtrable Forms of Bacteria with K Medium O R Kelley Denver—p 360  
 Tests for Cross Immunity Between the Virus of Borna Disease and That of Equine Encephalomyelitis Beatrice F Howitt and K T Meyer San Francisco—p 364  
 Immunization of Guinea Pigs to the Virus of Equine Encephalomyelitis Beatrice F Howitt San Francisco—p 368  
 Experimental Studies of Postmortem Bacterial Invasion in Animals C G Burn New Haven Conn—p 388  
 Postmortem Bacteriology C G Burn New Haven Conn—p 395

**Specific Agglutinins in Serum Following Inhalation of Pneumococci**—Stillman states that, when rabbits are repeatedly exposed to a spray containing type I pneumococci type specific antibodies appear in the blood. In the experiments that he reports, agglutinins could be demonstrated in the serums for only a short period after the course of exposures was terminated. Protective antibodies, however, persisted for long periods, even for several years. When rabbits were repeatedly exposed to a spray containing virulent type II pneumococci, protective antibodies could be demonstrated in the serums for only relatively short periods of time, while agglutinins were only occasionally found to be present. When rabbits are repeatedly allowed to inhale cultures of rabbit-virulent type III pneumococci, type specific immune bodies do not appear in the blood. The immunity reaction exhibited by rabbits which have repeatedly inhaled a spray containing live pneumococci differs in different animals, depending to a considerable extent on the type of pneumococcus employed in the experiment.

### Journal of Nervous and Mental Disease, New York

79 497 620 (May) 1934

- Enlarging Responsibilities for the Physician W A White Washington D C—p 497  
 Psychiatric Study of Hyperthyroid Patients Agnes Conrad New York—p 505  
 Spongioblastoma Multiforme of the Spinal Cord Case Report A W Bryan Madison Wis—p 530  
 \*Juvenile Addiction and Nerve Block P M Lichtenstein and M B Greene New York—p 534  
 Mental Disorders Related to Childbirth G Frumkes New York—p 540

**Justifiable Addiction and Nerve Block**—Lichtenstein and Greene are of the opinion that nerve block holds great promise as a substitute for agencies employed to allay unusual sensory disturbances because it gives relief in painful conditions. In certain diseases, it is certainly an aid in effecting a cure. Nerve block suggests a means of treating diseases of narcotic addiction. The authors are engaged in a series of experiments which, they hope, will finally solve the problem of scientific treatment

of addiction. They have cured people who became addicted because of certain painful conditions. They have followed some such cases for several years and are satisfied that these people have no desire for narcotics and are permanently cured of addiction.

### Kansas Medical Society Journal, Topeka

35 201 240 (June) 1934

- The Psychoses Associated with Pregnancy B C Smith Topeka—p 203  
 Lymphogranuloma Inguinale T B Hall and P F Stookey Kansas City Mo—p 209  
 Rheumatic Heart Disease A M Ginsberg Kansas City Mo—p 212

### Kentucky Medical Journal, Bowling Green

32 275 332 (June) 1934

- Bulbar Form of Poliomyelitis Report of Case J W Bruce Louisville—p 280  
 Leprosy in Kentucky L H South Louisville—p 283  
 Adynamic Ileus in Abdominal Surgery E W Jackson Paducah—p 284  
 Vitamins Discussion of Our Knowledge to the Present Time V E Simpson Louisville—p 290  
 The Hazard of Trying to Forget W E Gardner Louisville—p 299  
 Glimpse of Primitive Medical Men and Early Medicine A H Barkley Lexington—p 306  
 Intravenous Urography J N Townsend and O Grant Louisville—p 309  
 The Thyroid Gland The Study of the Eyes in Goiter A O Pfingst Louisville—p 313  
 Id Ten Minutes of Thyroid Endocrinology R A Bate Louisville—p 315  
 Id Surgical Considerations of the Thyroid W O Johnson, Louisville—p 319  
 Medical Melange O P Nuckols Pineville—p 324

### Maine Medical Journal, Portland

25 85 116 (May) 1934

- Massage and Mobilization in Treatment of Recent Injury S H Kagan Augusta—p 101  
 Dermoid Cyst of the Floor of the Mouth Report of Case H P Johnson Portland—p 104  
 The Tonsil Problem F W Hanlon Brunswick—p 106

### Medicine, Baltimore

13 123 250 (May) 1934

- Vitamins and Resistance to Infection Elizabeth Chant Robertson Toronto—p 123  
 Potential Energies of Oxidation Reduction Systems and Their Biochemical Significance W M Clark Baltimore—p 207

### Military Surgeon, Washington, D C

74 225 280 (May) 1934

- Gwathmey's Oil Ether Colonic Anesthesia J F Gallagher—p 225  
 Notes on Recent Literature of the Eye Ear, Nose and Throat C J Brown—p 234  
 \*Tularemia Treated by Neoarsphenamine Case History B L Shellhorn and C Beckwith—p 239  
 Diagnosis and Treatment of Acute Abdominal Conditions Commonly Found in CCC Camps D M Fuks—p 242  
 Carbon Tetrachloride Poisoning in Ascariasis Case Report G E Horrocks—p 246

**History of Tularemia Treated by Neoarsphenamine**—Shellhorn and Beckwith say that blood taken early in their case of tularemia treated with neoarsphenamine did not show Bacterium tularensis. Six injections of 0.45 Gm doses were administered. The initial lesions began to improve noticeably within three days after the first injection. The right axillary gland ceased draining within twenty-four hours after the administration of neoarsphenamine at the second admission. The infection was caused by the bite of a squirrel. Infection with tularemia from the bite of an animal is most unusual. Members of the Forestry Service state that no other case of tularemia has come to their attention.

### Nebraska State Medical Journal, Lincoln

19 201 240 (June) 1934

- The New Order Our Medical Utopia J Birby Geneva—p 201  
 Congenital Heart Disease Report of Three Cases G W Covey and J M Neely Lincoln—p 204  
 Fixation Position for Optimal Joint Function R D Schrock Omaha—p 211  
 Treatment of Some Common Organic Neurologic Syndromes A E Bennett Omaha—p 215  
 Unusual Goiters M Emmert Omaha—p 219  
 Pulmonary Abscess J Weinberg Omaha—p 222  
 May Psychic Stimuli Produce Hay Fever? O C Nickum Omaha—p 224  
 Cholecystitis Due to Brucella Melitensis E L MacQuiddy and J W Martin Omaha—p 227

## New England Journal of Medicine, Boston

210 1043 1094 (May 17) 1934

- Compression Fractures of Vertebral Bodies J P Bowler and J P Gile Hanover N H—p 1052  
Necessary Requirements in a Mimiml Diet for Infants and Children J L Morse Boston—p 1057  
\*Use of Ergotamine Tartrate in Migraine W G Lennox Boston—p 1061  
\*Parenteral Administration of Paraldehyde for the Control of Pain and Convulsive States A S Johnson Springfield Mass—p 1065  
Foreign Protein Sensitization with Meningeal Involvement Due to the Use of Vaccine W E Hall and T P Murdock Meriden Conn—p 1067  
Recurrent Dislocation of the Shoulder F J Cotton and G M Morrison, Boston—p 1070

210 1095 1144 (May 24) 1934

- Notes on Giant Cell Tumors of Bone and Cysts F J Cotton Boston—p 1095  
Cancer of the Mouth in Women G W Taylor Boston—p 1102  
Diaphragmatic Hernia Medical and Surgical Treatment S A Wilkinson Boston—p 1105  
Chronic Arthritis and Its Treatment H A Nissen Boston—p 1109  
Treatment of Constipation A C Brailey Boston—p 1116  
Treatment of Leprosy Notes C E Bousfield Chaoyang, via Swatow, China—p 1118  
The Family Doctor O A Moser Rocky Hill Conn—p 1120

**Use of Ergotamine Tartrate in Migraine**—Lennox administered ergotamine tartrate by intravenous or subcutaneous injection to forty-five patients who gave a history of migraine, while they were having a headache. Abrupt termination of the initial attack treated occurred in forty patients. Eight of the patients had had frequent, incapacitating headaches for many years, had not found relief by other drugs or treatment and have used ergotamine tartrate for six months or longer. Seven of these have had almost uniform relief for individual attacks. Of these seven, four are having attacks at more frequent and three at less frequent intervals than before medication was started. The recommended single dose is 0.5 mg subcutaneously or 1 mg orally. Because patients vary in their reaction to the drug, it is wise to give but half the full subcutaneous dose at the first trial. If this is well borne but not effective, the full dose can then be given. The dosage can be repeated after an interval of from two to three hours. For a prompt sustained effect, the author prefers to give 0.5 cc (0.25 mg) intravenously and at the same time, the same amount subcutaneously. The dose should be varied in order to find the least amount that is effective. It is presumably more effective if given early in the attack.

**Paraldehyde for Control of Pain and Convulsive States**—Johnson found the intramuscular use of paraldehyde beneficial in various maniacal and convulsive cases in which morphine failed to give relief. He considers 8 cc an average dose for an adult weighing about 140 pounds (63.6 Kg). The injection should be given deeply into the gluteus medius to avoid sloughing. In the hope of avoiding the pain of intramuscular injection, the intravenous route has been employed in a few cases. A patient suffering terrific pain from a coronary thrombosis was given 5 cc of undiluted paraldehyde into the vein at the rate of about 1 cc in three seconds. The patient lost consciousness in about ten seconds. Coincident with the onset of anesthesia there was a slight amount of pharyngeal irritation accompanied by coughing and a strong smell of paraldehyde on the breath. After a few coughs the patient appeared completely relaxed and slept quietly for about an hour. On awakening the pain was much less severe and could be controlled adequately with morphine. Intravenous paraldehyde in doses of from 7 to 10 cc has been used to control the restlessness and headache of a hypertensive patient with evidence of extensive cerebrovascular pathologic symptoms. This patient was violently nauseated by morphine and was unable to retain the barbituric acid derivatives by mouth or rectum. Quiet sleep was induced on each of six successive nights by the intravenous administration of 7 cc of paraldehyde. The sleep would last several hours but could be greatly prolonged by the rectal injection of from 5 to 10 grains (0.32 to 0.65 Gm) of sodium amylal which was retained if given after consciousness had been lost. This patient began to show some degree of tolerance to paraldehyde after two or three injections. Tolerance to paraldehyde unquestionably develops and habit formation has been reported but these should not be problems if the drug is used only occasionally to control severe pain or convulsive states requiring rapid anesthesia. Although

unpleasant it requires no sterilizing and has a wide margin of safety, while being almost instantaneous in action when administered parenterally.

## New Orleans Medical and Surgical Journal

86 775 854 (June) 1934

- The Failing Heart of Middle Life J E Knighton Shreveport La—p 783  
Endemic Dysenteric Infections in Louisiana D N Silverman New Orleans—p 786  
Treatment of Cardiovascular Syphilis J H Musser New Orleans—p 789  
Treatment of Neurosyphilis F L Fenno New Orleans—p 793  
Treatment of Congenital Syphilis C O Lorio Baton Rouge La—p 795  
The Proved Value of a State Neuropsychiatric Clinic Free to the Public C Pierson and T H Pargen Pineville La—p 800  
Spontaneous Subarachnoid Hemorrhage D H Duncan and W R Mathews Shreveport La—p 804

## Tennessee State Medical Assn Journal, Nashville

27 139 186 (May) 1934

- Relationships in Medical Practice H B Everett Memphis—p 139  
Comparison of the Existing Relationship Between the Medical Profession and the State Health Department in Tennessee and Other Southern States J O Manier, Nashville—p 142  
Cancer of the Uterus and the Cervix Is It Curable? L E Burch Nashville—p 152  
Congenital Malformations of the Esophagus Report of Case Beulah M Kittrell Knoxville—p 155  
Professor Elschning's Surgical Clinic in Memphis Follow Up Report on Operated Cases P M Lewis R O Rychener and M B Schlegel Memphis—p 157  
Some Causes of Professional Unrest R G Leland Chicago—p 160  
Chronic Leg Ulcers W T Satterfield Memphis—p 164

## West Virginia Medical Journal, Charleston

30 193 240 (May) 1934

- Primary Hypochromic Anemia (Hypoferrism) III Comparison of Certain Compounds of Iron (Including Ferrous Glutamate and Ferrous Chloride) in the Treatment of Hypochromic Anemia W Dameshek Boston—p 193  
Scarlet Fever T M Barber Charleston—p 209  
\*Scarlet Fever Immunization with a Scarlet Fever Toxoid G Daniel Walton—p 212  
Nasal Obstruction W C Thomas Huntington—p 214  
An Appeal for Better Sanitation A J Kemper Lost Creek—p 218  
The Relationship Between the Practicing Physician and the Health Department J P Franklin Cumberland Md—p 222  
Mercer County Health Activities D B Lepper Bluefield—p 225  
Estrin Reactions in Husbands of Pregnant Women R I Frame Sharples—p 228

**Immunization with Scarlet Fever Toxoid**—For active immunization, Daniel found that a total of 16 cc of the scarlet fever toxoid prepared by Veldee, divided into 0.1, 0.5 and 1 cc of the toxoid at intervals of three weeks, gave maximal immunization with minimal reaction. The same amount divided into two monthly doses gave rather marked reactions. In twenty-eight children less than 6 years of age there were no noticeable systemic reactions, locally there was a slight erythema but practically no induration. In the school group of 191 children, almost all had a reddened area from 1½ to 2 inches in diameter. In some of the cases there was a painful induration but in all cases smaller than the reddened area. The color in the erythematous areas was a deep red. There were only five systemic reactions, these consisted mainly of headache, fever, nausea and slight sore throat. In ten of the adult group of thirty-six cases rather marked reactions developed the reaction being in direct proportion to age. In general the average reaction was less than that for typhoid immunization, and, except for more local reaction, comparable to similar protection for diphtheria.

## Wisconsin Medical Journal, Madison

33 393 468 (June) 1934

- Headaches of Toxic and Metabolic Origin A J Patel Milwaukee—p 403  
Some Clinical Pathologic and Therapeutic Aspects of Cancer of the Breast M Cutler Chicago—p 405  
Roentgen Therapy in Giant Cell Tumors B W Johnson Fond du Lac—p 411  
Urinary Tract Infections and Urinary Antiseptics Special Article G H Evell Madison—p 415  
Headaches of Ocular and Nasal Origin W E Grove Milwaukee—p 418  
Treatment of Carcinoma of the Uterus J Tasche Jr Sheboygan—p 420  
Generalized Edema After Surgery Case Report O O Meyer Madison—p 427  
One Case—Or Many? Study of Tuberculosis Contacts in a Home and Rural School R H Stehm Madison—p 431

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Medical Journal, London

1 881 930 (May 19) 1934

Cancer with Especial Reference to Early Diagnosis R Ward—p 881  
Comparative Aspects of Louping Ill in Sheep and Poliomyelitis of Man W S Gordon—p 885

\*Urinary Excretion of Estrin Administered Under Experimental Conditions and After the Menopause J M Robson T N MacGregor R E Illingworth and N Steere—p 888  
Criticism of Antenatal Work A J Wrigley—p 891

**Excretion of Estrin**—The experiments of Robson and his associates demonstrate that when ketohydroxyestrin is injected intramuscularly into the ovariectomized human female or subsequent to the menopause only a small proportion of the hormone can be recovered in an active form from the urine by the methods used. The result is confirmed by experiments in which urine was injected into ovariectomized mice without any previous treatment, for, although the toxicity of the urine rendered an accurate assay impossible yet it could be definitely established that the quantities were comparatively small. The results indicate that the human body can rapidly destroy or at any rate render inactive, the estrous hormone, and this view is supported by the finding that, four hours after the injection of 10,000 mouse units, the blood contained less than 25 mouse units of the hormone per liter.

## East African Medical Journal, Nairobi

11 39 72 (May) 1934

Typhus Fever in Uganda R S F Hennessey—p 42

## Edinburgh Medical Journal

41 293 340 (May) 1934

The Control of Diphtheria: Plea for Active Immunization of the Pre-school Child W T Benson—p 293  
Some Problems in the Growth and Developmental Mechanics of Bone J C Brash—p 305

\*Primary Cancer of the Lung: Its Incidence and Pathology R M Hill—p 320

**Primary Cancer of the Lung**—Hill analyzed most of the series of cases of primary cancer of the lung reported in the literature and found that pulmonary carcinoma forms about 1 per cent of all cases at necropsy and more than 8 per cent of all malignant diseases discovered after death. The increase in the incidence during recent years is probably largely relative. The disease occurs most commonly in the fifth and sixth decades of life, the average age being 51 years. The sexes are affected in the proportion of 77.87 per cent for men and 22.13 per cent for women. The etiology is not established clearly. The lungs are affected with almost equal frequency. There is no marked predilection for individual lobes. Bronchiectasis is a frequent sequel of carcinoma, and pleural effusion occurs in a third of the cases. Tumors composed largely of cells having a lesser degree of differentiation are slightly more common than the clearly defined carcinomas. The distribution of metastases is characterized by the frequency with which the suprarenals (15 per cent), kidneys (14 per cent) and brain (more than 10 per cent) are affected. The presence of cancer of the lung is often masked by bronchiectasis or pleural effusion. Emaciation is unusual. In a definite proportion of cases (about 15 per cent) there are no symptoms referable to the respiratory system. The period of survival is about six months, though the course may last several years.

## Glasgow Medical Journal

3 173 204 (May) 1934

Medical Education G H Edington—p 173

\*Sodium Citrate as a Hemostatic J B Hutchison—p 180

**Sodium Citrate as a Hemostatic**—Hutchison observed three patients in whom postoperative oozing of blood continued in spite of the administration of the usual hemostatics. In each of the cases bleeding ceased immediately following the intramuscular injection of 30 cc of a 30 per cent solution of sodium citrate. The effect of sodium citrate seems to be transitory. Its effect is noticed within a few minutes and is most marked in forty-five minutes when the coagulation time is found to have diminished from the normal seven or ten minutes, to about two minutes. It remains at this level for two or three hours and gradually returns to its original time. The pain of the injection

can be greatly reduced by the previous injection of 4 cc of 1 per cent solution of procaine hydrochloride into each buttock. It has a marked effect in jaundice cases, and when administered preoperatively greatly reduces hemorrhage both during and after the operation. The drug has no toxic action on the kidneys, but it destroys the platelets and thus frees substances that activate coagulation. Its use is contraindicated in diseases of the blood associated with destruction of platelets. Oral administration is slow and the effects are variable, subcutaneous injection causes pain and edema, while the intravenous route may give rise to severe shock if injection is too rapid.

## Irish Journal of Medical Science, Dublin

No 100 145 192 (April) 1934

The Present Position of Agglutination Tests in the Diagnosis of Enteric Infections W D O Kelly—p 145

Serodiagnosis in Enteric Fever by Method of Qualitative Receptor Analysis W P O Callaghan—p 150

Treatment of Fluid in the Pleural Cavity E T Freeman—p 159

Investigation of Sweat in Rheumatic Subjects Eileen A Boyd—p 164

The Purification of Ether W R Fearon—p 177

Agranulocytosis: Case Report with Comment M S Honan—p 182

## Journal of Physiology, London

81 147 282 (May 21) 1934

\*Modifications in the Use of the Glass Electrode for the Determination of the Hydrogen Ion Concentration of Venous Blood I Harris E L Rubin and W J Shutt—p 147

Action of Insulin on the Respiratory Quotient: Oxygen Utilization, Carbon Dioxide Production and Sugar Utilization in the Mammalian Diabetic Heart E W H Cruickshank and C W Startup—p 153

Micromethod for the Determination of Base by Electrodialysis G S Aqaar and A B Keys—p 162

Method for Determining in Animals the Alimentary Absorption Time for Water the Abdomen Remaining Intact F H Smirk—p 167

Pituitary Gland in Relation to Polyuria and to Water Diuresis W H Newton and F H Smirk—p 172

Autolysis of Placental Glycogen Anna Davy and A St G Huggett—p 183

Reflexes in the Triceps Extensor: Preparation of the Forelimb F R Miller—p 194

Effects of Hypothalamic Stimulation on Gastric Motility J Beattie and D Sheehan—p 218

Conduction in the Cervical Sympathetic G L Brown—p 228

Repetition of Certain Experiments on Which Mohr and Pick Base Their Water Center Hypothesis and Effect of Afferent Nerve Stimuli on Water Diuresis G W Theobald—p 243

Energy Expenditure in Walking and Running M Ogasawara—p 255

A Device for Estimating Blood Pressure in the Rabbit R T Grant and P Rothschild—p 265

Resistance of Arterial Walls and Its Effect on Blood Pressure Readings I Harris—p 270

Reciprocal Activity of the Cornua and Cervix Uteri of the Goat W H Newton—p 277

**Hydrogen Ion Concentration of Venous Blood**—In determining the hydrogen ion concentration of whole blood without the addition of oxalate and fluoride, Harris and his associates have the room heated to 38 C and maintained at that temperature for one and one-half hours before use. At the end of this time the whole electrode system has attained blood temperature. The subject then enters the room and remains seated for five minutes before blood is withdrawn into a modified glass electrode of the Kerridge type. A reading is taken within two minutes of the blood leaving the vein, but not before equilibrium has been established. The authors believe that this method of temperature control and the avoidance of the loss of carbon dioxide is an advance on methods used heretofore in that the addition of oxalate and fluoride to the blood has been avoided. It is the only method which in their hands has yielded reliable results in a large series of cases. The results obtained from normal subjects come within the range of generally accepted normal values. In their cases, under normal resting conditions, the lowest  $p_H$  recorded was 7.27 and the highest 7.43 with an average of  $p_H$  7.36. They did not observe an acid change in any of their cases which corresponded to that described by Havard and Kerridge. This is in agreement with the observations of Platt and Dickinson, who believe that this so called acid change was due to faulty temperature control.

## Journal of Tropical Medicine and Hygiene, London

37 113 128 (April 16) 1934

Direct and Cyclic Transmission of Trypanosoma Rhodesiense Through Guinea Pigs: Comparison of the Reaction to Normal Human Serum. J F Corson—p 113

Studies on Ascariasis II: Endemology R Girges—p 114

British Solomon Islands Health Surveys 1933 S M Lambert—p 119

**Lancet, London**

1 1043 1100 (May 19) 1934

Machacon or the Future of Surgery G Keynes—p 1043  
The Hormones and Their Chemical Relations E C Dodds—p 1048  
Clinical Investigation of Staphylococcal Toxin Toxoid and Antitoxin  
H J Parish R A Q O Merril and Winifred H M Clark—p 1054  
\*Anaerobic Meningitis Following Mumps Case T L McEwan and  
L N Jackson—p 1058  
Copper Strips for Splitting Plasters and a Plaster Opening Tool E I  
Lloyd—p 1059

**Anaerobic Meningitis Following Mumps**—McEwan and Jackson present a case of anaerobic meningitis following mumps in which the isolated fusiform bacillus appeared to resemble the third type of Ghon, Mucha and Muller, and also the type II of Smith, although it showed no tendency to develop spiral forms on culture or darkground illumination as found by Smith and Tunnichiff in type II. Pathogenicity experiments were not carried out. The train of symptoms suggests that pus formation occurred first in or near the occipital bone. It is known that the organisms of the group occasionally invade bone either metastatically or directly, producing osteomyelitis with widespread necrosis. The external abscess was found to extend down to the bone. Slight signs of intracranial involvement appeared before any swelling was detectable externally, although there was stiffness and pain at the back of the neck. The aggravation of the intracranial symptoms and the development of the external swelling proceeded more or less concurrently. Pus formed on both aspects of the occipital bone, producing an external and an extradural abscess. The earlier specimens of cerebrospinal fluid were definitely purulent but sterile, and this is not uncommonly found with suppuration close to but not involving the meninges. Such an observation would be consistent with the presence of an extradural abscess. The final infection of the meninges indicates the rupture of this abscess internally. Necropsy was not obtained and clinical examination failed to show anything definitely suggestive. It is possible that the infection originated in the mouth, but there was no clinical enlargement or tenderness in the anterior group of cervical glands.

**Medical Journal of Australia, Sydney**

1 485 514 (April 14) 1934

The Anne MacKenzie Oration Mental Disorder Its Frequency and Causation, with Suggestions for Earlier Recognition and Treatment W E Jones—p 485  
Broughton Hall Psychiatric Clinic Review of Admissions During the Decade 1921-1931 S E Jones—p 493  
Eighteen Months Experience with Transurethral Prostatic Resection P A Ardagh—p 496

1 515 548 (April 21) 1934

Medicine the State and the Public A J Collins—p 515  
\*Technic for Osteosynthesis of Fractured Neck of the Femur by the Smith-Petersen Nail R D Wright—p 518  
Relation of Diet to Tropical Ulcer Preliminary Report F W Clements—p 520  
Surgical Treatment of Chronic Ulcer of the Stomach H C Rutherford Darling—p 522

**Osteosynthesis of Fractured Neck of Femur**—Wright employed the following method of implanting the Smith-Petersen nail in fractures of the neck of the femur. With the femur abducted, inverted and extended, and with the shortening reduced, a vertical incision is made over the trochanter and through the iliotibial band. The nail is entered 15 cm below the great trochanteric ridge and aimed horizontally in a plane cutting the point of insertion and the opposite anterior superior iliac spine. An incision in the form of a couched S is used, the anterior limb lying ventral to the femur extending 25 cm (1 inch) distal to the trochanteric ridge. The anterior curve is 1.25 cm (half an inch) above the trochanteric ridge and curves down along the back of the trochanter to 1.25 cm below the trochanteric ridge. The dorsal limb curves cranially for from 25 to 5 cm (1 to 2 inches) on to and in the direction of the fibers of the aponeurosis of the gluteus maximus. Thus the scar is removed from pressure by the greater trochanter and lies in a natural fold of skin except anteriorly. The flap outlined by the anterior curve is reflected and gives access to the iliotibial tract covering the vastus lateralis. This is incised vertically and retracted to front and back exposing the femur. An incision about 25 cm long is made, splitting the aponeurosis of the gluteus maximus medially and posteriorly to its insertion. A finger is passed through the incision in the gluteus maximus and the tendons of the obturator internus and externus are

identified. The neck of the femur is felt between these two, and by passing the finger medially along the lower border of the obturator internus tendon the dorso-inferior edge of the acetabulum is easily found and the necessary length of the nail can be measured on the finger, 1.25 cm being allowed for the head of the femur. With the finger and thumb of one hand on the anterior and posterior aspect of the neck, that at the posterior aspect being at the lower edge of the neck, the nail can be easily entered 15 cm below the trochanteric crest, pointing half way between the tips of the two digits in the horizontal axis and about 1 cm above the tip of the posterior digit in the coronal axis. It is then driven into the bone. About 3 mm (one-eighth inch) of the nail is left protruding. The fragments are impacted with a mallet and a cube of india rubber having a hole for the pin. The iliotibial band and gluteal aponeurosis are sutured and the skin margins are approximated. After the position of the pin has been confirmed by roentgen examination the patient is encouraged to move the limb on returning to bed. Weight bearing is allowed in about two weeks.

**South African Medical Journal, Cape Town**

S 277 316 (April 28) 1934

Functional Diseases Simulating Organic Disease C D Brink—p 279  
Native End of a Country Practice L E Hertslet—p 282  
A Visit to Some American Clinics I W Brebner—p 286  
Farming by a Doctor of Medicine W Archer Isaac—p 289  
The Early History of the Ligature G J Melle—p 290  
A Visit to Madagascar H Garin—p 292

**Chinese Medical Journal, Peiping**

48 199 322 (March) 1934

Tuberculosis of the Shaft of the Large Long Bones of the Extremities I Diagnosis and Treatment C K Hsieh L J Miltner and C P Chang—p 199  
Test Survey of Intrathoracic Tuberculosis in the Shanghai Region H G Anderson—p 207  
Collapse Therapy Two Years Experience at the Chinese Red Cross First Hospital Shanghai T C Liu—p 221  
Blood Differential Count in the Prognosis of Tuberculosis H G Anderson—p 228

**Japanese Journal of Obstetrics and Gynecology, Kyoto**

17 184 (Feb) 1934

\*Hydrogen Ion Concentration of the Umbilical Blood of the Human New Born Correlating with Its Maternal Blood T Mikawa—p 2  
Efferent Lymphatic Canals of the Ovary After Exclusion of Its Principal Lymphatic Canals M Nishi—p 10  
Experimental Study of Autotransfusion Part II Influence of Autotransfusion on the Production of Agglutinin of Immune Antibody Study on the Vaccination of Immune Body in Autotransfusion T Kubota—p 16  
\*Effect of Spleen to Growth of Transplanted Tumor H Matsuoka—p 25

**Hydrogen Ion Concentration of the Umbilical Blood**—Mikawa studied the  $p_H$  of the arterial and venous umbilical blood, the maternal venous blood and the retroplacental blood by means of his micromethod. He observed that the mean  $p_H$  of the blood in the umbilical vein is  $7.326 \pm 0.011$ , while that in the umbilical arteries is  $7.288 \pm 0.006$ . In the asphyxiated new-born infant these two bloods become more acid, and the difference between the  $p_H$  of the two becomes more marked than in the normal case. The retroplacental blood has a higher  $p_H$ , i.e. it is more alkaline, than the venous blood of the same parturient subject taken from the cubital vein immediately after parturition. Generally, the  $p_H$  is  $7.344 \pm 0.008$  for the former and  $7.320 \pm 0.007$  for the latter, the latter being thus almost on the acid limit of the normal  $p_H$  range for adults or for normal pregnant women. The arterial umbilical blood running along the umbilical vein had almost the same  $p_H$  as the maternal venous blood.

**Effect of Spleen on Growth of Transplanted Tumor**—The experiments of Matsuoka with rabbit sarcoma and rat cancer indicated that the spleen had a relatively marked action to inhibit the growth of these transplanted tumors. This action not only was found round the spleen as an antagonistic factor to the tumor but, by affecting the whole body directly or indirectly inhibited the growth of the transplanted tumor in the sense that it disturbed the metabolism of carbohydrates, especially the glycolysis. The extirpation of the spleen invigorated the glycolytic power of the sarcomatous tissues. The antagonistic action of the spleen against the tumor was not so intense as not to admit the continual and nonmetastatic invasions of tumor tissues into the spleen.



## Paris Medical

1 401 412 (May 12) 1934

- Vagotonin and Its Cardiovascular Therapeutic Action G Etienne and P Louyot—p 401  
 \*Blood Sugar Reducing Effect of Methylene Blue in Normal Subjects and in Diabetic Patients S Gabrielli—p 406  
 Recklinghausen's Disease with Multiple Osseous Lesions P Merklen and L Israel—p 411

**Blood Sugar Reducing Effect of Methylene Blue**—Gabrielli administered 50 Gm of dextrose by mouth together with 20 cc of a 1 per cent solution of methylene blue to normal subjects on a fasting stomach. The glycemic curve gradually sank during a half hour after administration but rose to the maximum at the end of the first hour. Another 20 cc of the solution of methylene blue was injected intravenously after an hour. This caused a drop in the glycemia. The minimal glycemic rate is reached by the third hour (0.4 Gm per thousand), after which the curve rises again to the glycemic rate at fasting time. Methylene blue has a marked blood sugar reducing action; it lowers the alimentary glycemic curve, the value of which is from 40 to 50 per cent below that of control tests. In several patients who had diabetes the top of the curve exceeded 50 per cent as calculated at fasting. While the curve was not modified by the methylene blue, it rose to 75 per cent above the initial glycemic rate. The second injection interrupted this ascending phase; the values remained unchanged for about an hour, after which the curve dropped to a deficient glycemic condition. Thus the methylene blue determined a marked lowering of the entire alimentary curve. Another diabetic patient on a fasting stomach presented a glycemic rate of 1.90 per thousand and poor tolerance to alimentary dextrose. The first administration of dextrose and methylene blue raised the top of the curve slightly and the second produced a rapid decline in the rate of glycemia. By the fourth hour the rate was back to that on a fasting stomach. Thus, methylene blue is able to diminish the glycemia of diabetic patients by approximately 20 per cent for a period of more than four hours. The blood sugar reducing effect of methylene blue is in relation to the amount of the solution injected. In order to obtain favorable results, it is necessary to introduce about 3 mg of methylene blue for each kilogram of body weight. All subjects and patients tolerated the injections well and no subjective symptoms were observed. The blood sugar reducing effect of methylene blue is probably in relation to the processes of oxydoreduction, which are characteristic of the substance. It would be interesting to verify whether methylene blue, which may accelerate oxydation of dextrose, has the power to modify acidotic conditions and different forms of diabetic coma due to these acidotic causes. The author feels that methylene blue merits further investigation.

## Presse Medicale, Paris

42 697 720 (May 2) 1934

- Some Objectives of Experimental Work for Contemporary Surgery R Leriche—p 697  
 Heredity of Gout M P Weil—p 701  
 Calcium and Renal Eliminations P L Violle—p 702  
 \*Treatment of Hydrocele by Injections of Double Chlorhydrochlorate of Quinine and Urea L Blavier—p 705

**Treatment of Hydrocele**—Blavier treated eighteen patients having hydrocele by aspiration of the fluid and reinjection of a solution of double chlorhydrochlorate of quinine and urea, 25 parts to 100 of glycerin (Vendel's solution). Cure resulted in all cases. The patients ranged in age from 32 to 73 years, and the duration of the hydrocele was from a few months to many years. It was noted that, although the sac usually refilled after the first and sometimes after subsequent injections the fluid was more viscous and more brown than the original. The reformed fluid tended to be smaller in quantity and to diminish gradually in the course of time. The injections were entirely painless. They lead to sclerosis of the wall of the hydrocele followed by total resorption of the fluid. They are without danger, since injections outside the sac cause little trouble. From the practical standpoint the author recommends a single dose of 3 cc of the solution in cases in which the volume of hydrocele fluid does not exceed 75 cc. If the volume is greater, 6 cc may be injected at once without danger. Usually it is useless to repeat the injection, since one is generally sufficient to effect a cure.

## Revue Française de Gynecologie et d'Obst, Paris

20 481 658 (May) 1934

- Treatment of Pelvic Deformities at Obstetric Clinic of Lyons in Course of Years 1931 and 1932 J Voron and H Pigeaud—p 481  
 Retention of Membranes After Delivery J Wodon and R de Guchte—p 489  
 \*New Clinical Sign of Folliculin Activity Test of Breasts G Sauphar—p 496

**Congestion of Breasts as Sign of Folliculin Activity**—Sauphar states that congestion of the breasts occurs almost constantly after the injection of a known dose of folliculin. It lasts a limited time and disappears without other symptoms, having provided a striking sign of the activity of the preparation employed. He observed that the results were more constant when an ester salt of folliculin, such as the benzoate, was used in place of the crystallized folliculin. In the second part of his work a preparation of dihydrofolliculin was therefore substituted for crystallized folliculin. The author believes that the benzoate of folliculin in single injection is the most active preparation, dihydrofolliculin administered orally in divided doses and crystallized folliculin orally give more inconstant results. Eight cases are reported showing this congestion of the breasts subsequent to the administration of folliculin preparation. The author states that in forty such patients only one negative result occurred. The best results are obtained with early administration of the folliculin, since resistance apparently occurs with the passage of time. Finally he states that congestion of the breasts is a single clinical phenomenon from which no conclusions can be drawn other than the activity of the preparation introduced. The positive breast sign probably indicates dosage considerably in excess of that necessary therapeutically.

## Polinico, Rome

41 763 802 (May 21) 1934 Practical Section

- \*Influence of Calcium on Platelet Content of Blood L Savagnone—p 763  
 Gastric Polypus Two Cases T Belfari Mellazzi—p 767  
 Cardiospasm Exfoliative Esophagitis and Esophageal Diverticula R Memmi—p 770  
 Diverticula of Jejunum Case A Dalla Palma—p 775

**Influence of Calcium on Platelet Content of Blood**—Savagnone studied the quantitative modifications of the blood platelets during calcium therapy to determine whether calcium stimulates the production of fibrinogen in the blood. He administered intravenously 10 cc of calcium gluconate daily to ten patients who had pulmonary tuberculosis. One hour after injection there was a marked increase in the number of blood platelets. This increase was temporary and within from five to six hours the number of platelets was reduced again to its normal rate. After one month of intensive intravenous treatment no permanent variations were found in any of the patients. These results agree with those of a previous investigation made by the author, in which the calcium did not permanently influence the mechanism of coagulation.

## Semana Medica, Buenos Aires

41 1489 1564 (May 17) 1934 Partial Index

- Transient Infiltration of Lung G Sayago—p 1489  
 Physicians Outside the Medical Field R Sabouraud—p 1495  
 Talipes Equinus Due to Cicatricial Myositis Following Varicose Ulcer Case I Goffi Moreno—p 1509  
 \*Intercostal Neuralgia as Symptom of Gastric Ulcer Case P Giordano and M Nicastro—p 1511  
 Tonsillectomy in Pulmonary Tuberculosis J Daniel Araoz—p 1515  
 Inguinal Route in Surgery of Crural Hernia Modified Ruggeri Parla vecchio Technic M Belchor—p 1517  
 Connective Tissue Cells Modified Cajal Estable Technic M E Jorg—p 1543

**Intercostal Neuralgia in Gastric Ulcer**—Giordano and Nicastro report a case of painful syndrome constituted by intercostal neuralgia, with repercussion either vertebral (rachialgia) or epigastric, caused by ulcer of the lesser curvature of the stomach in a patient aged 53. The physical symptoms indicated the presence of gastric ulcer while the roentgen signs indicated only rigidity of the lesser curvature. At laparotomy an enormous ulcer of the lesser curvature was discovered. A gastrectomy, according to Poyl's technic was performed. In order to interpret the syndrome the authors make a study of the innervation of the stomach. They say that the branches from the great sympathetic and pneumogastric nerves form in

the stomach two plexuses, one muscular and the other sub-mucous, with motor and sensory nervous endings, respectively. The centrifugal fibers of the stomach are divided into two groups: one ascending along the vagus and phrenic nerves and the sympathetic fibers of the aortic plexus, and the other lateral, which at the level of the sixth to the ninth segments of the spinal cord connects with spinal routes carrying somatic sensibility. This fact explains the change of the visceral pain into somatic pain at that level and, since the cutaneous parietal innervation of the intercostal spaces derives from afferent routes of the sympathetic, explains the neuralgia in the authors' case. The ascending fibers of the vagus and phrenic nerves produce a cutaneous innervation corresponding to the cervical segments of the spinal cord, causing areas of hyperalgesia at the level of the face, the neck and the back, which may also explain the vertebral repercussion of the pain in the authors' case.

### Archiv fur Gynakologie, Berlin

157 1138 (May 23) 1934

Criticism of Present Theory of Work Accomplished by Uterine Contractions and Their Measurement F. A. Wahl —p. 1

\*Sequels in Children Born During Tribrom Ethanol Anesthesia F. A. Wahl —p. 17

Microscopic Structure of Uterine Myomas M. Glasunow —p. 21

Acute Cavernitis of Clitoris B. Kriss —p. 39

\*Lymphosarcomatosis of Female Genital Organs O. Walther —p. 44

Histogenesis of Brenner's Ovarian Tumors W. Schiller —p. 65

Multiple Atresia of Small Intestine in a New Born Infant Bruckner —p. 84

Suprarenocorticotrophic Hormone of Anterior Lobe of Hypophysis K. J. Anselmino, F. Hoffmann and L. Herold —p. 86

Content of Pregnancy Blood in Antithyroidal Protective Substances L. Herold —p. 103

Pseudo Anemia During Pregnancy W. Schultz —p. 110

**Sequels in Children Born During Tribrom-Ethanol Anesthesia**—Wahl shows that, following delivery during tribrom ethanol anesthesia, the new born occasionally show grave disturbances. In some cases there develop without prodromal symptoms, but immediately after birth, asphyctic conditions, which in spite of numerous therapeutic measures gradually subside only after more than an hour. Nearly 50 per cent of the children who have been delivered during tribrom-ethanol anesthesia are apathic for from two to four days after birth. There is weak whimpering instead of crying, poor and awkward nursing, increased aspiration of fluids and an abnormal weight curve. Consequently, considered from the standpoint of the welfare of the child, birth during tribrom-ethanol anesthesia is not to be recommended, and it is necessary to search for better methods.

**Lymphosarcomatosis of Female Genitalia**—Walther discusses six cases of lymphosarcomatosis of the female genitalia, two of which he himself observed. In five cases the tumor originated in the uterus, whereas in the other case it probably originated in the ovaries. Five tumors showed an average degree of maturity, that is, the tumor cells resembled lymphoblasts and lymphocytes, but in the sixth case the cellular polymorphism of the tumor tissues resembled the histologic structure of a retothelial sarcoma. Here the lymphatic tissue of the tumors was extremely immature. The growth of the tumor tissues from the uterus and the ovaries led first, by way of infiltration, to an involvement of the neighboring genital organs. Then developed lymphogenous metastases in the retroperitoneal lymph nodes and in the more distant groups of lymph nodes and here and there also hematogenous metastases and implantation metastases. Spleen, liver and bone marrow never showed leukemic changes and in the case in which the blood was examined, leukemic changes were likewise absent. A systemic leukemic disorder can thus be excluded. The starting point of the lymphosarcoma was preexisting lymphatic tissue. In the first five cases it was lymphatic tissue of the uterine mucosa, in which the occurrence of lymph follicles is a frequent occurrence. If the starting point of the tumor formation is in the ovaries it is probable that a lymph follicle formation on an inflammatory basis was the matrix of the tumor. The clinical picture of lymphosarcomatosis of the uterus largely resembles that of carcinoma of the uterus, except that it is much more malignant, spreads more rapidly, metastasizes earlier and sooner leads to a fatal outcome than is the case in carcinoma of the uterus. Observations indicate that lymphosarcoma of the genitalia occurs in women between the ages of 45 and 65.

### Deutsche medizinische Wochenschrift, Leipzig

60 775 810 (May 25) 1934

Organized Campaign Against Diphtheria M. Gundel and Niermann —p. 775

Role of Antitoxin in Pathogenesis Course and Cure of Diphtheria H. Kleinschmidt —p. 779

Meningitis and Sepsis with Articular Metastasis Caused by Influenza Bacteria P. Dahr —p. 782

Cultural and Microscopic Investigations on So Called Bacterium Typhi Flavum J. Fortner —p. 785

\*Intravenous Vaccine Therapy in Brucella Melitensis Infections in Human Subjects L. Bianchi —p. 788

Observations in Alastrum Epidemic F. Krober —p. 793

Epidemic of Bacillary Dysentery in Insane Asylum of Rio de Janeiro F. Carneiro de Mendonça —p. 794

### Vaccine Therapy in Brucella Melitensis Infection

—Bianchi points out that widely differing therapeutic methods have been recommended for the treatment of Brucella melitensis infections. He mentions arsphenamine, acriflavine hydrochloride, colloidal metals, nonspecific protein therapy, hemotherapy, serum therapy and vaccine therapy. However, not one of these treatments has proved sufficiently successful to become generally accepted. Vaccine therapy has been tried with different types of vaccines, but the application was generally by subcutaneous or intramuscular injection, rarely by intravenous injection. Moved by Veratti's suggestion, the author commenced with systematic intravenous injections of vaccine in 1927. For the preparation of the vaccine he has followed the technique of Pfeiffer and Kolle, and he has always employed a laboratory strain derived from a human Brucella melitensis infection of several years ago. From a twenty-four hour culture, developed on ordinary or, still better, on liver agar, he prepares a suspension with an 0.85 per cent solution of sodium chloride and an addition of 0.5 per cent phenol. This suspension is sterilized by placing it for one hour in a water bath of 60°C. After that it is kept in the icebox and is renewed every four or five weeks. One loop of this stock suspension contains approximately two billion organisms. Dilutes of 1:10 are made with physiologic solution of sodium chloride and with an addition of 0.5 per cent phenol. Thus the tubes contain 1:10, 1:100 and 1:1,000 loop to 1 cc. They are likewise kept on ice and, if not used, they are renewed after about one month. The intravenous injection of a 1:1,000 dilution is usually followed from three to five hours later by a rather high fever reaction. Then, in the course of a profuse perspiration, the temperature gradually drops so as to reach after eight or ten hours the level it had before the injection. It is best to give the injection in the morning. The second injection is made from three to four days after the first either with the double dose, or, if the fever after the first reaction exceeded 40°C (104°F), with 1.5 times the first dose. In many cases the patient's temperature began to decrease after the second injection and in some even after the first injection, but this should not be a temptation to discontinue the treatment, for a relapse may occur. The author advises four or five additional injections with constantly increasing doses in order to produce each time a fever reaction of the same intensity. Once the fever has disappeared, the intervals between injections should be lengthened from six to eight days. The author effected rapid and complete cure in twenty cases of Brucella melitensis infection. He cites others who obtained the same favorable results and concludes that the intravenous vaccine therapy is the most effective one in Brucella melitensis infections.

### Klinische Wochenschrift, Berlin

13 753 792 (May 26) 1934

Neurohormone Regulation of Liver in Carbohydrate Metabolism T. Meythaler —p. 753

\*Acute Dilatation of Heart A. Meyer —p. 758

\*Function of Gallbladder as Regulator of Enterohepatic Circulation and as Detoxicating Organ K. Heckmann —p. 760

Influence of Ovary on Secretion of Thyrotrophic Hormone of Hypophysis A. Loefer —p. 766

Anemia and Angina Pectoris K. Paschke —p. 767

Miliary Carcinosis and Pulmonary Stasis F. Auhlmann —p. 770

Biologic Action of Short Waves G. Izar and P. Moretti —p. 771

Breaking of Addiction to Narcotics C. Amsler —p. 773

Saccharosuria in Pancreopathy Ca. R. Renck and A. Falkiewicz —p. 774

### Gallbladder as Regulator of Enterohepatic Circulation

—Heckmann discusses the part played by the enterohepatic circulation in digestion and in detoxication and the function of

the gallbladder in the enterohepatic circulation. He concludes that with the exception of cholesterol and lecithin all biliary substances take part in the enterohepatic circulation. This signifies that the cells of the liver have to replace only those quantities of bile that are lost (elimination with the feces and so on), whereas the largest portion of the biliary constituents are carried to the liver with the portal blood and merely have to be excreted into the bile passages. In case of destruction of this circulation for instance by drainage or by Eck's fistula, there is a considerable reduction in the biliary secretion. Such a change in the enterohepatic circulation takes place also in diseases of the liver, such as cirrhosis, in which, as the result of the overflow of the enterohepatic circulation, large amounts of substances contained therein (urobilinogen and so on) enter into the greater circulation. The enterohepatic circulation acts as a protecting device in that it intercepts and isolates foreign compounds. These compounds experience the same fate as the sodium tetraiodophenolphthalein that is used for contrast filling in cholecystography. The gallbladder has the capacity to store and concentrate all the circulating bile. It acts as a regulator of the constantly circulating bile (from the liver to the intestine and back again to the liver) and its function is to adapt the circulating bile to the requirements of the digestion. Observations during cholecystography corroborate this and connections between disorders of the gallbladder and digestive disturbances, on the one hand, and functional disturbances of the liver, on the other hand, appear understandable. Toxins that enter the organism and are eliminated through the liver become concentrated in the gallbladder. Thus the gallbladder becomes a protective device of the entire organism, but particularly of the liver, however, it itself becomes especially exposed to the poison. The author points out that the exclusion of this protective organ favors the development of hepatic disorders. He stresses that the treatment of intoxications should avoid disturbing this protective device by avoiding antidotes that produce a contraction of the gallbladder.

### Medizinische Klinik, Berlin

30 725 756 (June 1) 1934 Partial Index

- Chemical Exclusion of Surgically Exposed Peripheral Vascular Sympathetic (Sympathicodiaphoresis) and its Indications K. Doppler—p 730
- Application of Roentgen Rays in Skin Diseases Near the Eyes K. Hoede—p 734
- \*Modification of Threshold of Temperature Perception by Physiotherapeutic Influences L. Isler and J. Schneyer—p 736
- \*Reducing Treatment of Atypical Forms of Thyrosexual Insufficiency G. Stark—p 737
- Endoscopy of Rectum and Sigmoid with New Method of Unfolding Organ J. Goldberger—p 738

**Modification of Threshold of Temperature Perception**—Thinking that the determination of the threshold for temperature perception has not been sufficiently utilized clinically, Isler and Schneyer decided to find out whether the various forms of physical therapy change the threshold for temperature perception. They made 217 tests with many types of treatment, such as unilateral hot baths of the forearm, local application of hot air, the light cabinet, cold baths of the forearm, carbon dioxide baths, galvanic current, faradic current, high frequency apparatus, short waves, ultraviolet rays, diathermy, and histamine iontophoresis. They describe the results obtained with each of these treatments and in summarizing their observations they distinguish three groups. 1. Persons who had been subjected to treatment with the high frequency apparatus, the short wave tube apparatus, the faradic or galvanic current, the quartz lamp, histamine iontophoresis and epinephrine iontophoresis generally showed a reduction of the threshold for heat perception, and in many instances also an elevation of the threshold for the perception of cold. In these methods of treatment with the exception of the faradic current, the change of the threshold of stimulation was noticeable also on the side that had not been treated. 2. In persons in whom the various forms of hot applications (hot baths, hot air and light) usually resulted in an elevation of the threshold for heat and cold the change usually being limited to the side that had been treated. The cold baths of one forearm likewise heightened the threshold for the perception of both qualities of temperature. However, in contradistinction to the hot baths, the change was noticeable

on both sides. 3. In persons in whom the changes varied after diathermy, carbon dioxide baths or spark gap short waves, an increase of the threshold was about as frequent as a decrease. Thus the experiments proved that the majority of persons react uniformly to many forms of physical therapy. The fact that not all persons react in the same manner may be due to individual characteristics or to disease. On the basis of observations on normal persons, the authors are inclined to assume the first possibility.

**Reducing in Atypical Forms of Thyrosexual Insufficiency**—Stark is convinced that the obesities caused only by insufficiency of the thyroid or by dysfunction of the ovaries are rare. He calls attention to the so called thyrosexual insufficiency described by Borchardt, which is the result of the simultaneous dysfunction of the thyroid and the gonads. The main symptoms are fatigue, aversion to exertion, falling out of the hair and frequently cessation of menstruation. The author has the impression that most of the cases of endocrine obesity that came under his observation were atypical forms of thyrosexual insufficiency. Since the two endocrine components (thyroid and ovarian) are involved in varying intensity, the symptomatology is not quite as typical as that described by Borchardt. The diagnosis should aim to determine the predominance of one or the other endocrine factor, and the author thinks that the treatment can do this. He admits that this is not always easy, since nearly all forms of obesity react to thyroid preparations. However, if the efficacy of the thyroid preparations can be improved by ovarian preparations, a strong ovarian component may be assumed. The reaction of the patient to measures of dehydration likewise is a valuable aid in the diagnosis, in that it may reveal the presence of a myxedema-like water retention and thus indicate a predominating thyroid component. The polyglandular genesis of the atypical forms of thyrosexual obesity makes it necessary that the treatment should aim not only to reduce the weight but also to stimulate the insufficient glandular action.

### Munchener medizinische Wochenschrift, Munich

81 817 852 (June 1) 1934 Partial Index

- \*Theory and Practice of Glycerin Therapy in Renal and Ureteral Calculi F. Lickint—p 821
- \*Active and Conservative Treatment of Puerperal Hemorrhages H. Siedentopf—p 828
- Appendicitis During Delivery F. Krauss—p 830
- Treatment of Schizophrenia O. Magenau—p 831
- \*Mechanotherapy of Inflammatory Swelling of Liver F. Stolle—p 833
- New Intravenous Method in Obstetrics with Aid of Injection Apparatus and an Arm Support G. von Bud—p 833

**Glycerin Therapy of Renal and Ureteral Calculi**—Lickint points out that the great increase in the incidence of renal and ureteral calculi has augmented the demand for conservative remedies. After evaluating ureteral massage, dilation of the ureters, increased flooding of the urinary passages by the administration of large amounts of fluid, hypophyseal preparations for the stimulation of peristalsis, and the use of volatile oils, the author discusses the part of glycerin in normal metabolism, the elimination of glycerin following its administration and its mode of action in expelling calculi. He calls attention to its spasmolytic action, its stimulating effect on the peristalsis by withdrawal of water or by reflex action from the intestine to the ureters, its diuretic action, its lubricating action, the increased density and viscosity of the urine, and the facilitation of expulsion by dissolving and diminishing the calculi. The author points out that small doses will result in failure, and he advises the giving of 50 cc of glycerin three times daily for three successive days. He never observed undesirable effects after the administration of glycerin. He obtained expulsion of the stone in fourteen out of sixteen patients to whom he gave the dose mentioned.

**Treatment of Puerperal Hemorrhages**—Siedentopf points out that the treatment of postoperative hemorrhages should be as much as possible consider the causes of the puerperal hemorrhages but that this is often difficult. Profuse and sudden hemorrhages generally indicate the presence of a placental remnant, but other factors may likewise cause severe hemorrhages. Exploration and curettage would reveal the cause, but this measure is already a decisive step in the choice between

the active and conservative treatment and is therefore unsuitable as a purely diagnostic aid. Consequently it is generally necessary to decide on a definite therapeutic method without exact knowledge of the cause. Some gynecologists prefer the conservative method, while others advise active measures not only on the basis of anatomic considerations but also because the duration of the treatment can often be reduced. To evaluate the two methods, the author compared the results in 110 cases of conservative treatment with those in fifty-five cases of active treatment. The conservative therapy proved successful in seventy-seven cases and the active therapy in twenty-seven. He relates one case in which the active treatment effected rapid improvement. If the woman can be kept in fairly good general condition for several weeks, the conservative treatment may be considered successful, for approximately eight weeks after the delivery an intra-uterine intervention has lost its danger, and curettage can then be resorted to in order to effect a complete arrest of the treatment. The conservative therapy is a complete failure only if an active method becomes necessary before the dangerous period is over. The author gives a tabular report of the 165 cases. This table shows that of the 110 women who underwent conservative treatment only one died as the result of sepsis, while of the fifty-five who were actively treated five died of sepsis. Fever was more frequent in the actively treated cases (thirteen compared to seven). He concludes that his preference for the conservative treatment of puerperal hemorrhages is justified.

**Mechanotherapy of Inflammatory Swelling of Liver**—Stolle relates that in two patients with inflammatory swelling of the liver he obtained prompt reduction of the extreme pain by the use of elastic traction. He applied a strip of elastic adhesive bandage, 8 cm wide, so that, beginning in the median line of the back, it reached in the back approximately 2 cm below the border of the liver, and then, while the liver was being lifted, the bandage was brought with slight traction to the front and over the median line. A second strip covering one third of the width of the first one strengthened and secured the compressing and lifting action. Immediately following application of this bandage, the patients felt relieved. Because of the reduction in the swelling of the liver, the bandage became somewhat slack and was twice replaced by a new one. Each time the patients felt relieved. This mechanical treatment was supported by a suitable dietary therapy, which supplied comparatively large amounts of carbohydrates, particularly dextrose, and curtailed the intake of proteins, and by medicinal treatment in the form of magnesium sulphate, medical charcoal and occasionally methenamine.

### Wiener klinische Wochenschrift, Vienna

47 673 704 (June 1) 1934 Partial Index

- \*Increase in Sugar Content of Blood Following Thoracoplasty in Patients with Phthisis O Scharff—p 675
- Monstrous Foreign Body in Rectum Removed by Kraske's Operation F Hollrigl—p 679
- Therapy of Nutritive Allergic Disorders K P Eiselberg and F Kauders—p 679
- \*Roentgen Therapy of Hyperthyroidism P Petras—p 681

**Increase in Sugar in Blood Following Thoracoplasty**—Scharff reviews the literature and relates his observations made on thirteen patients after fifteen interventions. With the exception of two cases, all the operations were done under local anesthesia. The sugar content of the blood was determined before and after the operation, and a postoperative increase was observed in all instances. At the peak of the hyperglycemia, a temporary glycosuria was noted frequently. Acetone and aceto-acetic acid were not demonstrable in the urine. Severe disturbances such as decompensated acidosis, were absent but there was a parallelism between the metabolic disorders and the general condition.

**Roentgen Therapy of Hyperthyroidism**—Petras employed roentgen rays in the treatment of forty-two cases of hyperthyroidism. He uses rays of medium hardness which are filtered through 0.5 mm of zinc and 1 mm of aluminum. The tension is 160 kilovolts. The therapy is applied in series of three treatments. The intervals between the treatments last eight days and between the series from six weeks to several months. It is advisable to commence the first series with small

doses of from 60 to 90 roentgens at each session. During the second series, from 120 to 180 roentgens may be administered at each session. The author observed favorable effects in two thirds of the cases. He admits that the result is not as prompt as after surgical treatment but points out that the irradiation avoids the operative mortality, which averages from 2 to 8 per cent. During roentgen therapy the symptoms disappear more gradually. The improvement becomes noticeable particularly in the disappearance of the nervous symptoms. Tremor and insomnia disappear, the appetite improves, and the diarrhea ceases. There is also improvement in the cardiovascular syndrome, but its complete disappearance requires considerable time. The ocular symptoms are still more refractory, for many patients who have regained their working capacity still have a considerable exophthalmos and Graefe's sign. The weight of the patients increases considerably, but the basal metabolic rate decreases slowly. The author concludes that roentgen therapy of exophthalmic goiter deserves a place beside the surgical treatment.

### Zeitschrift für klinische Medizin, Berlin

127 1 110 (May 24) 1934

- Influence of Organic Substances on Blood Pressure in Human Subjects H J Wolf and H A Heinsen—p 1
- Venous Pressure, Vital Capacity of Lung and Minute Volume of Heart in Healthy Persons and in Patients with Heart Disease in Rest and in Circulatory Exertion G Budelmann—p 15
- \*Copper Iron Therapy in Anemias of Adults K Machold—p 27
- Clinical and Experimental Studies on Electrocardiogram Influence of Warmth, Cold and Dilatation of One Side of Heart on Electrocardiogram A Weber and H Baumann—p 41
- Id. Changes in Electrocardiogram in Constant Overexertion of One Ventricle A Weber—p 46
- Id. Method of Conduction of Excitation in Ventricle B Haager and A Weber—p 51
- \*Causes of Renal Insufficiency in Nephritis with Especial Consideration of Intra-infectious and Postinfectious Glomerular Nephritis and Nephrosclerosis H Kutschera-Aichberger—p 57
- Block Between Two Auricles D Scherf and H Siedek—p 77
- Blood Sugar Content and Gastric Activity S Okada S Aoyama and A Sugita—p 89
- Cerebral Genesis of Exophthalmic Goiter E Risak—p 96

**Copper-Iron Therapy in Anemia of Adults**—Machold relates his experiences with an iron-copper preparation. It was administered in the form of candies, each of which contained 0.1 Gm of ferrous chloride, 2.5 mg of copper in the form of lactate of copper and liver and stomach extract as base. The average daily dose was ten candies, so that the patient received daily 1 Gm of iron, 25 mg of copper and about 1 Gm of liver and stomach extract. The author is convinced that the efficacy of the preparation is not due to this small amount of liver and stomach extracts, but he ascribes it to the iron and copper content. He employed the candies in the treatment of posthemorrhagic anemias and found that the combined iron and copper therapy is superior to the ordinary iron therapy and that its stimulating effect on the bone marrow is superior to that of liver therapy. In anemia of infectious origin, in which the erythropoiesis was impaired, the stimulating effect of the copper and iron therapy again proved superior to that of liver therapy. Toxic impairment of the erythropoiesis responded better to the copper-iron therapy than to treatment with liver and arsenic. In hypochromic anemia after intestinal tuberculosis the combined copper-iron therapy proved as effective as a tenfold iron dose. In fact, the copper-iron therapy proved superior in all forms of anemia generally designated as secondary. The observations in cases of pernicious anemia are not sufficiently numerous to justify a definite evaluation, but promising results of the copper-iron therapy were noted in some instances, particularly in those not yet too far advanced.

**Renal Insufficiency in Nephritis**—Kutschera-Aichberger distinguishes two forms of nephritis, the intra-infectious and the postinfectious. The first form is due to a direct bacterial impairment of the renal tissues, while circulatory disturbances predominate in the second form. In intra-infectious nephritis there is never an acute renal insufficiency during the acute stage and during the chronic stage only when most of the glomeruli are closed by finely granular emboli. In post-infectious nephritis (hypertension nephritis), insufficiency may develop during the acute as well as the chronic stage. The characteristic sign of hypertension nephritis is the reduction of the water elimination. This disturbance is not so much the

result of inflammation as of an insufficient blood perfusion of the glomeruli. In chronic hypertension nephritis, two different forms of renal insufficiency should be differentiated: (1) cases in which there are severe morphologic changes, (2) cases in which there are relatively slight lesions of the renal parenchyma. In the latter group a functional factor is responsible, especially a disturbance of the renal circulation. There is a causal connection between the functional and the organic changes of hypertension nephritis, and the therapy should therefore make efforts to overcome the functional circulatory disturbances, as long as the organic changes have not progressed too far. A comparison of the different manifestations of insufficiency with the morphologic changes in the various renal elements permits the following conclusions about the physiology of the human kidney, which corroborate and supplement Volhard's theory: 1. The water elimination takes place primarily through the glomeruli. If they do not function their activity may be taken over although insufficiently, by the main portion of the uriniferous tubules. 2. The concentration of the urine is due to the secretory function of the epithelium of the main portions of the tubules. In addition to this, a reabsorption of water by Henle's loops has to be considered.

### Zentralblatt für Gynäkologie, Leipzig

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Newer Observations on Peculiarities of Venous Blood of Pregnant Women W. Michaelis—p. 1270

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**Anuria and Oliguria in Eclampsia**—Spickmann maintains that oliguria is a frequent occurrence in the course of eclampsia. It is usually accompanied by a temporary decrease in the blood pressure but, as soon as the diuresis improves, the blood pressure increases and then returns to the normal level in a few days. Oliguria is especially frequent immediately after delivery. The prognosis is favorable. Complete anuria occurs less often during the puerperium. In mild cases of short duration, the anuria is likewise accompanied by a temporary decrease in blood pressure but in the majority of cases the blood pressure increases noticeably with the onset of anuria and remains constantly increased. In other cases again, the anuria is accompanied by an especially low blood pressure, which indicates progressive cardiac insufficiency. Generally the anuria begins later during the puerperium than does the oliguria. The prognosis of anuria is unfavorable. The author states that some cases of oliguria react to diuretics of the group of purine bodies with increased diuresis. However, this increase in the diuresis cannot be interpreted as indicating a favorable outcome. Diuretics fail in severe cases of anuria. Moreover, some diuretics of the group of purine bodies involve a certain danger, since their stimulating effect on the central nervous system may provoke eclamptic attacks.

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**Micromethod in Determining Erythrocyte Sedimentation Speed**—Deinum uses a capillary tube 12 cm in length and 1.5 mm in diameter, in which he aspirates 2 cc of a 4.5 per cent solution of sodium citrate. A drop of blood from the finger is sucked in the tube until the column is 10 cm long. The tube is first held perpendicularly and then at a slant. As soon as the column reaches mark 10 the contents are poured out in a watch glass and the blood and citrate are thoroughly mixed. After this the tube is filled up again to mark 5 and one end of the tube is sealed with petrolatum or with a small flame. The tube is placed in a holder; it must

be held vertical, since the slightest inclination diminishes the sedimentation speed. The tube is left standing so that the erythrocytes may settle. After an hour the length of the clear column above the settled erythrocytes is read by means of a ruler made of a strip of millimeter paper. The average value attained by this method in normal children is 6 mm, although 8 mm is still considered normal. The capillary method gives higher results than the methods of Eldahl and Langer for greater sedimentation speed. The method was used especially in cases of tuberculosis. In children in whom the temperature had disappeared and in whom the general examination was satisfactory there was at the same time a decline in the erythrocyte sedimentation speed. If the speed has not diminished, this constitutes a warning to distrust the apparent improvement. In a patient presenting rectal hyperthermia with a temperature of 98.6° F. as the only symptom, the normal value of 6 mm of the erythrocyte sedimentation speed confirmed the diagnosis. The author states in conclusion that this method is to be recommended for its simplicity and reliability.

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Evipan Sodium Anesthesia Review Orla Vadsten and H. Jørgen E.—p. 187

\*Investigations on Blood Sugar Regulation in Chronic Alcoholism and in Epilepsy C. Maarssø—p. 214

**Blood Sugar in Chronic Alcoholism and in Epilepsy**—In dextrose tests in twenty-two cases of chronic alcoholism and no other diseases known to affect the blood sugar regulation, Maarssø found pathologically heightened curves (more than 210 mg per hundred cubic centimeters) of normal width in five cases, in one case protracted curves of normal height, and in four cases curves reaching the extreme limit of the normal top. Numerous attacks in one of the latter cases were interpreted as spontaneous hypoglycemia. In dextrose tests, three chronic alcoholic patients with epilepsy presented curves either too high or too protracted, or both, while three epileptic nonalcoholic patients showed nothing definitely abnormal.

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\*Liver Therapy in Granulocytopenia B. von Bonsdorff—p. 317  
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**Liver Therapy in Granulocytopenia**—On the basis of his results with energetic parenteral liver treatment in two grave cases of granulocytopenia with recovery, reported in detail von Bonsdorff is inclined to see in this procedure a valuable adjuvant in treatment of the disturbance. Spontaneous recovery in the cases is regarded as extremely improbable.

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Alpha Diminophenol Its Mode of Action and Toxic Effect K. Møller—p. 565

Combination of Leukosis and Sarcoma in Chickens A. R. Meyer—p. 579

\*Spontaneous Bilateral Pneumothorax Case T. Geill—p. 587

**Spontaneous Bilateral Pneumothorax**—In Geill's patient, a boy aged 14 having bronchial asthma and pulmonary emphysema, spontaneous pneumothorax on the left side and immediately afterward on the right developed more than a year after the complete disappearance of an earlier spontaneous pneumothorax on the right side following grave attacks of asthma. There were pronounced cyanosis and dyspnea. Improvement occurred on aspiration of air from the left pleural space. In two months the pneumothorax was wholly resorbed on both sides and after examination nine months later showed no sign of recurrence.

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## ONE DOSE ALUM TOXOID IN DIPHTHERIA IMMUNIZATION

CHAIRMAN'S ADDRESS

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Immunization against diphtheria has in recent years received more attention from pediatricians and health workers than any other phase of preventive medicine. Within the last year there has come into general use a new method which, because it has the great advantage of requiring only one injection, promises to displace all other methods of accomplishing such immunization. Much has been written by laboratory and health workers on the use of a single dose of alum toxoid, but little if any of this has appeared in the pediatric literature, and yet it is the practicing physician and especially the pediatrician who in the final analysis is most interested. It is for this reason, and in the hope of stimulating enough interest to secure the necessary clinical evaluation, that I take this opportunity for discussing the new method.

Since the days of von Behring, who first neutralized diphtheria toxin with antitoxin in order to immunize animals safely and then applied this method to man, there has been an unbroken sequence of developments to improve and perfect the technic of the immunizing process. The ideal method of artificial immunization against an infectious disease should meet four specifications: (1) The number of treatments should be reduced to a minimum, (2) the period for the development of immunity should approximate that of the incubation period of the disease, (3) the injection should be safe with little or no disagreeable reaction, and (4) the method should be as nearly perfect as possible in effecting lasting immunity. The vast amount of work that has gone before has adhered always to this ideal.

The central fact in all immunizations against diphtheria is that it is the toxin that immunizes, but to be effective its toxicity must be reduced or so modified that it can be given without danger. The old toxin-antitoxin, which contained relatively large amounts of toxin (3 L +), neutralized with three and one-half units of antitoxin, proved to be unsatisfactory chiefly because its use was followed by frequent severe local and general reactions. To overcome this difficulty, Park and Zingher experimented with preparations containing less toxin and finally devised a mixture containing 0.1 L + of toxin and 0.75 unit of antitoxin. With this mixture the reactions were very much less severe than with the older preparations and the immunity obtained just as satisfactory.

It has long been observed that diphtheria toxin deteriorates with time, it loses both toxicity and the power to neutralize antitoxin. Fortunately, however, toxicity is lost much faster than combining power. The discovery of this fact led to the idea of modifying diphtheria toxin by physical means in such a manner that its toxic effects are reduced while a relatively large amount of the specific antigen is retained. Working along these lines, Glenny and associates in England found that the addition of 0.1 per cent formaldehyde to toxin rendered it nontoxic without material loss of its antigenic properties. Then in this country Park and his co-workers, promptly grasping the importance of this, injected a large group of school children with a toxoid that was made by adding 0.1 per cent of formaldehyde and then incubating at 37 C for five weeks. Much of the work that followed was based on these experiments.

In the meantime it has been noted by many workers that the small amount of horse serum present in the old toxin-antitoxin mixture occasionally resulted in sensitization to horse serum, and in order to obviate this danger an antitoxin prepared with goat serum was used for neutralization of the toxin. While these preparations were effective in from 70 to 75 per cent of cases, it was realized that it would be a distinct advantage to use a preparation that contained no foreign proteins in the form of animal serum, and this stimulated the search for a preparation that could be detoxified by a combination of chemical and physical means. Larson developed a toxoid that had been detoxified by the addition of sodium ricinoleate, and for a time this preparation seemed in certain parts of the country to give satisfactory results. For one reason or another, however, Larson's mixture never came into general use, and the search has continued.

While all these agents were fairly satisfactory in producing a negative Schick test, each had its disadvantage. The old toxin-antitoxin was unstable and under certain conditions could become highly toxic. In addition, in order to accomplish the best results, it was necessary to give three injections. The desirability of reducing the number of injections to a minimum and at the same time of increasing the antigenic response led to the production of a toxoid of high antigenic potency detoxified by aging with the addition of formaldehyde. This anatoxin or toxoid, which was developed by Ramon, was given in two injections at an interval of from two to four weeks. It was effective in producing immunity in about 80 per cent of the children in three months and in from 90 to 100 per cent in six months. This proved to be an important forward step, for the immunization was from 20 to 30 per cent more effective, no sensitizing serum was present, the preparation was more stable, and the reactions were not objectionable. Until approximately one year ago this was the preparation of choice.



Ramon, while endeavoring to improve the antigenic properties of his toxoid, observed in 1925 an increased antitoxin production in horses that developed abscesses at the site of injection. In the effort to slow down the rate of absorption he conceived the idea of adding tapioca to toxoid, whereupon he obtained a marked increase in antigenic stimulation. With the same object in view, Glenny and his associates used alum in various concentrations and found this to be very effective. Following this work, Park and his associates added 0.2 per cent of alum to their toxoid and proved that the immunity response in both guinea-pigs and children was markedly increased. They considered it necessary, however, to give at least 0.5 cc in three injections at weekly intervals, with which technic they obtained negative Schick tests in approximately 99 per cent of known positive reactors. This increased efficiency Park attributed to lessened solubility of the toxoid with correspondingly slow absorption.

A little later, Glenny and Barr<sup>1</sup> described the complete precipitation of toxoid by from 1.5 to 2 per cent solution of alum and found a marked increase in antitoxin formation in horses. Following this work they stated that it appeared possible by this method to produce a product that would in a single injection immunize human beings beyond the Schick level of immunity. Following this suggestion, Havens and his co-workers<sup>2</sup> of the Alabama State Health Department prepared a toxoid that was more or less completely precipitated by the addition of 2 per cent alum. It was found that between 75 and 80 per cent of the specific antigen remained in the precipitate thus prepared and that from 50 to 75 per cent of the extraneous nitrogenous products were eliminated in the filtrate. This precipitate was further purified by washing with salt solution, in which vehicle it was later suspended and standardized to contain ten plus flocculation units per cubic centimeter. When injected in guinea-pigs this agent, as was verified by Harrison<sup>3</sup> of the National Institute of Health, was found to be from twenty to fifty times more effective than soluble toxoid in producing antitoxin.

The developments in the field of immunology which I have just sketched were based largely on experiments with the lower animals. That which follows deals with the human subject, and notably with work done in Alabama. In the fall of 1931, following his earlier experiments, Havens gave to each of a group of children from 6 to 10 years of age, all strongly Schick positive, 1 cc of alum precipitated toxoid with from five to ten flocculation units. He found that the immunity response as measured by the Schick test was as good after this one dose as had heretofore been obtained from two or three injections of any other preparation. Since the results were slightly better with the higher unitage the standard of ten plus flocculation was adopted. This represents an epoch marking advance in diphtheria immunization.

The increase thus seen in the effectiveness of one dose is not difficult to explain. It lies apparently in the fact that precipitated toxoid is relatively insoluble and therefore is absorbed slowly. Slow absorption means that less antigen is lost by excretion and, as was shown to be true by Glenny, Buttle and Stevens,<sup>4</sup> that

it remains in the tissues long enough to act as its own secondary stimulus to antitoxin production. The application of this principle has been demonstrated also by Straus,<sup>5</sup> who incorporated a concentrated toxoid of high antigenic potency in hydrous wool fat and with a single dose obtained 99 per cent effectiveness in a small series of children.

Subsequently, further tests of this immunizing agent were made on larger groups of children by Graham, Murphree and Gill,<sup>6</sup> with equally good results. Confirmatory evidence was obtained by McGinnes in Virginia, who used the precipitated toxoid prepared in the laboratories of the Alabama State Health Department. In the spring of 1933 the National Institute of Health put its stamp of approval on this product, and its manufacture was started by the commercial biologic laboratories. Since that time many thousand children have received the alum precipitated toxoid according to the technic of Havens and numerous health departments throughout the country are now using it as their standard method of immunization. The advantages of using a preparation requiring only one injection are obvious, especially when used for mass immunizations.

Dr W. H. Park<sup>7</sup> introduced the use of alum precipitated toxoid in the public schools of New York City beginning in February 1934 and found that the one dose conferred immunity in from 90 to 95 per cent of susceptible children. In a later communication (April 7) he tells me that after nine weeks he obtained 87 per cent negative reactions in a series of sixty-nine children aged from 6 months to 3 years and that he is of the opinion that more than 95 per cent would react negatively a little later. In an address before a joint meeting of the Philadelphia Pediatric Society, the New England Pediatric Society and the Pediatric Section of the New York Academy of Medicine, Dr Park<sup>8</sup> stated that the effect of alum precipitated toxoid was more than double that of toxoid in fluid form and that it was rapidly displacing all other methods of immunization. Baker and Gill<sup>9</sup> reported the results obtained in more than 16,000 immunizations.

Untoward reactions are few. Park<sup>7</sup> states that he found practically no reactions in children under 2 years of age but that older children occasionally showed some disturbance, this was not sufficiently marked, however, to be seriously objectionable. Others have reported sterile abscess formation. Why this should occur, I am unable to say. On the whole, reactions are so rare and mild that they may be disregarded.

My personal experience with alum precipitated toxoid started in February 1933, when my colleagues and I received a supply of this material from the Alabama State Board of Health. It was used by us in our private practice in the age group from 6 to 18 months, which, as is well known, is the ideal age for the immunization and the age at which the immunity response is best. There were 135 infants in this series who were given 1 cc of alum precipitated toxoid without a preliminary Schick test. None of this group had a reaction other than an occasional slight induration.

<sup>1</sup> Glenny A. T. and Barr M. *J. Path. & Bact.* **34** 131 (March) 1931.

<sup>2</sup> Wells D. M., Graham R. H. and Havens L. C. *Diphtheria Toxoid Precipitated with Alum: Its Preparation and Advantages*. *Am. J. Pub. Health* **22** 648 (June) 1932.

<sup>3</sup> Harrison cited by G. W. McCoy in personal communication to J. N. Baker.

<sup>4</sup> Glenny A. T., Buttle G. A. H. and Stevens Muriel F. *J. Path. & Bact.* **34** 267 (March) 1931.

<sup>5</sup> Straus H. W. *Active Immunization Against Diphtheria: A Rapid Method with a Single Injection*. *J. A. M. A.* **101** 192 (July 15) 1933.

<sup>6</sup> Graham A. H., Murphree L. R. and Gill D. G. *Diphtheria Immunization with a Single Injection of Precipitated Toxoid*. *J. A. M. A.* **100** 1096 (April 8) 1933.

<sup>7</sup> Park W. H. Personal communication to the author.

<sup>8</sup> Park W. H. *A Consideration of the New Preparation of Diphtheria Toxoid* abstract of an address before the Philadelphia Pediatric Society, New England Pediatric Society and New York Academy of Medicine Section of Pediatrics. *Am. J. Dis. Child.* **47** 929 (April) 1934.

<sup>9</sup> Baker J. N. and Gill D. G. *Am. J. Pub. Health* **24** 22 (Jan) 1934.

All received the Schick test in from two to six months and all reacted negatively

In the Employees' Hospital of the Tennessee Coal and Iron Railroad Company, alum toxoid was given in one injection to 170 Schick positive children aged from 7 to 12 years. One hundred and sixty-five of these children were retested in four or five months and all reacted negatively. In another group of children who received no preliminary Schick test the result was a 100 per cent negative reaction in from two to five months. Of these 1,095 were infants under 1 year of age, of whom 770 were tested. In the age group

TABLE 1—Results Obtained with Alum Toxoid at the Tennessee Coal and Iron Railroad Company Employees Hospital Fairfield, Ala

Susceptibles immunization	Schick Alum toxoid Schick negative months later)	positive (from four to five months later)	previous to to	Age			Total
				Under 1 Year	1 to 6 Years	7 to 12 Years	
No preliminary Alum toxoid Schick negative months later)	Schick tests given			710	992	27	1789
				770	992	27	1789

from 1 to 6 there were 1,353, of whom 992 were tested. There were twenty-nine in the age group from 7 to 12, of whom twenty-seven were tested. Although these results were comparable to those obtained by others, it was felt that the total lack of positive reactors might be in part due to a deficiency in the potency of the toxin used for the tests. In all instances the toxin used was a stable peptone preparation supplied by the state board of health, and when this question arose it was retested and was found to conform to all tests for potency. Further tests were made on nonimmune children, who gave satisfactorily positive reactions.

The department of preventive medicine and public health of Vanderbilt University School of Medicine was furnished with a supply of alum precipitated toxoid by the Alabama State Board of Health. Under

TABLE 2—Results Obtained with Alum Toxoid at the Vanderbilt School of Medicine Department of Preventive Medicine

	Per Cent Schick Negative After					
	14 Days	22 Days	28 Days	42 Days	60 Days	90 Days
Group 1 (23 Schick +)	60	95.6		100		
Group 2 (33 Schick +)		92.4			94.3	96.2
Group 3 (8 Schick +)			100			

the direction of Alvin E. Keller,<sup>10</sup> children from two institutions close to Nashville, Tenn., were each given a Schick test and the positive reactors were given 1 cc of the toxoid. In order to determine how soon immunity resulted, the children were given another Schick test at different intervals beginning two weeks after the injection. In one group of twenty-three Schick positive children, 60 per cent were negative in fourteen days. In the same group 95.6 per cent were negative in twenty-eight days and 100 per cent in forty-two days after the injection. In another group of fifty-three children, 92.4 per cent were Schick negative twenty-two days after receiving the injection. 94.3 per

cent were negative in sixty days, and 96.2 per cent were negative in ninety days. In another group of eight children, every one was negative one month after injection.

Keller states that the results following immunization with a single dose of alum precipitated toxoid compare favorably with those obtained with two doses of toxoid and are much better than those reported following three injections of standard diphtheria toxin-antitoxin.

In an effort to determine whether the immunity conferred by this method was a lasting one, Gill,<sup>11</sup> within the month, has retested forty of the original group who were each given the toxoid two years ago and found one who gave a slight positive reaction while the others were all negative. All these children were strongly Schick positive before receiving the toxoid and all had reacted negatively following the injection. It is suggested that further tests be made on larger groups in order to determine this question definitely.

Painstaking animal experiment and careful clinical observation throughout the years from von Behring's day to the present time have enhanced enormously the efficiency of efforts toward the production of artificial immunity against diphtheria. The culmination of all this is seen in the achievement of Havens and others, who, by means of a single injection of a newly devised toxoid mixture, have succeeded in producing immunity in a surpassingly high percentage of susceptible children.

Highland Plaza Apartments

## DIFFICULTY IN SWALLOWING IN ACUTE EPIDEMIC POLIOMYELITIS

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At the beginning of the paralytic stage of poliomyelitis, many patients with paralysis of the lower cranial nerves have difficulty in swallowing. This condition is seen more frequently in the hospital than in private practice. This may be because inability to swallow is an alarming symptom and, when it occurs, the parents request hospitalization for the patient. One of the questions we were frequently asked was whether the patient would be able to swallow again. Based on our experience in the past, we always gave a good prognosis. However, when some of the patients were unable to swallow week after week, we turned to the literature for information. The available data on the subject were very meager and for that reason we present our observations.

During the period from July 1 to Dec. 1, 1933, there were 123 patients with cranial nerve lesions due to poliomyelitis admitted to the Willard Parker Hospital. Among these 123 patients, difficulty in swallowing occurred in 87. The condition was observed in the hospital in eighty-one and noted in the history of six others. In most patients the difficulty in swallowing occurred before the fourth day of the illness, but in some it was not observed until the eighth day. The condition cleared up in the majority of our patients in

<sup>10</sup> Keller, A. E. Personal communication to the author to be published.

<sup>11</sup> Gill, D. G. Personal communication to the author. From the Willard Parker Hospital and the Department of Pediatrics, Cornell University Medical College.

a week. However, there were five patients who were of particular interest, because they were unable to swallow for twenty-one, twenty-five, thirty-five, fifty-one and seventy-one days, respectively, and they will be considered in detail later.

SEX AND AGE

In the entire group of 123 patients with bulbar lesions there were seventy-nine males and forty-four females. Of these, fifty-nine males (75 per cent) and

TABLE 1—Percentage of Bulbar Cases with Difficulty in Swallowing, According to Age

Age	Number of Bulbar Cases	Cases with Difficulty in Swallowing	
		Number	Per Cent
1	1	0	0
2	6	1	17
3	12	5	42
4	7	4	57
5	13	12	92
6	10	8	80
7	18	10	56
8	10	8	80
9	8	6	75
10	10	8	80
11	6	4	66
12	6	6	100
13	2	2	100
14	3	2	66
15	3	3	100
16	3	3	100
18	2	2	100
19	1	1	100
33	1	1	100
38	1	1	100

twenty-eight females (64 per cent) had difficulty in swallowing, indicating a slightly higher rate of incidence among the males who had bulbar lesions.

The youngest patient was 2 years of age and the oldest 38. The average age was 9 years. It was interesting to note that the older the patient with cranial nerve lesions, the more likely he was to have difficulty in swallowing. This tendency is shown in table 1, in which the number and percentage of bulbar cases with difficulty in swallowing is given according to the ages of the patients.

TABLE 2—Duration of Difficulty in Swallowing

Days	Number of Patients	Days	Number of Patients
1	3	12	0
2	9	13	1
3	4	14	0
4	9	15	1
5	9	16	1
6	5	17	1
7	8	21	1
8	4	25	1
9	0	35	1
10	1	51	1
11	1	71	1

TIME FACTORS

Most of the patients were again able to swallow practically normally in a week (table 2). Ten patients continued to have difficulty in swallowing for from eight to seventeen days and five were unable to swallow for more than seventeen days. The average duration was seven days.

There was no correlation between the day of the illness that difficulty in swallowing began and its duration. Neither was there any correlation between the number of cranial nerves involved and the duration of the difficulty in swallowing.

PHYSIOLOGY

A brief consideration of some of the important points of the physiology of deglutition will suffice to show that it is a rather complex performance.<sup>1</sup> Part of the act of deglutition is voluntary and part is involuntary. In general it is divided into three stages.

The first stage consists of the passage of the bolus of food between the anterior pillars of the fauces (isthmus of the fauces). This part of the act is usually ascribed to the movement of the tongue itself. The bolus of food lying on the upper surface of the tongue is forced backward by the elevation of the tongue against the soft palate.

The second stage comprises the passage of the bolus from the isthmus of the fauces to the esophagus, i. e., its transit through the pharynx. The mylohyoid muscle quickly contracts and the bolus of food put under pressure is shot into and through the pharynx. The contraction of the mylohyoid muscle marks the beginning of the second stage, the first event of which is that the bolus, by stimulating sensory nerve ends, acts on the nerve centers situated in the medulla oblongata, so as to cause a coordinated series of movements of the muscles of the pharynx and larynx and an inhibition for a moment of the respiratory center. The mouth cavity is shut off by the position of the tongue against the palate and by the contraction of the muscles of the anterior pillars of the fauces. The opening into the nasal cavity is closed by the elevation of the soft palate (action of the levator palati and tensor palati muscles) and by the contraction of the posterior pillars of the fauces (palatopharyngeal muscles) and the elevation of the uvula (azygos uvulae muscles). The soft palate, uvula and posterior pillars thus form a sloping surface, shutting off the nasal chamber and facilitating the passage of the food backward through the pharynx. The respiratory opening into the larynx is closed by the adduction of the vocal cords (lateral crico-arytenoids and constrictors of the glottis) and by the strong elevation of the entire larynx and a depression of the epiglottis over the larynx (actions of the thyrohyoids, digastrics, geniohyoids and mylohyoids and the muscles in the aryteno-epiglottidean folds).

The third stage is the passage of the food through the esophagus. When the food is solid or semisolid it is forced down the esophagus by a peristaltic movement of the musculature. The contraction of the esophageal muscles is the motor response of a reflex initiated in the mucous membrane of the pharynx and esophagus. The afferent nerves concerned in this reflex include branches of the glossopharyngeal (ninth), trigeminal (fifth) and vagus (tenth). The motor fibers concerned in the reflex comprise the hypoglossal (twelfth), trigeminal (fifth), glossopharyngeal (ninth), vagus (tenth) and the spinal accessory (eleventh) nerves.

The afferent fibers in the glossopharyngeal nerve exercise a powerful inhibitory influence on the center of deglutition as well as on that of respiration. When the glossopharyngeal nerves are cut the esophagus enters into a condition of tonic contraction, which may last a day or so.

When the act of deglutition depends on so many muscles and cranial nerves it is not surprising that difficulty in swallowing is experienced by many patients with the bulbar type of poliomyelitis.

<sup>1</sup> The description of the physiology of deglutition has been condensed from chapters on this subject in a Text Book of Physiology by William H. Howell (Philadelphia: W. B. Saunders Company, 1919) and Physiology and Biochemistry in Modern Medicine by J. J. R. Macleod (St. Louis: C. V. Mosby Company, 1928).

## CLINICAL CLASSIFICATION

Clinically the patients presented several different types of difficulty in swallowing. They fell more or less into four groups:

1 Regurgitation through the nose due to paralysis of the soft palate

2 Accumulation of food in the throat associated with a sensation of fullness. The food was either regurgitated or swallowed very slowly. We thought this was due to paralysis of the pharyngeal muscles, but, after studying the physiology more carefully, we think it was probably a result of paralysis of the mylohyoid or other muscles associated with the second stage of deglutition.

3 Small amounts of food swallowed with difficulty and then vomited, which may have been due to pharyngeal or esophageal muscle paralysis.

4 Coughing when an attempt was made to swallow, being due to failure to close off the larynx, the result of paralysis either of the vocal cords or of the muscles that elevate the larynx (thyrohyoids, digastrics, geniohyoids and mylohyoids).

Those patients who choked or coughed when they attempted to swallow and those who were unable to swallow their saliva (group 4) received fluids subcutaneously, intravenously and rectally. After several days, gavage was tried. If the fluid was retained, either the gavage was repeated or the patient was fed through a Levin tube. We found the latter a most satisfactory way of feeding patients with prolonged inability to swallow. We did not use continuous venoclysis<sup>3</sup> but think it would be a helpful addition in the treatment. When necessary, postural drainage was instituted and secretions that accumulated in the pharynx were removed by suction. We have used postural drainage (foot end of bed elevated and patient's head turned to the side) in these cases with considerable success for several years.

It may be necessary to tilt the bed from 15 to 20 degrees. Murphy<sup>4</sup> experimented with curarized cats kept alive in a Drinker respirator. He found that, when the cats were tilted head down at an angle of 15 degrees with the horizontal, fluid dropped into the trachea was not aspirated into the lungs. Durand<sup>5</sup>

TABLE 3—Late Results in Five Patients with Prolonged Inability to Swallow

Patient Case Number	Sex	Age in Years	Type of Polio myelitis	Duration of Inability in Swallowing	Follow Up					
					Time in Months	Excessive Saliva and mucus	Voice	Swallowing	Comment	
M H 1	♂	33	Bulbar	51 days	4½	++	Husky nasal	Swallowed well but had to be done slowly at times	Slight left facial and palatal paralysis diminished expansion of right chest with dullness and moist râles (the patient died of pulmonary tuberculo- sis 2 months after the follow up exam- ination)	
H W 2	♂	3	Bulbar	71 days	3½	+	Husky speech indistinct	Normal	Movement of palate sluggish few rhonchi and coarse moist râles	
D F 3	♂	19	Bulbar	30 days	5	Slight	Slightly husky	Normal	Slight asymmetry of palate gained 20 pounds	
M B 4	♀	9	Bulbo- spinal	27 days	6	+	Husky nasal	Normal	Paralysis of intercostal muscles and diaphragm left facial and palatal paralysis	
P G 5	♀	8	Bulbo- spinal	21 days	5½	Slight	Slightly husky	Normal	No residual paralysis	

Six patients were extremely drowsy or stuporous, owing to an associated encephalitis or toxemia. Which group, if any, these would fall into we were not able to determine.

Our clinical classification is admittedly crude, but the diagnostic criteria at our disposal precluded a more accurate localization of the lesions present.

## TREATMENT

The treatment that the patients received varied according to their clinical classification. Those who had nasal regurgitation (group 1) were fed semisolid food or, if necessary, a gavage was given. Approximately one third of the patients did not require gavage. For patients who regurgitated or vomited after attempting to swallow (groups 2 and 3), gavage was given, or, if the condition lasted several days, they were fed through a Levin tube.<sup>2</sup> This is a rubber tube about 45 inches long with a velvet eye at the terminal end similar to that in a urethral catheter. There is no metal bucket attachment. There are oval openings on the side at the terminal end. The tube comes in three sizes, 16, 14 and 10 French. The thickness of the rubber is the same as that of a urethral catheter. The tube was originally designed for obtaining specimens of gastric and duodenal contents for examination. Levin advised that the tube be passed through the nose.

suggested tying the patient's feet to the end of the bed to permit adequate tilting.

Difficulty in swallowing associated with choking or vomiting, when occurring in a patient with respiratory distress, is of especial importance. There is a marked tendency to aspiration of fluid (vomit or saliva) in patients with a diminished cough reflex due to respiratory embarrassment, and the tendency is increased by treatment in a respirator.<sup>6</sup> Feeding by mouth (including gavage) is contraindicated for these patients until they are able to take food without untoward results.

Sedatives (one of the barbitol compounds) were administered when necessary. No other medication was used.

## PROLONGED INABILITY TO SWALLOW

Based on our previous experience and that of all writers who have commented on the subject, we thought that the difficulty in swallowing due to poliomyelitis lasted for from a few days to a few weeks.

3. Friedmann M. Ueber intravenöse Dauerinfusion. München med. Wehnschr. 60: 1022 (May) 1913. Titus Paul and Dodds Paul. An Apparatus for Regulating the Rate of Flow and the Temperature of Intravenous Injections of Dextrose (d Glucose) and Other Solutions. J. A. M. A. 91: 471 (Aug. 18) 1928.

4. Murphy D. P. The Influence of Posture upon the Movement of Fluid in the Trachea of the New Born. Am. J. Obst. & Gynec. 27: 118 (Jan.) 1934.

5. Durand J. I. Postural Treatment of Bulbar Infantile Paralysis. J. A. M. A. 93: 1044 (Oct. 5) 1929.

6. Braddy M. B. and Lenarsky Maurice. Treatment of Respiratory Failure in Acute Epidemic Poliomyelitis. Am. J. Dis. Child. 46: 705 (Oct.) 1933. Harper, P. and Tennant R. Treatment of Respiratory Failure in Poliomyelitis. Yale J. Biol. and Med. 6: 31 (Oct.) 1933.

2. Levin A. L. A New Gastroduodenal Catheter. J. A. M. A. 76: 1007 (April 9) 1921.

During the past three years 1,334 patients with poliomyelitis were admitted to the Willard Parker Hospital. As far as we can recall, no patient had difficulty in swallowing beyond the period of isolation, which is twenty-one days. This is to a great extent consistent with the response of bulbar lesions in general. The majority of them either progress rapidly to cause the death of the patient or improve in a short time. Durand<sup>6</sup> found that paralysis of the muscles of deglutition generally cleared up in from a few days to two weeks. Shambaugh, Harrison and Farrell<sup>7</sup> also noted that paralysis of deglutition cleared up quickly and completely in a short time. Peabody, Draper and Dochez<sup>8</sup> state that "while the situation (inability to swallow) appears at the time to be most serious, the tendency to recover seems to be much better than one would expect, and return of function may take place even after ten days of paralysis." In view of this unanimity of opinion we were greatly interested in the course of five patients who were unable to swallow for from three to ten weeks (table 3).

In three of the five patients, respiratory difficulty developed which was sufficiently severe to require treatment in a respirator. One of these three patients (patient 1) was in the respirator for eight hours during the night, and the following morning no paralysis of the respiratory muscles could be made out. He was acutely ill with an elevated temperature for five days. The other two patients (patients 4 and 5) had paralysis of the diaphragm and weakness of the intercostal muscles. Both recovered after several days of artificial respiration in a respirator. They had difficulty in swallowing for twenty-one and twenty-seven days, respectively.

The fourth patient was a youth, aged 19, who had prolonged periods of hyperpyrexia for which we found no satisfactory explanation. When he was admitted to the hospital he was aphonic, had paralysis of the soft palate and was unable to swallow. During the first few days he was delirious at times. His breathing was frequently jerky, irregular and shallow, suggesting some injury to the respiratory center. He was not placed in a respirator and gradually improved. On the thirty-sixth day of his illness he began to swallow and retain food.

The fifth patient (patient 2), the youngest in this group, was 3 years of age. He was unable to swallow for seventy-one days, even though the paralysis was not as widespread as in some of the other patients. Except for two days the child received his fluids and nutriment for a month either intravenously, subcutaneously or rectally. During this time the child weathered a bilateral pneumonia.

The patients with prolonged difficulty in swallowing were reexamined several months after discharge from the hospital. The details are given in the abstracts of the case records. In general, the patients experienced some slight difficulty in swallowing for a month or two after going home. All of them were able to swallow well after three months. Some complained of an increased susceptibility to colds. Excessive salivation or accumulation of more than the usual amount of saliva and mucus in the mouth and pharynx was usually present. In our youngest patient this may have inter-

fered with his speech. Huskiness of the voice was noticed in all the patients and a nasal twang in three. Some residual muscle weaknesses were present in four of the patients.

#### ABSTRACT OF CASES PRESENTING PROLONGED DIFFICULTY IN SWALLOWING

**CASE 1—History**—M. H., a white man, aged 33, admitted to the Willard Parker Hospital, Aug. 25, 1933, had been ill for seven days. On the second day of his illness a nasal voice, nasal regurgitation and difficulty in swallowing developed. Subsequently he noticed a weakness of the left side of the face and on the day of admission was unable to swallow.

At the time of admission he was restless and apprehensive but cooperative. The temperature was 100 F, pulse 120 and respiration rate 30. He had a nasal voice, and saliva continually accumulated in the mouth and pharynx. There was paralysis of the left side of the face and left half of the palate. The tongue deviated to the left when protruded. The chest expansion was poor. There was a generalized muscular weakness and all the deep reflexes were sluggish. The abdominal reflexes were present but the cremasteric reflexes were absent. The patient could not sit up unaided. Lumbar puncture at the time of admission revealed spinal fluid under normal pressure, with 25 mononuclear cells per cubic millimeter, normal content of sugar and slightly increased albumin and globulin.

The foot end of the patient's bed was elevated to permit postural drainage. Secretions that accumulated in the mouth and pharynx were suctioned at frequent intervals. Fluids were given subcutaneously and rectally. August 30 (four days after admission) at 1 a. m., he suddenly became cyanotic and stuporous, breathing was irregular and in gasps. The temperature was 102 F and the pulse 120. There seemed to be a lag of the chest and diaphragm on the right side. He was placed in a respirator and oxygen was administered with only slight improvement. At 9 o'clock he was removed from the respirator. At this time no paralysis of the intercostal muscles or diaphragm could be made out. He showed no improvement for five days, during which the stupor continued, and at times he was irrational. For prolonged periods his breathing was irregular and cyanosis would persist, even though oxygen was administered.

September 5 he began to improve. The temperature came down to 100 F and the pulse to 100. A Levin tube was passed and gavages were given. His general condition continued to improve. September 23 (thirty-fifth day of illness) the tongue protruded in the midline. By October 4 he was up in a wheel chair. His palatal and facial paralyses had improved considerably. October 9 (fifty-third day of illness) he swallowed and retained a little soft food for the first time. The following day a fluoroscopic examination was done after the patient attempted to swallow some barium contrast medium. The barium was taken with considerable difficulty and on fluoroscopic examination was seen accumulated in the back of the pharynx, but some of it gradually trickled down the esophagus. A roentgenogram taken five minutes after the barium was administered is reproduced. The report by Dr. Le Wald is as follows: "There is some evidence of paralysis of the muscles of deglutition shown by the inability of the opaque meal to pass beyond the region of the upper end of the esophagus. There are areas of increased density in both lungs, especially on the right side, indicating possible areas of consolidation, which may be due to the fact that the foreign material and mouth secretions have passed into the respiratory tract on account of the paralysis involving the esophagus. October 11 the patient was discharged to his home."

**Follow Up**—The patient communicated with us, November 1. His general condition was good. Liquids and semisolid food could be swallowed slowly. Mucus still accumulated in the throat but it was not troublesome. The patient returned to the hospital for a check up Feb. 5, 1934, four and a half months after discharge. He had a slightly husky nasal voice and a slight cough. He said he swallowed well but at times this had to be done slowly. He had considerable salivation. Examination revealed paresis of the left side of the palate and a little lag in the movements of the facial muscles of the left side. There was diminished expansion of the right side of the

<sup>7</sup> Shambaugh, G. E. Jr., Harrison, W. G. Jr. and Farrell, J. I. Treatment of the Respiratory Paralysis of Poliomyelitis in a Respirator. *Chamber J. A. M. A.* 94: 1371 (May 3) 1930.  
<sup>8</sup> Peabody, F. W., Draper, George and Dochez, A. R. A Clinical Study of Acute Poliomyelitis. Monograph 4. Rockefeller Institute for Medical Research 1912.

chest, with dulness and moist rales over the right upper lobe. He was advised to consult his own physician about the lung condition.

The patient was admitted to the Morrisania hospital, April 6, with a history of poor appetite, weakness, cough, night sweats and loss of weight of six weeks' duration. Clinical and roentgenographic examination revealed a tuberculous process in the right upper lobe. Tubercle bacilli were present in the sputum. Hemoptysis occurred April 15. The temperature rose to 105 F at times, and he died, April 20. There was no autopsy.

**CASE 2—History**—H W, a white boy, aged 3 years, admitted to the Willard Parker Hospital, Aug 13, 1933, on the seventh day of his illness, had an eventful past history. At 2 months of age a bilateral otitis media developed and the discharge continued for a considerable time. At 8 months of age he had a bilateral mastoid operation. In November 1932 he had pertussis and in March 1933 measles. In June 1933 a secondary mastoid operation was performed for recurrence of the otitis media. July 19, 1933, the tonsils and adenoids were removed.

Difficulty in swallowing associated with choking began on the second day of the present illness. On examination at the time of admission the patient was pale, undernourished and acutely ill, with a temperature of 100.8 F, pulse 140 and respiration rate 28. He had difficulty in expectorating mucus and saliva, which accumulated in the throat. He had a nasal voice and his cough was weak. There was an asymmetry of the soft palate. The neck and back muscles were weak. The right patellar reflex was sluggish, and the abdominal reflexes were absent. He was unable to swallow even small amounts of food.

Postural drainage was instituted with suction of the mouth secretions as necessary. Fluids were administered subcutaneously and rectally. Lumbar puncture four days after admission revealed the spinal fluid under normal pressure containing 10 mononuclear cells per cubic millimeter, a normal amount of sugar and slightly increased albumin and globulin. August 17 weakness of the left side of the face and tongue were noticed. During the following week the child's condition remained unchanged. Ten days after admission a gavage was given but it was immediately vomited. August 29 (the sixteenth day in the hospital) the respirations became rapid and labored, the temperature was 101 F, and there were signs of bronchial pneumonia at both bases. Nineteen days after admission a gavage was retained and they were continued until two days later, when one of the feedings was regurgitated. After the regurgitation the patient choked and became cyanotic. The condition improved gradually during the day. The temperature was 101 F. A blood count at this time showed white blood cells 6,400, polymorphonuclears 49 per cent, red blood cells 3,570,000, and hemoglobin 70 per cent. A roentgenogram revealed slight enlargement of both hilar shadows, slight accentuation of the pulmonary markings and some ill defined hazy mottling scattered around the root structures—maybe bronchial pneumonia. A transfusion of 200 cc of citrated blood was given September 12 (one month after admission) a Levin tube was passed, and fluids given through it were retained. Another transfusion of 200 cc of citrated blood was given. The course was uneventful for a month, except for an occasional attack of choking as a result of accumulated saliva in the throat. October 18 (seventy-third day of illness) the patient swallowed for the first time and retained small amounts of soft food and liquids. October 30 the child was discharged. The palatal and facial paralyses had decreased. He was active and walked well, but his voice was still thick and nasal. He swallowed well.

**Follow Up**—The child was brought to the hospital for reexamination three and one-half months after discharge. He had been well since leaving the hospital and swallowed without difficulty. The mother noticed that when the child slept his breathing was noisy. On examination the child was alert and cooperative without any external evidence of paralysis. Movement of the palate was sluggish. There seemed to be a slight excess of saliva in the mouth. There were rhonchi and a few coarse moist rales on both sides of the chest. His voice was slightly husky and there was a tendency to indistinctness. Swallowing was apparently normal.

**CASE 3—History**—D F, a white youth, aged 19, admitted to the hospital on the third day of his illness, had had difficulty in swallowing of two days' duration. On the day of admission he lost his voice. Examination of the spinal fluid obtained before admission contained 150 mononuclear cells per cubic millimeter, a normal amount of sugar and an increased amount of albumin and globulin. At the time of admission the patient was acutely ill, restless and practically aphonic, with a temperature of 104 F, pulse 120 and respiration rate 32. He was unable to swallow and could not cough. His breathing was shallow and at times irregular, but there was no cyanosis. He could not sit up. The only other positive changes were a stiff neck and back and deviation of the uvula to the right.

His course was marked by frequent elevations of temperature to 105 F. Respirations were at times irregular and shallow, but he was not placed in a respirator. Attempts to swallow food were followed by gagging and regurgitation. There was no evidence of aspiration demonstrable by roentgenography. On the thirty-sixth day of his illness he swallowed for the first time and was discharged two days later.



Location of barium contrast medium in case 1 five minutes after an attempt was made to swallow it. Most of the barium remained in the retropharynx and some is seen in the lower part of the esophagus (indicated by arrows). The patient was unable to swallow for fifty-one days preceding the taking of this picture.

**Follow Up**—The patient returned for examination five months after discharge from the hospital. He had gained 20 pounds (9 Kg), felt well and had continued his studies at college. Occasionally salivation seemed slightly excessive. For a time after he left the hospital food had to be well chewed before it could be swallowed. During the last two months swallowing had been apparently normal. Examination revealed a slight asymmetry of the palate. No other muscle weakness could be made out. His voice was slightly husky at times.

**CASE 4—History**—M B, a white girl, aged 9 years, admitted to the hospital on the fourth day of illness had had difficulty in swallowing for two days. At the time of admission she had a nasal voice, regurgitated fluids through the nose and was unable to swallow. There was a unilateral weakness of the face, tongue and palate. The patient could not sit up unaided. Respirations were shallow, apparently owing to weakness of the diaphragm.

Her course to a great extent was similar to that described in the three preceding cases. She had a period of respiratory



distress which necessitated treatment in a respirator for two periods of four and five days each. A roentgenogram taken before the second period in the respirator showed "slight enlargement of both hilar shadows and moderate accentuation of the pulmonary markings." On the twenty-seventh day of illness she was able to swallow for the first time. A week later she was discharged. At the time of discharge she was active, had normal reflexes and ate well. She had a residual paresis of the left side of the face and palate.

**Follow Up**—The child was examined six months after leaving Willard Parker Hospital. A few days after arriving at home she contracted a cold. There was severe coughing with choking spells, and on the third day of illness she was sent to the Bronx Hospital by her family physician. The diagnosis was bronchitis. She gradually improved and was discharged a month later. The mother stated that the child was more susceptible to colds than she had been before she had poliomyelitis. For a time after discharge from Willard Parker Hospital, food occasionally stuck in the throat. This gradually became less frequent and during the past few months swallowing was apparently normal. The child's voice was husky and had a nasal twang. There was an excessive amount of saliva and mucus in the mouth and throat. The movements of the palate and facial muscles on the left side were sluggish. Contractions of the diaphragm and the intercostal muscles were diminished, more on the right side than on the left.

**CASE 5—History**—P. G., a white girl, aged 8 years, admitted to the hospital, Aug. 8, 1933, on the third day of her illness, had a history of irritability, drowsiness, headache, vomiting, nasal voice and nasal regurgitation. At the time of admission the temperature was 103.6 F., pulse 140 and respiration rate 38 per minute. On examination she was well developed and well nourished, with hyperactive deep reflexes and a resistance to anterior flexion of the neck and back. She had a nasal voice. Small amounts of fluids or semisolids, swallowed with difficulty, were soon regurgitated. Spinal fluid contained 270 cells, mostly mononuclears, a slight increase in globulin and a normal amount of sugar.

The following day the temperature was 102 F. There was weakness of the neck and back muscles and the deep reflexes of the lower extremities were diminished. There was difficulty in swallowing saliva, and this was removed by suction. The foot end of the bed was elevated. The patient was fed by nasal gavage. On the third day in the hospital the biceps, triceps and abdominal reflexes were absent. There was marked weakness of the diaphragm, slight respiratory distress and restlessness. Difficulty in breathing increased, and during the night the child was placed in a respirator, where she remained for eighteen hours. Gavage was discontinued and fluids were administered subcutaneously and rectally. After removal from the respirator the patient remained comfortable, even though her breathing was mostly thoracic. She gradually improved and on August 20 (the thirteenth day in the hospital) retained liquids given by gavage. A week later, August 27, she was able to swallow small amounts of fluids. Her ability to swallow increased rapidly. September 1 she was discharged to her home.

**Follow Up**—The child was brought to the hospital for reexamination, Feb. 17, 1934, five and one-half months after discharge. She had been well since leaving the hospital and swallowed without difficulty. A slight huskiness of her voice was due apparently to the accumulation of saliva and mucus in the retropharynx. There were no other residual abnormalities due to poliomyelitis.

#### SUMMARY

Difficulty in swallowing occurs frequently in the bulbar type of poliomyelitis. This is not surprising when one realizes how many muscles and nerves are involved in the complex mechanism of deglutition. Among 123 patients with bulbar poliomyelitis admitted to the Willard Parker Hospital in 1933, 87 had difficulty in swallowing. The condition varied in severity from simple nasal regurgitation of short duration to complete inability to swallow for seventy-one days.

The older patients with bulbar lesions showed a greater incidence of impairment of swallowing than the younger ones. The majority of patients were able to swallow normally again in a week. Five patients were unable to swallow for more than three weeks, a condition that has not been reported previously. The treatment consisted of postural drainage, parenteral administration of fluids, gavage and feeding through a Levin tube, which was kept in place several days at a time. Sedatives were given when necessary. The five patients with prolonged inability to swallow had some residual symptoms several months after leaving the hospital. In each one the voice was slightly husky and there was an accumulation of saliva and mucus in the mouth and pharynx. The ultimate prognosis as regards the inability to swallow is good.

531 East Lincoln Avenue—Foot of East Fifteenth Street

## MENSTRUAL EDEMA

### PRELIMINARY REPORT

J. SHIRLEY SWEENEY, M.D., Sc.D.

DALLAS, TEXAS

Many changes, physiologic and biochemical, take place during menstruation. Women frequently describe subjective effects, such as general exhaustion, irritability and generalized discomfort. A certain percentage of them, and I believe an increasingly smaller percentage, experience no change in their state of being, physical, mental or emotional. My purpose in this paper is to draw attention to a phenomenon that, up to the present time, has received very little attention, as judged by the literature. I refer to an edema that seems to occur only during the menstrual cycle. William A. Thomas<sup>1</sup>

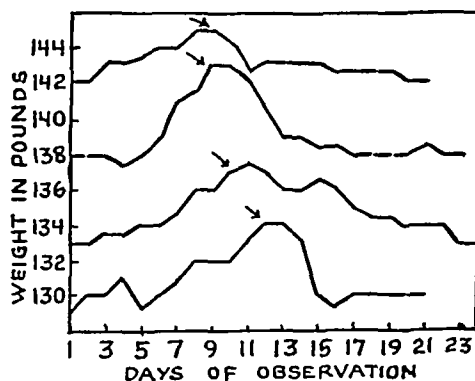


Chart 1—Variations in weight of a woman who gained as much as 3 pounds during the menstrual period. In the charts the arrows indicate the onset of menstruation.

recently reported two cases of extensive, generalized edema that occurred only at the menstrual period. One was admittedly the result of a gross glandular imbalance and responded nicely to glandular therapy. I shall supplement his observations and point out that such a phenomenon is not only limited to women with a clinically recognizable glandular dysfunction but also may be observed, in varying degrees, in presumably normal females.

From the Department of Internal Medicine, Baylor University College of Medicine.  
<sup>1</sup> Thomas, W. A. Generalized Edema Occurring Only at the Menstrual Period. J. A. M. A. 101:1126 (Oct. 7) 1933.

There is a certain percentage of ostensibly normal women, with perfectly normal menstrual cycles, with normal flow, who will complain of, or describe if questioned, a peculiar tight, stuffy sensation, usually referred to the abdomen, hands or feet, that they experience either preceding or during menstruation, or both. They will often say that their clothes feel unusually tight or that their hands seem slightly stiff, because of a feeling of swelling in them. Shortly after the period is established or has ceased, these sensations

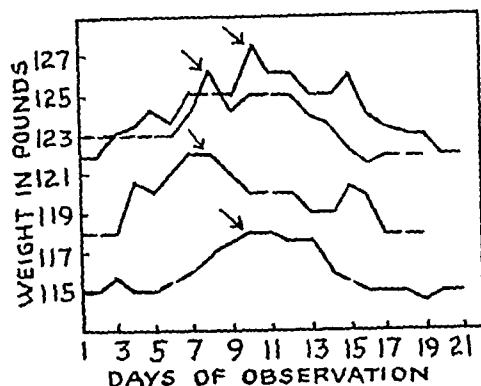


Chart 2—Variations in weight of a woman who gained as much as 3 pounds during the menstrual period

disappear. My attention was first attracted to this phenomenon about three years ago when observing a moderately obese Jewish woman, while on a weight reduction program, which consisted only of diet restriction. She was losing steadily, when suddenly, without any apparent cause, she gained 7 pounds (3.2 Kg) in from thirty-six to forty-eight hours. She spoke of feeling "bloated" and of being tight, and, on examination, it was found that the skin of her hands was unusually taut and there was a definite pitting edema of the shins. In about two more days, menstruation appeared, which was not abnormal, and her weight rapidly returned to the premenstrual level. The same thing recurred with subsequent periods, except that her premenstrual weight gain varied only from 3 to 5 pounds (1.4 to 2.3 Kg).

This phenomenon was subsequently observed in several other women, one of whom consulted me because of swelling of her feet, legs and hands. This patient was 21 years of age with a perfectly negative family history. She began menstruating at the age of 13, and, after one or two periods, menstruation ceased for about eight months, during which time she gained 20 pounds (9 Kg). When menstruation reappeared, she lost this excess weight rather rapidly. Her menstrual cycles are now quite regular and normal. She had the usual childhood diseases without complications. Her complaints, as just noted, when she presented herself were those of swelling of the face, hands and feet, and stiffness of the hands. She stated that she had always been well except for occasional attacks similar to her present complaint. She had never related them to her menstruation. It was found to be associated only with menstruation. The edema still occurs as a premenstrual effect, and pitting is always demonstrable over her shins and feet. Some months it is more marked than others. Her weight gains vary from 3 to 5 pounds.

The next step in this investigation was directed toward a group of presumably normal women who had previously thought nothing of the phenomenon. The group constituted one of the classes of student nurses

in Baylor Hospital. No particular effort was made to control many of the variables operating in such an observation, since the uniforms and shoes worn by the students are of the same sort from day to day, and there is practically no shift in daily habits over a short period of time. A total of forty-two of the nurses recorded their weights at the same hour each day and on the same scales. Their observations were started about ten days before their expected menstruation and obtained daily throughout their period, and for approximately ten days following the cessation of menstruation. Out of the forty-two there were approximately 30 per cent of the students who showed a gain of as much as 3 or more pounds during or about their menstruation cycle. Some of the girls showed no change in their weight and a few showed a loss of a pound or two. Several of those who gained a few pounds spoke of a "tight" and "stuffy" feeling, especially referable to their bodies (that is, their clothes felt tighter on them), hands and feet. A few of the girls stated that they had noticed a diminution of urine output at the time, and in some there was an associated slight increase in thirst. The accompanying charts give the curves of those who gained weight.

The explanation of this phenomenon is not clear. Apparently it is to be found only in a certain percentage of women, and there seems to occur a shift in water balance, varying from an unnoticed slight gain in weight, though often a subjective feeling of fullness or tightness, to a retention sufficient to cause a frank pitting edema. Just what the mechanism of the process may be is unknown. There may be some associated disturbance of the sympathetic nervous system. This seems likely in view of the fact that there have been observed other phenomena associated with menstruation, such as a premenstrual elevation of temperature, thought to be a result of some participation of the

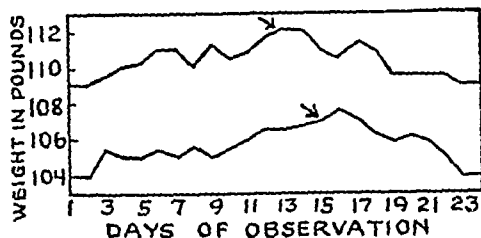


Chart 3—Variations in weight of a woman who gained as much as 3 pounds during the menstrual period

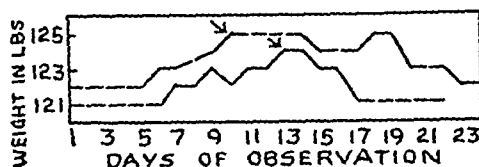


Chart 4—Variations in weight of a woman who gained as much as 3 pounds during the menstrual period

sympathetic nervous system. There may be a disturbance in the relation of some of the blood metabolites, such as sodium chloride, or the proteins. Further investigation is in progress in an effort to explain this queer disturbance in water balance, which seems associated with some clinically unrecognizable endocrine imbalance.

#### SUMMARY

The weight of forty-two normal, healthy young women was recorded before, during and after men-

struation Approximately 30 per cent of these women showed a gain of 3 or more pounds sometime during the menstrual cycle, usually just before the period was established. Other cases showed a true pitting edema. This phenomenon may be due to some endocrine disorder or disturbance of the sympathetic nervous system rather than to changes in the blood constituents or to renal insufficiency.

Medical Arts Building

## SYMMETRICAL SEROUS SYNOVITIS (CLUTTON'S JOINTS)

CONGENITAL SYPHILIS AND INTER-  
STITIAL KERATITIS

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AND

HAROLD F. ROBERTSON, MD  
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Although other writers (Richet,<sup>1</sup> Virchow,<sup>2</sup> Forster<sup>3</sup>) described synovitis of the knees in patients with congenital syphilis, it was not until 1886 that Clutton<sup>4</sup> fully described the condition and associated it with congenital syphilis. Clutton wrote "I have never seen both knee joints filled with fluid causing scarcely any pain or discomfort, whilst other joints remain quite free from any signs of inflammation except in cases where there were complete evidences either past or present of hereditary syphilis."

Since the publication of Clutton's paper the condition has been known as Clutton's joints.

Although this type of synovitis is a valuable and frequent symptom of congenital syphilis, it has not received the attention it deserves. Many textbooks on surgery and on disease of children by American authors make no mention of it or discuss it briefly. It is briefly described in most textbooks on orthopedic surgery, usually as a variety of syphilitic arthritis. Reference to the condition is more frequent in the foreign literature, and it is described more fully in textbooks by foreign writers. It is variously termed symmetrical synovitis, symmetrical serous synovitis, hydrarthrosis, hydrops, painless effusion of the knee joints and Clutton's joints. The eponym is rarely used by American writers.

"Clutton's joints" refers to a painless hydrarthrosis, which is not tender and is unassociated with bone changes. It usually involves the knee and may be unilateral but is more frequently bilateral. A synovitis is the primary and most important pathologic process. The condition is seen for the most part in syphilitic children and is the most common form of syphilitic change in the joints in the congenital variety of the disease. Syphilis of the joints occurring in infants is represented by inflammation secondary to involvement of the neighboring epiphysis. Serous synovitis (Clutton's joints) in adults the subjects of acquired syphilis is uncommon and usually precedes or accompanies the secondary eruption. Such cases have been reported by

Gate and Charpy,<sup>5</sup> Montpellier and Lacroix,<sup>6</sup> Wile and Senear<sup>7</sup> and others. In the series of 165 cases of primary or secondary syphilis reported by Wile and Senear, hydrarthrosis was present in two, both knees were affected in one, and both ankles were affected in the other.

Symmetrical synovitis of children is characterized by its insidious onset. First one joint is affected, and after an interval of months, or rarely of years, the corresponding joint on the opposite side of the body becomes involved. The knee is the site of predilection. In our series of 363 patients with congenital syphilis, sixty-three had Clutton's joints, and the knee was involved in all. Two patients had a concomitant involvement of the elbow. In the forty-three cases reported by von Hippel,<sup>8</sup> the knee joint was involved forty-one times, and in thirty-five cases it was the only joint attacked. The elbows, wrists and fingers were the other joints involved. The knee was affected in all but three of the fifty-four cases recorded by Jeans and Cooke.<sup>9</sup> The elbow was involved four times, the wrist three, the fingers two, and the ankle once. In a case described by Maynard,<sup>10</sup> the knees, ankles, elbows and wrists were involved consecutively. Although some writers state that the hip or shoulder may be involved, we know of no recorded instance of such involvement.

The process is almost invariably painless and apart from the swelling usually gives no indication of its presence. At times there is slight or moderate pain, and the patient may limp. In one of our patients the pain disturbed sleep, and a few complained of some stiffness of the affected joint. A small number of our older patients, the mothers of the younger patients, were aware of a swollen joint. In view of the insidious onset and the lack of subjective symptoms, it was not possible in our series, to determine the duration of the condition.

At the time of examination, the majority of patients with Clutton's joints present a bilateral involvement. In our series of sixty-three cases, both knees were involved in thirty-one, only the right knee in eight, and only the left knee in five. In patients with bilateral involvement, one knee is more swollen than the other. The swollen joint is distended with fluid but is not tense, and on palpation it gives a sensation of flaccid fluctuation. The swelling frequently extends above the patella, and patellar ballottement is obtainable. There is no enlargement of the ends of the bones. There is no tenderness or heat in the joint, and the overlying skin is not red. At times the synovial membrane feels thickened. The joint movement is free except for a slight limitation when there is an excess of fluid. There is no disturbance of function and there is no muscular atrophy. Creaking is not elicited by manipulation. In our two patients with involvement of the elbow, movement was impaired. One of our patients, with swelling of both knees, did esthetic dancing. The illustrations are reproductions of photographs of Clutton's joints taken at different angles.

5 Gate J and Charpy J. Hydrarthrose du genou droit sans lésions osseuses à la radiographie chez une femme présentant des syphilides élégantes du visage avec serologie positive. Guérison rapide par le traitement. Bull. Soc. franç. de dermat. et syph. 40: 38 (Feb.) 1933.

6 Montpellier J and Lacroix A. Syphilitic Hydrarthrosis. Ann. d. mal. ven. 17: 294 (April) 1922.

7 Wile U J and Senear F E. Study of the Involvement of the Bones and Joints in Early Syphilis. Am. J. M. Sc. 152: 689 1916.

8 von Hippel E. Ueber die Häufigkeit von Gelenkerkrankungen bei hereditär Syphilitischen. München med. Wchnschr. 58: 1321 1903.

9 Jeans P C and Cooke J V. Prepubescent Syphilis. vol. 17 of Clinical Pediatrics. New York: D. Appleton & Co. 1930.

10 Maynard quoted in Dunlop.<sup>11</sup>

From the Wills Hospital Clinic. No. 6 of a series of publications on studies of ocular syphilis.

1 Richet Louis Alfred. Memoire sur les tumeurs blanches. Mem. de l'Acad. royale de med. 17: 37 1853.

2 Virchow Rudolf. Ueber syphilitische Gelenkaffectionen. Berl. klin. Wchnschr. 21: 534 1884.

3 Forster Handb. d. ges. Augenhe. Leipzig: Graefe & Saemisch 7: 59 234 1877 chapter 13.

4 Clutton H H. Symmetrical Synovitis of the knee in Hereditary Syphilis. Lancet 1: 391 1886.

In rare instances the effusion develops suddenly Dunlop<sup>11</sup> reported the sudden appearance of Clutton's joints in a patient who was receiving treatment for interstitial keratitis. In two patients of our series, the symmetrical synovitis appeared, following injury to the knee. Other writers have observed a similar occurrence.

#### AGE INCIDENCE

The majority of patients with Clutton's joints are between the ages of 8 and 15 years. In von Hippel's series of forty-three cases, eight patients were below the age of 5 years, and one was in the age range of 21 to 25 years. The oldest patient in Clutton's series was 20 years of age. In our series the majority were from 8 to 15 years. This fact will be more fully discussed later.

#### ROENTGENOGRAPHIC EXAMINATION

No changes in the bone are seen. The picture merely shows a distention of the joint.

#### PATHOLOGY

The reported instances of pathologic examination of tissue removed from an involved joint are few. D'Arcy Power,<sup>12</sup> who has performed arthrectomies on patients with Clutton's joints, states that a considerable proportion of the cases show definite pathologic changes, which he describes as follows. The synovial membrane is infiltrated and studded with gummas and is everywhere thickened and much more vascular than normal. Villous processes grow from the endothelial aspect of the synovial membrane. The synovial fringes are especially infiltrated, hanging down into the joint and filling its cavity with a soft, gelatinous material, presenting a soft, reddish, elastic appearance. In the center it is grayish white and caseated, resembling the granulation tissue of tuberculous disease. In some cases, nodes are felt in the capsule of the joint, which give it a firm and almost cartilaginous feeling, while in others the synovial membrane is only a little thickened and hyperemic. In cases of the latter type the condition is true hydrops articuli, or synovial dropsy.

Borchard<sup>13</sup> examined microscopically the synovial membrane removed from the knee of a woman, aged 29. Clinically, both knees were swollen, the synovial membrane was palpably thickened and movement was impaired and painful. A polypous gumma was found which involved the capsular ligament. The fringes of the synovial membrane were swollen and contained small gummas. Microscopic examination showed gummatous formations. Borchard believes that acute synovitis causing an acute hydrarthrosis is seen only in the secondary stage of syphilis. He contends that other forms of hydrarthrosis of syphilitic origin are expressions of gummatous synovitis and are seen in patients with congenital syphilis and in the tertiary stage of acquired syphilis.

#### DIFFERENTIAL DIAGNOSIS

It becomes apparent that what is clinically Clutton's joint may represent pathologically a mild inflammation of the synovial membrane or more pronounced changes with gummatous formation, and clinically it may be difficult to determine when a simple synovitis ends and a gummatous synovitis begins. It is probable that the

difference in the degree of pathologic involvement accounts for the variable course of the disease, the uncertain response to treatment and for the fact that the symptoms described by different writers are somewhat varied. Gummatous synovitis is less common than symmetrical serous synovitis. The clinical picture of gummatous synovitis resembles that of tuberculous synovitis, from which it is differentiated by the following features. It is more likely to be symmetrical and less likely to involve a single joint. Pain, impairment of movement and muscular atrophy of the limb are less pronounced than in tuberculous synovitis. In addition, patients with tuberculous synovitis have sudden pains at night, so-called night screaming, and in the later stages of the disease in cases in which the knee is involved there occur triple displacement, flexion, displacement backward, and rotation outward. These features are absent in cases of gummatous synovitis.

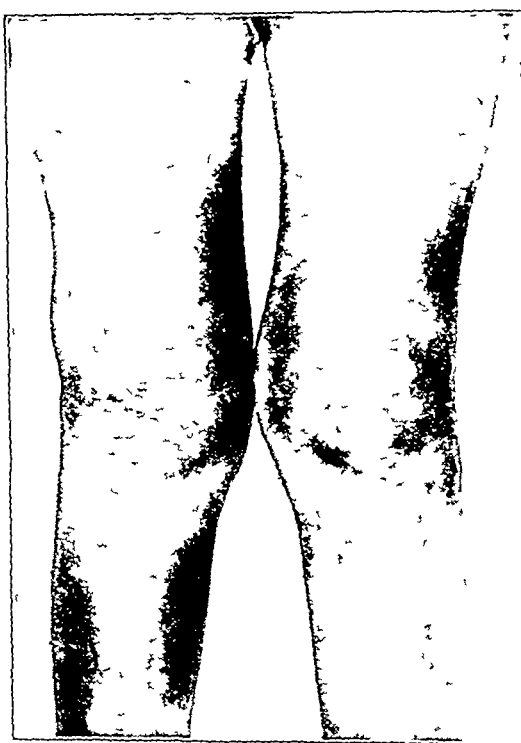


Fig 1—Clutton's joints in a boy with interstitial keratitis. Both knee joints were distended with fluid; the right more than the left. Patellar ballottement was elicited on both sides. Thickening was palpable beneath the patella. Motion was not impaired. The patient complained of aching of the knees after skating or walking a considerable distance.

#### COURSE IN UNTREATED AND TREATED PATIENTS

The course of the disease in untreated patients is chronic, remaining unchanged for months and at times for years. Relatively few patients with Clutton's joints are seen after the age of 20. The process tends to terminate in a spontaneous recovery, the involved joint becomes normal. In the case reported by Soupault and Marceron<sup>14</sup> the bilateral effusion in the knee joints appeared at the age of 10 years and persisted for three years.

The response of symmetrical synovitis to antisyphilitic treatment is variously described by the different writers. The majority state that the response is gradual. The fact that mercury and iodides do not have

<sup>11</sup> Dunlop, G. H. Syphilitic Synovitis in Children. Edinburgh M. J. 58: 516, 1904.

<sup>12</sup> Power, D. Arcy. A System of Syphilis, ed. 2. London: Hodder & Stoughton, 2, 60, 1914.

<sup>13</sup> Borchard. Ueber luetische Gelenkentzündungen. Deutsche Ztschr. f. Chir. 61: 110, 1901.

<sup>14</sup> Soupault and Marceron. Hydrarthrose syphilitique. Bull. Soc. franç. de dermat. et syph. 29: 380, 1922.

the same effect in this condition as they do in acquired syphilis is stressed in Clutton's original report. Other writers give the impression that antisyphilitic treatment produces a striking improvement. Dunlop speaks of almost miraculous improvement after mercury and iodide therapy. On the other hand, Sutherland<sup>15</sup> writes that "the affection, like interstitial keratitis, tends to run a prolonged course over several years it may be,



Fig. 2—Clutton's joints in a boy with interstitial keratitis. This was the most pronounced case in our series. There was considerable swelling of both joints, thickening of the synovial membrane and slight impairment of motion. The patient complained of slight pain in both knees. After antisyphilitic treatment the swelling gradually disappeared in the course of about one year.

with temporary improvement, with possibly a period of cessation, and then a relapse, and that no treatment, mercurial or otherwise, will have any direct effect." Barrett<sup>16</sup> reports the case of a girl, aged 5 years, with symmetrical synovitis involving both knees, ankles, wrists and elbows. The course was chronic, the disease persisting despite antisyphilitic treatment.

An immediate effect of antisyphilitic treatment was observed in only a few of our patients. Generally, the swelling of the joint gradually disappeared during a period of months or in some cases a year or longer after treatment was started. The prompt improvement and the disappearance of lesions, which invariably result from antisyphilitic therapy in the other forms of syphilis, with the exception of interstitial keratitis, do not occur in cases of Clutton's joints. Because symmetrical synovitis tends to disappear spontaneously, it is difficult in some cases to ascribe a curative effect to treatment. We believe, however, that treatment shortens the course of the process. In only a limited way are we inclined to share the opinion of Sutherland.

In all our cases the effusion eventually disappeared and the involved joints became normal. We have never observed relapse or ankylosis of the joint, which have been noted by some writers. Ankylosis is probably the result of syphilitic arthritis associated with involvement of the neighboring bones. This type of syphilitic arthritis should not be confused with symmetrical synovitis or Clutton's joints.

In some of our cases we employed rest of the joint, and the application of splints or casts in addition to

antisyphilitic therapy. These measures were ineffective. This conclusion agrees with the experiences of others. Surgical intervention was unnecessary in our cases.

#### INCIDENCE OF CLUTTON'S JOINTS IN CONGENITAL SYPHILIS, ITS ASSOCIATION WITH INTERSTITIAL KERATITIS

Most authors stress the association of Clutton's joints with interstitial keratitis and state that the joint condition usually precedes the keratitis. In Clutton's series of thirteen patients with symmetrical synovitis, nine had interstitial keratitis. Thirty-five of the forty-three patients with symmetrical synovitis studied by von Hippel showed interstitial keratitis. Almost all other reports concerning Clutton's joints embrace a small number of patients, the majority of whom had an associated interstitial keratitis. It would appear that Clutton's joints are seldom unassociated with interstitial keratitis.

Jeans and Cooke<sup>9</sup> studied the association of syphilitic arthritis with syphilitic keratitis in a large series of cases. In fifty-four cases of arthritis, keratitis was present in 42 per cent. They state that this incidence is relatively high. The incidence of keratitis in 329 active cases of syphilis was nearly 60 per cent. In ninety-three cases of keratitis, arthritis was present in 12 per cent. Since arthritis was present in 16 per cent of all children over 2 years of age with clinically active syphilis, they state that arthritis is certainly no more common in patients with keratitis than in others. The figures of Jean and Cooke relative to the incidence of arthritis included all types of joint cases. The most common variety, however, was symmetrical synovitis of the knee.

In our study we determined the incidence of Clutton's joints among patients with congenital syphilis,

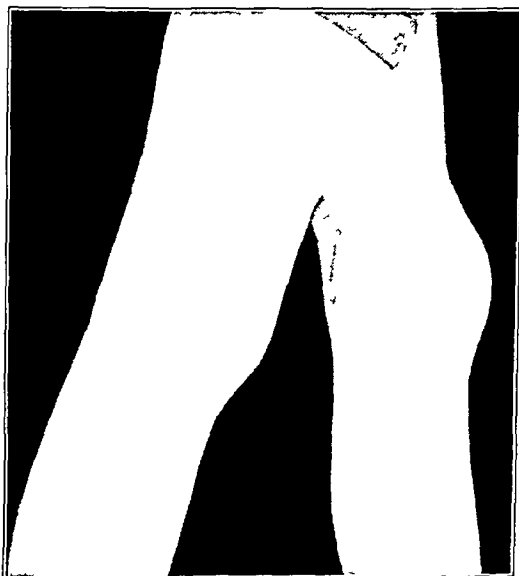


Fig. 3—Clutton's joints in a boy with interstitial keratitis. Both joints were moderately distended with fluid, the left more than the right. Motion was not limited and there were no subjective symptoms.

divided into three groups. The first group included 250 patients with interstitial keratitis. Clutton's joints were present in forty-five patients, or 18 per cent. The second group included patients with ocular lesions of syphilis other than interstitial keratitis. Among fifty-three patients, nine (17 per cent) had Clutton's joints.

<sup>15</sup> Sutherland, G. A. *The Treatment of Diseases in Children*. London: Oxford Medical Publications, 1913, p. 65.  
<sup>16</sup> Barrett, J. B. *Case of Syphilitic Synovitis*. *Brit. J. Child Dis.* 6: 102, 1909.

The third group included patients with inactive congenital syphilis without ocular manifestations. Nine (15 per cent) of the sixty patients included in this group had Clutton's joints. Most of the patients in this group were the brothers and sisters of patients with interstitial keratitis. All had positive Wassermann reactions, excepting two, both of whom had Clutton's joints. One of these patients showed other stigmas of congenital syphilis. These two were the only instances of negative Wassermann reactions encountered in the entire series of patients with Clutton's joints.

In our total number of 363 patients with congenital syphilis the incidence of Clutton's joints was 17.3 per cent. We demonstrated a slightly greater incidence of the condition in patients with interstitial keratitis than in other patients with congenital syphilis.

The various authors differ in their statements regarding the frequency of Clutton's joints in patients with congenital syphilis. For example, it was 7 per cent in 292 cases reported by Leo,<sup>17</sup> in von Hippel's study it was 56 per cent, and in Fournier's series of 212 cases it was 39 per cent. The statistics of Jeans and Cooke have been quoted.

In a discussion of the association of Clutton's joints with interstitial keratitis it is pertinent to compare the sex and age incidence of the two conditions. It is well known that interstitial keratitis is more common in females and it is most frequent between the ages of 8 and 15 years. In our series of 250 patients with interstitial keratitis, the youngest was 3½ years and the oldest was 44, 50 per cent were between the ages of 8 and 17 years and 70 per cent were between the ages of 8 and 22 years. Sixty-three per cent of the patients were females and 37 per cent were males, a sex distribution almost identical with that of the original 100 cases reported by Hutchinson. In our series of sixty-three cases of Clutton's joints, the youngest patient was 5 years and the oldest was 35 years, 57 per cent were between the ages of 8 and 15 years, 77 per cent were between 8 and 20 years. The ratio of females to males was exactly the same as that of interstitial keratitis. The age and sex distribution of the group of patients with interstitial keratitis and without Clutton's joints showed little variation from that of the group with Clutton's joints.

There is a peculiar susceptibility of the osseous system and of the cornea in congenital syphilis. Interstitial keratitis and involvement of the bones and the joints are the most outstanding manifestations of active syphilis in infants and children. There is a striking similarity between symmetrical synovitis and interstitial keratitis. Both conditions are characteristic of congenital syphilis, occur most frequently in the same age range and affect females more frequently than males.<sup>18</sup> The involvement is unilateral at first in each condition and an interval of time elapses before the commencement of symptoms on the second side. One eye or one joint is involved to a greater extent than its mate. Both processes pursue a chronic course and produce little

or no destructive changes in the tissues. Both conditions respond very slowly to antisyphilitic therapy. Symmetrical synovitis may appear in the second joint after the administration of antisyphilitic treatment in a manner comparable to that in which interstitial keratitis not infrequently appears in the second eye after the commencement of treatment. This phenomenon is unique in the domain of syphilology. Finally, both conditions may appear after trauma.<sup>19</sup> In our two patients in whom symmetrical synovitis appeared after injury to the knees, interstitial keratitis developed after a brief interval. This sequence is in line with the statement of most observers that the development of symmetrical synovitis usually precedes that of interstitial keratitis.

#### INCIDENCE OF CLUTTON'S JOINTS COMPARED WITH THAT OF OTHER STIGMAS OF CONGENITAL SYPHILIS

The incidence of Clutton's joints (18 per cent) was compared with the incidence of other stigmas of con-



Fig. 4.—Clutton's joints much less pronounced than in the preceding illustrations.

genital syphilis in the group of 250 patients with interstitial keratitis. The incidence of other stigmas was as follows: Hutchinson's teeth, 17.5 per cent, other abnormalities of the teeth, 27.5 per cent, chronic periostitis of the tibia (the saber-shaped or Fournier's tibia), 29 per cent, facies of congenital syphilis, 45.5 per cent. The facies was described as suggestive in 8 per cent.

It is interesting to note that the incidence of Clutton's joints in our study was the same as that of Hutchinson's teeth. Other writers, notably von Hippel, have emphasized this fact and suggested that symmetrical synovitis could appropriately displace deafness in Hutchinson's relatively uncommon triad of interstitial keratitis, deafness and notched teeth. Interstitial keratitis, notched teeth and symmetrical synovitis are much more frequently associated.

17 Leo F. Ueber die Entwicklung kongenital luescher Kinder und gesunder Kinder luescher Mutter. *Dermat. Wechnschr.* 94: 787 (June 4) 1932.

18 The many curious features of interstitial keratitis constitute the most remarkable phenomena in syphilology. The most noteworthy feature is the invariable involvement of the second eye even after antisyphilitic treatment has been instituted. It is not pertinent to discuss here the explanations that have been offered; it is interesting to note however, that Hutchinson apparently considered that the two eyes act as one organ. He is stated in explanation that symmetrical diseases are always manifested first on one side and simultaneous bilateral involvement is rare. Further discussion of Hutchinson's opinions and teachings is furnished by Klauder J. V. *Jonathan Hutchinson Medical Life* 41: 313-326 (June) 1934.

19 A detailed discussion of the relation between interstitial keratitis and trauma is furnished by Klauder J. V. *Ocular Syphilis: Interstitial Keratitis and Trauma. Clinical, Experimental and Medicolegal Aspects.* *Arch. Ophth.* 10: 302-328 (Sept.) 1933.



In a comparison of the incidence of symmetrical synovitis to other stigmas of congenital syphilis it should be observed that, unlike other stigmas, synovitis is not permanent, its incidence is in relation to the age of the patient. Symmetrical synovitis is a valuable sign of congenital syphilis. Examination of the joints, especially the knees, should not be neglected in the search for evidence of congenital syphilis. Clutton's joints are of prognostic significance. Every child with congenital syphilis is a potential candidate for interstitial keratitis,<sup>20</sup> especially in the age range already discussed. It appears that the presence of Clutton's joints increases the likelihood of the development of interstitial keratitis.<sup>21</sup>

1934 Spruce Street—327 South Seventeenth Street

## THE SUGAR TOLERANCE IN SIBLINGS OF JUVENILE DIABETIC PATIENTS

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It is generally accepted that diabetes mellitus is a familial or hereditary disorder of metabolism. In fact, Pincus and White<sup>1</sup> have been able statistically to show that diabetes is inherited as a mendelian recessive characteristic. Experimental proof of this fact has been brought forward by Cammidge.<sup>2</sup> He was able, by mating strains of mice having a high fasting blood sugar with those having normal blood sugars, to transmit the hyperglycemia to succeeding generations as a recessive quality. Cammidge suggested that in human beings the same blood sugar conditions might occur. Joslin and his co-workers<sup>3</sup> have shown that new cases of diabetes mellitus are continually being encountered in the families of diabetic children. They have shown a progressive incidence in new cases in those families from year to year.

Because of the familial tendency of diabetes a study was started in 1928 with the purpose of detecting early impairment of sugar tolerance in siblings of diabetic children by means of the dextrose tolerance test. A somewhat similar study had been undertaken by Sherrill,<sup>4</sup> who was probably the first investigator to study the carbohydrate tolerance of relatives of diabetic patients. He studied forty relatives of twenty-three diabetic patients. Twenty-two of these were 20 years of age or older while eight were from 3 to 20 years of age. Twenty-one of the forty cases showed what the author considered to be an impairment of sugar tolerance. Of the eight patients under 20 years of age, three had a high blood sugar which persisted for two hours following the dextrose meal. The other five

showed normal curves. Twin girls, aged 6 years, showed diabetic types of curves. Further reports on these cases are not available.

In 1931 Sehestedt<sup>5</sup> reported on the sugar tolerance of six siblings of three juvenile diabetic patients. He employed three types of sugar tolerance tests, the one comparable to our own in which one dose of dextrose was given, the second consisting of three doses of 20 Gm. each of sugar at intervals of one hour, and the third, 25, 50 and 75 Gm. of bread given one hour apart. The results of the first test, which is comparable to that which most workers employ, showed that four of the six children had fairly normal curves. Two gave an irregular response. One of these a year later again showed a slightly elevated type of curve but the patient in the meantime had not developed diabetes. Sehestedt's single case is the only report we could find in the literature of reexamination of siblings of diabetic children who had been previously tested for their dextrose tolerance.

John<sup>6</sup> reported on 1,100 routine dextrose tolerance estimations on adult patients admitted for various complaints to the Cleveland Clinic. Of 104 cases with a diabetic family history, 44.2 per cent gave a non-diabetic type of curve while 55.7 per cent gave a diabetic type of curve. The high percentage of diabetic curves cited by Sherrill and John made us wonder in how many patients who had the so-called diabetic type of blood sugar curve diabetes subsequently developed.

John classified sugar tolerance curves in four ways:

- 1 Very little or no rise, interpreted as increased tolerance.
- 2 A rapid rise and equally rapid fall (one to one and one-half hours), interpreted as normal tolerance.
- 3 A slower and higher rise and a slower fall (two and one-half to three and one-half hours), interpreted as decreased tolerance, a prediabetic type of curve.
- 4 A slow, high rise and equally slow descent (three and one-half hours or more), interpreted as a diabetic type of curve.

This classification brings up the question as to whether one is justified in considering as prediabetic those individuals who may show a delayed return to normal following a dextrose meal. John<sup>7</sup> stated that he intended to restudy the curves of nondiabetic subjects in order to determine whether it is only the person with a reduced tolerance to carbohydrate, as shown by the test meal, who eventually becomes diabetic.

Our study was likewise undertaken with the idea of following the siblings of the diabetic children under our care for some time after their dextrose tolerance had been studied. Originally, thirty siblings of twenty diabetic children were studied. Twenty of these were Jewish and ten non-Jewish. Twenty-one of the thirty children were reexamined in 1934.

### TECHNIC

The Kuttner modification of the micro-Folin-Wu test for blood sugar was used. All estimations were made on capillary blood soon after its withdrawal. Studies were begun after a fourteen hour overnight fast. Determinations for dextrose were done on the samples withdrawn in the fasting state and at intervals of one-half, one, one and one-half, two and two and one-half hours after the ingestion of the dextrose solution. We estimated the amount of dextrose to be

20 The incidence of congenital syphilis in the general population as given by different writers ranges from 0.5 to 3 per cent and the incidence of interstitial keratitis among patients with congenital syphilis ranges from 25 to 50 per cent.

21 Since this paper was written we have observed a girl aged 20 with interstitial keratitis. The diagnosis of interstitial keratitis of congenital syphilis was not made until about one month after its onset. One month antedating the appearance of the keratitis one elbow became the site of a Clutton's joint. There were no other stigmas of congenital syphilis. Correlation of the joint condition with the keratitis would have promoted early diagnosis of interstitial keratitis of syphilitic origin.

From the Children's Diabetic Clinic service of Dr. Bela Schick, Mount Sinai Hospital.

1 Pincus, G. and White, Priscilla. On the Inheritance of Diabetes Mellitus. *Am. J. M. Sc.* 156: 1 (July) 1933.

2 Cammidge, C. J. Diabetes Mellitus and Heredity. *Brit. M. J.* 2: 738 (Oct. 27) 1928.

3 White, Priscilla. Diabetes in Childhood and Adolescence. Philadelphia: Lea & Febiger, 1932, p. 29.

4 Sherrill, J. W. The Diagnosis of Latent and Incipient Diabetes. *J. A. M. A.* 77: 1779 (Dec. 3) 1921.

5 Sehestedt, H. Blutzuckerkurven bei geschwistern zuckerkranker Kinder. *Deutsches Arch. f. klin. Med.* 172: 228, 1931.

6 John, H. J. A Summary of Findings in 1,100 Glucose Tolerance Estimations. *Endocrinology* 13: 388 (Aug.) 1929.

7 John, H. J. Personal communication to the authors.

used by means of the formula devised by Pirquet. This utilizes the sitting height squared as the index of the nutritional surface area. Fries and Kohn<sup>8</sup> found this method to be satisfactory for estimating the dextrose to be administered when determining the sugar tolerance curve in children. In terms of grams of dextrose per kilogram of body weight this amounted to from 0.96 to 1.85 Gm per kilogram of body weight (column 11 in accompanying table). Gilchrist<sup>9</sup> found that the blood sugar curves in children, when given 1 Gm or more of dextrose per kilogram of body weight, were similar to those found in adults.

## RESULTS

The siblings of our diabetic children were on the whole slightly overheight and overweight when compared to average normal standards.<sup>10</sup> In only a few instances, however, was overgrowth striking.

Of thirty sugar tolerance tests, twenty-five were normal, three gave a relatively high figure at the one hour reading, and two of these were still high after

in 1934. Their curves at this time were both normal. L. T.'s fasting blood sugar was 65 mg, which rose to 120 mg at the end of one and one-half hours and fell to 75 mg at the end of two hours. M. T. had an even lower curve.

It was with particular interest that the urine of the siblings was reexamined in 1934, six years after the dextrose tolerance tests. Urine was obtained from twenty-one of the thirty children whose curves are tabulated, including the five who had slightly elevated sugar tolerance curves. No glycosuria was found in any specimen. All three children who were more than 5 per cent overheight for their age had normal blood sugar tolerance curves when they were reexamined. In addition to being siblings of a diabetic child they were markedly overgrown but as yet have shown no indication of diabetes. We intend to repeat the dextrose tolerance tests of all these siblings after a few more years.

In our series of fifty-seven juvenile diabetic patients, some of whom have been observed for as long as

*Sugar Tolerance and Growth Studies of Siblings of Juvenile Diabetic Patients of the Children's Diabetic Clinic of the Mount Sinai Hospital\**

Subject	Sex	Race	Age	Sitting Height Cm	Standing Height Cm	Average Normal Standing Height Cm	Weight kg	Average Normal Weight kg	Pellidisi Pirquet Index†	Grams Dextrose	Gm per kg	Fasting Blood Sugar Mg per 100 Cc	Blood Sugar			
													½ Hr P C	1 Hr P C	1½ Hrs P C	2½ Hrs P C
1 H G	M	Jewish	2½	93	96	89	14.5	12.3	99	24	1.65	60	73	88	66	52
2 V I	F	Jewish	2½	96	102	91	20.4	20.9	99	25	1.62	75	125	83	105	79
3 D J	F	Czech	3½	98	101	97	13.6	15.9	93	25	1.61	70	132	120	88	59
4 M M	F	Irish	4	98	97	93	10.6	10.4	93	28	1.79	81	132	92	69	56
5 J R	M	Jewish	4	98	104	104	17.9	17.7	98	28	1.66	62	116	112	95	64
6 R I	F	Jewish	4½	98	106	101	17.7	17.7	98	30	1.69	75	160	75	95	59
7 M S	F	Irish	5	100	106	112	16.1	17.7	91	30	1.66	99	192	140	72	92
8 G M	M	Irish	5	99	100	112	10.6	16.3	91	29	1.85	56	85	91	56	81
9 L L	M	Jewish	5	101	112	112	17.2	20.9	91	31	1.80	80	160	160	110	90
10 A I	M	Jewish	7	108	126	122	25.4	26.4	94	43	1.69	92	100	80	74	37
11 B G	M	Jewish	6	112	134	127	26.0	31.8	89	43	1.65	70	188	80	80	70
12 P S	M	Jewish	9	127	138	132	30.5	27.7	101	37	1.21	67	93	75	90	60
13 M L	F	Jewish	10	144	138	137	38.2	33.6	98	42	1.09	68	116	113	70	60
14 P R	F	Jewish	10	144	144	137	34.7	31.8	99	42	1.21	52	130	112	94	68
15 I G	M	Jewish	10	144	144	137	41.0	36.2	97	50	1.21	83	67	80	64	54
16 S S	M	Jewish	10	144	144	137	31.1	31.8	95	43	1.38	68	85	96	68	58
17 E H	F	Jewish	10	144	126	137	27.1	24.0	93	39	1.43	60	120	82	112	68
18 R S	F	Irish	11	148	148	142	33.4	40.9	90	51	1.52	115	166	144	108	94
19 E G	M	Czech	11	148	142	142	33.1	35.0	92	47	1.42	62	196	82	112	85
20 V S	F	Irish	12	144	144	147	35.4	39.1	95	45	1.27	80	104	56	87	63
21 W S	M	Italian	12	144	141	147	35.0	35.0	95	47	1.34	55	120	80	68	60
22 M S	F	Jewish	13	148	148	142	30.8	41.8	94	46	1.30	70	102	58	58	80
23 V H	M	Jewish	13	144	144	146	38.1	35.0	95	48	1.26	50	100	82	96	76
24 M T	F	Jewish	13	144	144	146	38.1	35.0	95	48	1.26	50	100	82	96	76
25 L T	F	Jewish	13	144	144	146	38.1	35.0	95	48	1.26	50	100	82	96	76
26 S S	M	Italian	13	148	148	142	30.8	41.8	94	46	1.30	70	102	58	58	80
27 P S	M	Jewish	15	164	164	163	49.0	59.1	91	63	1.18	96	113	68	66	55
28 J H	M	Jewish	15	164	164	163	49.0	59.1	91	63	1.18	96	113	68	66	55
29 D S	F	Irish	19	187	187	187	61.8	62.7	97	57	1.10	101	180	196	160	83

\* Figures for average normal height and weight were taken from the Baldwin Wood, Woodbury and Kornfeld height weight tables.

† Pellidisi is a numerical index of nutrition according to the Pirquet system.

‡ Test done following acute mastoiditis.

§ Twins.

one and one-half hours. All five, however, were normal after the two and one-half hour period. It is interesting to call attention to the fact that in sixteen instances the two and one-half hour reading was below the fasting blood sugar. This phenomenon has been observed by others in normal individuals. No indication of decreased tolerance was noted in subject 29, a girl whose two brothers and one sister have diabetes. Subject 9, who was recuperating from an acute mastoiditis at the time of the test, had a curve within normal limits. One of heterozygous twins, L. T., subject 25, showed a rather high curve, her blood sugar at the end of one and one-half hours being 140 mg. This child as well as M. T., her twin sister, subject 24, was retested early

nine years, no brother, sister or parent developed diabetes during that time. In some instances, to be detailed in a subsequent paper, a close relative became diabetic. Since nine years is only a fraction of the average life expectancy, these observations are of limited significance, for siblings and parents of juvenile diabetic patients can develop diabetes at any time over a period of years. It was hoped, however, as indicated by other workers in this field, that it might be possible to detect a predisposition to diabetes by means of the sugar tolerance test. This has not been the case thus far in thirty siblings of juvenile diabetic patients as indicated by the curves as well as the subsequent histories of these patients. Since the onset of diabetes in children and in adolescents is, as a rule, rather sudden, we feel that the sugar tolerance method does not hold much promise as a means for detecting early cases of diabetes in childhood. This method might be

<sup>8</sup> Fries M. E. and Kohn J. L. Glucose Tolerance Tests in Children. *Am J M Sc* 170: 547 (Oct.) 1925.

<sup>9</sup> Gilchrist M. L. Glucose Tolerance and Blood Sugar Curve in Childhood. *Arch Dis Childhood* 4: 129 (June) 1929.

<sup>10</sup> Baldwin Wood, Woodbury and Kornfeld tables.

of value in older patients in whom the onset of diabetes is frequently insidious

#### CONCLUSIONS

1 Thirty siblings of juvenile diabetic patients were examined. Their sugar tolerance curves were within normal limits

2 Of these, twenty-one were reexamined six years later. In none of them had diabetes developed. We were able to ascertain that the other nine, although they were not examined, had no symptoms of diabetes

3 Five siblings whose curves suggested a decreased tolerance for carbohydrate in 1928 were retested in 1934. The curves gave normal values and showed no prediabetic tendency

2 West Eighty-Seventh Street—73 East Ninetieth Street

### INTRASPINAL (SUBARACHNOID) INJECTION OF ABSOLUTE ALCOHOL

FOR THE CONTROL OF PAIN IN FAR ADVANCED MALIGNANT GROWTHS

HARRY C SALTZSTEIN, M.D.  
DETROIT

"To the lay mind, carcinoma denotes pain"<sup>1</sup> Other diseases have just as long a period of disability with no hope in many cases of averting a fatal outcome, e g, heart disease, chronic arthritis, tuberculosis, but they are not the scourge that cancer is because friends and relatives do not see the months of severe uncontrollable pain and distress that are so common in terminal cancer cases

In 1931 Dogliotti<sup>2</sup> reported that he had relieved forty cases of pain in the lower part of the back, the pelvis and the legs due to various conditions (chronic arthritis, sciatica, abdominal tabetic crises and the like) by intraspinal injections of absolute alcohol

Yeomans<sup>1</sup> reported its use in seven cases of malignancy presenting lower abdominal and rectal pain

I have used the method in eleven cases. My purpose in presenting the results in this small series is that the field for usefulness of this procedure must be very large, and I hope that others will try it

I have very little to add to Yeomans' description of the technique

For visceral and abdominal pain, injection may be made between the first and second lumbar vertebrae. With the patient resting on the side opposite to that affected, the alcohol in a tuberculin syringe is injected very slowly, drop by drop, a total of from 0.2 to 1 cc, varying with the nature of the case. The patient remains in this position for twenty minutes and then is rolled on his back, where he rests for two hours. Following the injection, zones of anesthesia or hyperesthesia may appear, and cutaneous tendon reflexes may be diminished or lost. The motor effects are mild, but temporarily the knees may bend under the patient when he stands or tries to walk. These phenomena disappear in a few hours or, at most, days. Usually there is no disturbance of bowel or bladder function, although in one of our cases there was retention of urine

If the pain is not relieved in a fortnight, the injection is repeated at the same level of the spinal cord, but with the patient resting on the opposite side. The rationale of the treatment is that absolute alcohol, being lighter than the spinal fluid, rises and follows the line of exit of the spinal nerves, hence the necessity of keeping the patient immobilized for some time after the injection. The spinal fluid is at first under increased

pressure and the cell count is increased, but it returns to normal in ten days. The relief of pain on the average lasts for six months

The procedure is especially useful in far advanced cervical cases. Frequently radium and x-rays stop the vaginal bleeding, and, though the local lesion remains cured, the disease continues to progress in the retroperitoneal glands. In some of these cases within two to four months low lumbar distress and pain on exertion begin, gradually becoming more severe. Soon there is a continuous viselike backache, sometimes with pain down one buttock or leg almost as severe as the root pains of tabetic crises

This is likewise true with rectal carcinoma, but not so often, probably because the spread of rectal carcinoma is more apt to involve the glands alongside the iliac veins and abdominal aorta rather than the glands in the lowermost retroperitoneal tissues, where lie many large nerve trunks

Spinal metastases from breast cancer are often controlled for a time by roentgen therapy and by braces, but the pain later frequently becomes severe. The patient lies in bed without daring to move or even to allow the bedclothes to be changed, because the slightest movement of the back is excruciating

Such pains are difficult to control with drugs. By preventing eating and sleeping, they are often the chief cause of rapid emaciation and progressive deterioration

Chordotomy is not an entirely satisfactory procedure. There is a certain danger of bladder and rectal incontinence and other complications, and many of these patients are too sick or life expectancy is too uncertain to warrant the risk of this delicate operation. Ruth<sup>3</sup> recently stated that "the results (of chordotomy) seem discouraging" considering the risks involved. He recommends 30 per cent alcohol nerve block, carefully studying and plotting out the sensory nerve pathways involved (e g, rectum, second to fourth sacral, bladder, twelfth dorsal to first lumbar). Gilcreest and Mullen,<sup>4</sup> de Takats,<sup>5</sup> and others have also recommended from 15 to 30 per cent alcohol injections into the sacral canal and into the second, third, fourth and fifth sacral foramina for pelvic pain. Sometimes these injections must be repeated each week, and if another segmental nerve distribution becomes involved a different injection must be done. Others have removed the presacral sympathetic nerve (laparotomy). Subarachnoid injection is much more simple than any of these methods and is apparently quite satisfactory.<sup>6</sup>

I have used the method in eleven cases of far advanced malignancy: eight cervical, two spinal metastasis from breast cancer, one cancer of the prostate

3 Ruth H S. Diagnostic Prognostic and Therapeutic Nerve Blocks, J A M A 102 419 (Feb 10) 1934

4 Gilcreest E L and Mullen T F. Epidural and Transsacral Injection of Alcohol for the Relief of Pain. S Clin North America 11 989 994 (Oct) 1931

5 de Takats Geza in discussion on Ruth<sup>3</sup>

6 Condamine and Arnulf (Treatment of Pain Due to Pelvic Cancer by Injection of Nerves. Rev de chir Paris 51 635 650 [Oct] 1932 abstr Am J Cancer 20 455 [Feb] 1934) have classified pain in patients with pelvic cancer into three types: (a) limited to perineum and anal regions attributable to the last branches of the sacrococcygeal plexus—relieved by epidural injection; (b) Corresponding to the sacral plexus pain in pelvis with sciatic radiation down the buttock and the posterior surface of the thigh relieved by injection of second sacral root; (c) Corresponding to lumbar and sacral plexus more diffuse pelvic pain and diffuse radiation down genitocrural and femorocutaneous nerves relieved with more difficulty by injection of first and second sacral root plus paravertebral injections along the lumbar nerves. I have recently relieved two patients with rectal carcinoma in whom pain was limited to the coccyx and perineum type a by an epidural injection of the solution that these authors recommend (94 per cent alcohol 20 cc menthol 0.1 Gm procaine hydrochloride 0.2 Gm from 1 to 4 cc of this solution is used). Type c I feel is much more simply handled by intraspinal absolute alcohol injection. I have not had any cases that were recognized as corresponding exactly to type b but the point is worth bearing in mind. As noted many of these cases later spread upward and involve more nerves.

From the Mercy Hall Hospital and Tumor Clinic

1 Yeomans F C. Care of Advanced Carcinoma of the Gastrointestinal Tract. J A M A 101 1141 (Oct 7) 1933

2 Dogliotti A M. Nouvelle methode therapeutique pour les algies peripheriques. Injection d'alcool dans l'espace sous arachnoïdien. Rev neurol 2 485 (Oct) 1931

Concerning ill effects, except for occasional transient signs of intraspinal irritation I have found no immediate ill effects (One patient had mild nausea and headache for two days) There is usually burning for a few seconds as the alcohol is first introduced Transient paresthesias, usually along the outer thigh of the extremity that was uppermost as the injection was given, occurred in several cases In five cases there was weakness of this extremity It disappeared within from two to three days in four patients In the fifth, a far advanced cervix case, it persisted for three weeks but gradually cleared entirely In only one case was there bladder or rectal disturbance following the injection In a woman with extensive spinal metastasis from breast cancer, mild abdominal distention, relieved by enemas, persisted There was also delay in voiding However, there was slight weakness of the left leg and some abdominal distention before the injection, so I thought these symptoms were due to cord involvement of the growth, which was extensive In no instance was there bladder or rectal incontinence such as I have seen after chordotomy

#### RESULTS

In one cervix case the injection was of no benefit Back and leg pains started again twenty-four hours later A second injection, given after ten days, similarly gave relief for thirty-six hours only For the remaining three weeks of life there was excruciating pain in the pelvis, the lower part of the back and the thigh, with fever and leukocytosis Necropsy revealed an extensive infected pelvic mass, part of which was intimately associated with and pressing on the retroperitoneal nerve plexuses In all other cases, relief was instantaneous Pain, frequently of a violent nature, which the patient had complained of for weeks or months, stopped immediately and was gone before the needle was withdrawn In several cases the local lesion has progressed, causing symptoms from bladder irritability, constipation, and the like, but the severe backache has not returned In two cervix cases, the injections were made a few weeks after back pain started and the patients were subsequently cared for at home in relative comfort for a considerable time, the local lesions meanwhile progressing Such cases frequently require prolonged hospitalization, chiefly because of the intractable pain

The method is applicable in terminal cases, with only a few weeks' life expectancy, since the injection is given in bed and it is only necessary to turn the patient over on the side I have not as yet needed to repeat the injection, except in the one case in which two injections were failures In some cases the maximum effect of the injection was not obtained for one or two weeks, transient pains persisting during this period, but gradually easing off

I have used the first or second lumbar interspace Most of my patients have had low back, sacral and pelvic, and sometimes low lumbar pains, with frequent sciatic radiation down the posterior thigh In one case, pain in the right lower thoracic region, reaching to the fourth rib in the nipple line, was considerably improved but not entirely relieved following the injection

#### ILLUSTRATIVE CASES

**CASE 1—Cancer of cervix** The onset occurred in October 1932 with intermenstrual spotting

Examination in October 1933 revealed a severely bleeding cauliflower mass encompassing the entire cervix with extensive involvement of the uterine adnexa and broad ligaments Palliative radiation therapy controlled the bleeding

January 1934, the patient had pains in the lower part of the back, which became increasingly severe, extending down the right thigh and leg as severe root pricks

February 1, the pains were increasingly severe She required one-half grain (0.03 Gm) of codeine,  $1\frac{1}{2}$  grain (0.1 Gm) of phenobarbital or 10 grains (0.6 Gm) of barbitol by mouth, and an occasional hypodermic injection of one-fourth grain (0.016 Gm) of morphine during the course of twenty-four hours

One cubic centimeter of alcohol was injected into the second lumbar interspace There were no immediate symptoms The pain stopped immediately

March 28, the pains in the back and down the leg had disappeared

There is a large sloughing mass in the vagina with severe hemorrhage every week This causes considerable bladder irritability and frequency (direct extension)

The patient is bedridden and the condition is far advanced, but she requires only an occasional phenobarbital or barbitol tablet at night (rarely a morphine tablet)

In this case, severe backache and leg pains of far advanced cancer of the cervix are controlled by injection

**CASE 2—Cancer of cervix** A young woman had had radium treatments in May 1933 Since then she had had repeated hemorrhages Soon discomfort started again In June, pain in the back started, mild at first, becoming gradually more severe At examination in November the patient was severely anemic The foul bleeding cervical mass had to be packed several times because of profuse hemorrhage

She was in severe pain because of pain in the back She would not move in bed She cried and was irritable much of the time She required 2 doses of dilaudid (one-sixteenth grain) 2 grains (0.13 Gm) of codeine, 20 grains (1.29 Gm) of acetylsalicylic acid, 2 grains of phenobarbital and 1 grain of sodium amytal during twenty-four hours

December 3, 0.35 cc of absolute alcohol was injected in the second lumbar interspace There were no immediate symptoms

December 4 she was much more comfortable She could now be moved in bed without discomfort and was much brighter, was interested in the surroundings, and was comfortable She asked for the first time to have her hair arranged

December 13, the patient continued to be comfortable Very little medication was required There was a sudden severe vaginal hemorrhage followed by death

This was a terminal case in which the patient was made comfortable for the final two weeks of life after having required large doses of narcotics and sedatives before injection

**CASE 3—Cancer of breast** Removal of the right breast for cancer had been done in April 1932 In August 1933, severe pain developed in the right hip to the knee and the lower part of the spine and back When the patient was examined in November, she was unable to move in bed Roentgenograms showed pelvic and lumbar bony metastases She required from 3 to 4 grains (0.19 to 0.26 Gm) of codeine, from one-sixteenth to one-eighth grain (0.004 to 0.008 Gm) of dilaudid hypodermically, occasional morphine, acetylsalicylic acid and phenobarbital in twenty-four hours

December 2, 0.5 cc of absolute alcohol was injected in the first lumbar interspace There were no immediate symptoms but there was immediate relief from pain before the needle was withdrawn

December 3 pain on the right side had gone completely There was still slight pain in the left side The patient moved about in bed without pain

December 18 there was occasional pain more paresthesia than actual pain—sometimes in the right leg, sometimes in the left No codeine was required Occasionally acetylsalicylic acid or amidopyrine was given at night

March 15 1934, the patient had no trouble moving her feet in bed She was resting comfortably except that occasionally there was transient pain in the left hip and leg, relieved by codeine one-half grain The pain was not severe enough however, for a second injection

In this case of spinal metastasis from cancer of the breast with considerable pain relief has been obtained for four months The patient was comfortable in bed

1054 Maccabee Building

NASAL CATHETER ADMINISTRATION  
OF OXYGEN

WITH OBSERVATIONS ON ALVEOLAR SATURATION

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The clinical administration of oxygen is now being employed in many disorders and is being used in the home as well as in the hospital. This has been rendered possible through the improved availability of oxygen and the development of simplified equipment for its administration.

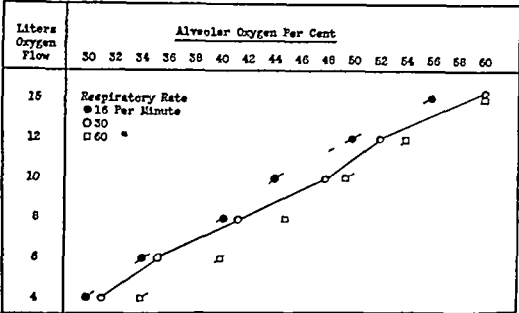
In general, it is considered that the inhaled air must contain from 35 to 55 per cent of oxygen in order to produce therapeutic effects. To attain such oxygen percentages in the inhaled air several methods have been employed, namely the oxygen room, the oxygen tent and the nasal catheter.

The nasal catheter method is a simple means of giving oxygen but it has been criticized by many as being relatively inefficient. Barach<sup>1</sup> obtained a 30 per cent concentration of oxygen in the inspired air of the pharynx by means of the nasal catheter and reported that the oxygen content of the blood of patients with pneumonia could be elevated with a flow of 2 liters per minute. An oxygen concentration of 38 per cent was obtained with a 5 liter flow and Barach concluded that the nasal catheter furnished a very useful method for the administration of oxygen. Palmer<sup>2</sup> felt that oxygen therapy by means of the nasal catheter was effective in relieving mild degrees of anoxemia in "certain acute pulmonary conditions." Waters<sup>3</sup> revived our interest in the nasal catheter method by showing that with a proper pharyngeal insufflation technic an oro-

flow and at different respiratory rates should indicate whether adequate therapeutic concentrations of oxygen in the alveolar air can be obtained by the nasal catheter and the rate at which the oxygen must flow through the nasal catheter to obtain such concentrations. The following study was made to determine the efficiency of the nasal catheter method for administration of oxygen.

METHOD OF STUDY

Three normal adults were used in this study. Standard, soft, urethral catheters, sizes 12 to 14, with extra holes at the tips, were introduced into one nostril until the tip was discernable at the level of the uvula. They were then adjusted to the comfort of the subject by withdrawing slightly and fixed in place with adhe-



The column at the left gives rate of oxygen flow in liters per minute while the percentage of oxygen in alveolar air appears above. As the rate of flow of oxygen is increased in liters per minute an increase of alveolar oxygen saturation occurs. Note that the oxygen saturation curves are essentially straight lines dependent on rate of flow and this saturation is but slightly altered by changes of respiratory rate.

sive tape. The flow of oxygen was administered from standard commercial oxygen tanks through a humidifier at 4, 6, 8, 10, 12 and 15 liters per minute. Samples of alveolar air were collected by cutting off the oxygen supply at the end of inspiration and then letting the subject expire completely, at which point air was drawn into modified Douglas bags from the nasopharynx through the same catheter (mouth closed and nasal pincher in place). The control observations on alveolar oxygen and carbon dioxide at various respiratory rates conformed very closely to those reported by Haldane<sup>4</sup> and his co-workers. Several series of determinations of alveolar oxygen and carbon dioxide at various respiratory rates and different rates of oxygen flow were made on each subject on different days. The carbon dioxide concentration in the samples ranged between 4.9 and 6.5 per cent with an average of 5 per cent or over, indicating that we were obtaining samples of the deep alveolar air.

The determinations of oxygen and carbon dioxide were made by means of the modified Haldane instrument and the instrument by the Hays Corporation. The results obtained on each subject checked within surprisingly narrow limits, although an individual variation was noted. This difference was so small that they were all averaged and the charts show clearly the results obtained.

The figures given in table 1 show a rising concentration of oxygen in the samples drawn from the nasopharynx as the rate of flow through the catheter was increased. The individual protocols are omitted because of the similarity of the results obtained in each subject. The table does not include the observations made on

TABLE 1—Effects of Rate of Oxygen Flow and Respiratory Rate on Concentrations of Oxygen and Carbon Dioxide in Alveolar Air

Oxygen Flow per Minute	Percentage of Alveolar Oxygen at Respiratory Rates of				Percentage of Alveolar Carbon Dioxide
	6	16	30	60	
4 liters	34	30	31	30	5.0
6 liters	46	35	37	40	5.2
8 liters	52	40	43	45	5.4
10 liters	62	44	48	49	5.3
12 liters	71	50	52	54	5.2
15 liters	74	56	60	60	5.0

pharyngeal oxygen saturation of 35 per cent could be maintained with a flow of 2 to 3 liters per minute, while with a flow of 10 liters per minute a concentration as high as 74 per cent could be attained.

It would seem that determinations of the alveolar oxygen saturation taken at different volumes of oxygen

The Linde Air Products Company donated a liberal supply of oxygen for use in these experiments.  
Read before the Chicago Society of Internal Medicine, March 20, 1934, and the American College of Physicians, April 17, 1934.  
From the departments of medicine and physiology of Northwestern University Medical School and the oxygen service of Passavant Memorial Hospital.  
1. Barach, A. L. Administration of Oxygen by Nasal Catheter. J. A. M. A. 93: 1550 (Nov. 16) 1929. Methods and Results of Oxygen Treatment in Pneumonia. Arch. Int. Med. 37: 186 (Feb.) 1926.  
2. Palmer, R. S. Oxygen Therapy in Treatment of Pneumonia and Postoperative Pulmonary Complications. New England J. Med. 200: 330 (Feb. 14) 1929.  
3. Wineland, A. J. and Waters, R. M. Oxygen Therapy. Insufflation into Oral Pharynx. Arch. Surg. 22: 67-71 (Jan.) 1931.  
4. Haldane, J. S. Respiration. New Haven: Yale University Press, 1922.

the administration of oxygen under 4 liters per minute because the concentrations were below the levels of probable therapeutic effect. The alveolar oxygen saturations were not greatly altered by nasal or oral breathing in a similar series of observations.

The respiratory rate does not seem to affect greatly the alveolar concentration except that with a respiratory rate of six per minute the alveolar concentrations were all found to be increased. The results obtained indicate that alveolar saturations of 35 per cent may be obtained with a rate of flow of about 6 liters per minute and the usual desired concentration of 50 per cent requires a flow of from 10 to 12 liters per minute. This rate of flow was well tolerated for hours at a time. It was our experience that such a flow may be comfortably maintained for from three days to three weeks if the oxygen is well humidified and if the nasal cavity and oropharynx are sprayed at intervals of from one to two hours with liquid petrolatum from an atomizer. It is desirable to cleanse the catheter and to change it from one nostril to the other at least every twelve hours. Oxygen concentrations of 60 per cent or over in the alveolar air required a flow of from 14 to 16 liters per minute. The figures given in the chart are arranged graphically to indicate at a glance the concentration of oxygen in the alveolar air determined by the rate of flow, so that a desired alveolar saturation may be obtained promptly by adjusting the flow in liters per minute as indicated in the column at the left.

Oxygen concentrations of 60 per cent or over in the alveolar air required a flow of from 14 to 16 liters per minute. Some difficulty was encountered in keeping the pharynx from becoming uncomfortably dry when such rates of flow were employed. It is the impression of the observers that such high concentrations of alveolar oxygen, although often required clinically,

the tent, hence the oxygen concentration of the tent atmosphere may be roughly stated as a close index of alveolar oxygen saturation. The respiratory rate did not alter this relation perceptibly. The tent, therefore, is much the more economical method of administering therapeutic concentrations of oxygen from the standpoint of the volume of gas required. This fact, however, must be weighed against the objections of the cost, upkeep and difficulty in operation of the tent as compared to the catheter, as well as the fact that this method is not adapted to the treatment of certain patients, such as those who are delirious or orthopedic, and who may be well supplied by the catheter. Each method has certain advantages and disadvantages, which will be discussed elsewhere.

#### CONCLUSIONS

- 1 Oxygen saturations of from 30 to 60 per cent in the alveolar air are readily obtained by pharyngeal insufflation with the use of the nasal catheter.
- 2 Oxygen saturations of 50 per cent in the alveolar air are obtained by nasal catheter only with an oxygen flow of from 10 to 12 liters per minute.
- 3 Similar observations made in the tent indicate that the alveolar saturation is roughly that of the tent atmosphere.

301 East Superior Street

### TRAUMATIC SUBDURAL HEMATOMA

#### AN EXPLANATION OF THE LATE ONSET OF PRESSURE SYMPTOMS

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AND

ROBERT E. GROSS, M.D.

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TABLE 2—Oxygen and Carbon Dioxide Concentrations in Tent and Alveolar Air

Respiratory Rate	Percentage of Oxygen in Tent	Percentage of Carbon Dioxide in Tent	Percentage of Oxygen in Alveolar Air	Percentage of Carbon Dioxide in Alveolar Air
Normal breathing	40.0	1.50	41.0	Not stated
	41.0	1.50	39.5	5.75
	45.0	2.00	44.0	5.25
	49.0	1.20	50.0	5.25
	50.0	0.20	45.0	5.10
	51.0	2.40	49.7	4.50
	52.0	2.50	51.0	5.50
	53.0	3.20	60.0	5.00
	54.0	2.60	62.0	4.25
	55.0	2.50	53.0	5.25
	56.0	3.00	56.0	5.00
	56.0	3.00	51.0	5.00
	60.0	3.00	60.0	5.00
	63.0	3.50	60.0	5.00
	65.0	3.00	63.0	5.00
30	51.5	2.80	52.0	5.50
60	52.5	3.00	51.4	4.80

would be difficult to maintain for long periods of time in the average patient without the use of an efficient humidifying equipment. However, no ill effects other than the discomfort described have been noted from any rate of administration.

Similar determinations of alveolar oxygen and carbon dioxide were made on ourselves in oxygen tents. The concentrations of oxygen in the air of the tent was varied from 40 to 65 per cent. The alveolar oxygen concentration was found to be essentially the same as that of the air of the tent. The alveolar oxygen concentrations were found usually to be about 1 to 3 per cent below the concentration of oxygen in

The clinical and pathologic aspects of traumatic subdural hematoma have received full consideration in many previous reviews. Various authors have emphasized the fact that cranial injury may be attended by little or no symptomatology at the time but that evidence of increased intracranial pressure may develop long after the original trauma. Therefore it is not unusual for these patients to be symptom free for several months before developing signs of an intracranial lesion. Various theories have been proposed to explain the prolonged "latent period." Our studies on a patient with bilateral subdural hematomas offers evidence that satisfies the clinical and experimental requirements as an explanation for the latent period so characteristic of this condition.

It has been generally agreed that the delayed onset of clinical symptoms is dependent on an augmentation in volume of the blood that is entrapped in the subdural space. Some clinicians believe that repeated bleeding accounts for enlargement of the subdural hemorrhage, but there is little pathologic evidence to support this view in the majority of cases. Gardner<sup>1</sup> recently showed that the sac which forms about such a collection of blood has the characteristics of a semipermeable membrane. He believed that the enlargement of the sac depended on the passage of tissue fluids into the

From the Surgical and Pathological Services, Peter Bent Brigham Hospital.

<sup>1</sup> Gardner, W. J. Traumatic Subdural Hematoma with Particular Reference to the Latent Interval. *Arch. Neurol. & Psychiat.* 27: 847-856 (April) 1932.



hematoma as a result of differential osmotic tension existing between whole blood and cerebrospinal fluid when they are separated by a semipermeable membrane. Since the hematoma sac probably forms very rapidly after the original hemorrhage, it is reasonable to expect that any difference in osmotic tension between the enclosed whole blood and the neighboring cerebrospinal fluid would be compensated for in a day or two after the membrane is completed. Therefore, Gardner's

porarily relieved on several occasions by nausea and vomiting. A gradual diminution in vision developed, and on October 5 diplopia was noticed. The symptomatology was that of increased intracranial pressure which had progressed over a period of at least three months without definite localizing signs.

*Physical Examination*—The patient was intelligent, euphoric and talkative. He was in good general physical condition. The pupils were dilated to 7 mm but were equal and regular and reacted to light and in accommodation. There was bilateral choking of the optic disks to 4 diopters. The remainder of the general neurologic examination was essentially negative.

*Laboratory Examination*—Wassermann and Hinton reactions of the blood and ventricular fluid were negative. The total protein content of the ventricular fluid was 20 mg per hundred cubic centimeters and the cell count was 3 lymphocytes per cubic millimeter.

TREATMENT

*Diagnosis*—The diagnosis of a right frontal tumor was made but in the absence of definite localizing signs ventriculography was performed on October 21 under local anesthesia. The right ventricle was tapped, clear fluid was obtained and air was injected. A needle was not passed through the left trephine opening because of a bluish discoloration beneath the dura, which at that time was thought to be a large vein. The ventriculogram showed marked displacement of the third and lateral ventricles to the left. Despite this marked displacement in the anterior-posterior view the ventricles were not distorted in the lateral view. Dr Merrill C Sosman interpreted these observations as indicating an extensive superficial lesion, possibly a hematoma.

*Operation*—A large frontoparietal bone flap was turned down under procaine hydrochloride anesthesia the same day by one of us (R Z). A large encapsulated subdural hematoma was found extending from the frontal region almost to the occipital lobe and triangularly downward toward the floor of the middle fossa (fig 1). The sac was easily peeled from the dura and the underlying arachnoid. A subtemporal decompression was done and the bone flap was sutured back into place. The postoperative course was uneventful except for rather pronounced euphoria.

We recalled the bluish discoloration beneath the dura on the left side at the time of ventriculography, and knowing that subdural hematomas are frequently bilateral, a diagnosis of a left sided hemorrhage also was made and a second operation advised. Twenty days after the first operation, a small occipitoparietal bone flap was reflected (by R Z) and a smaller

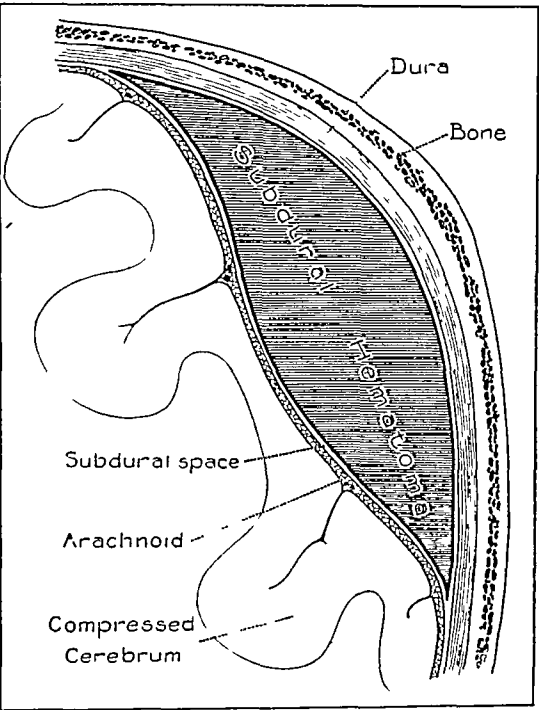


Fig 1—Schematic coronal section showing position of the hematoma between the dura and the pia arachnoid

theory explains an early small acquisition of fluid but it does not explain the gradual increase that takes place over a period of months.

The inference has been made by Putnam<sup>2</sup> that disintegration of blood in the hematoma is of prime importance, for this results in a greatly increased osmotic pressure which is responsible for drawing fluid into the sac. The observations made in the following case of bilateral subdural hematoma tend to substantiate the latter view.

REPORT OF CASE

*History*—C L, a white man aged 46, was referred to the Peter Bent Brigham Hospital Oct 19 1933, by Dr Roger Spaulding of Duxbury, Mass, for treatment of a suspected tumor of the brain. The patient had enjoyed excellent health and was active as a roof inspector until July 26 1933, when headaches occurred over the right temporal region which radiated upward toward the top of the head. There had not been any single severe cranial trauma but he had been in the habit of raising trap doors with his head while climbing up to roofs. It is likely that the later discovered intracranial hemorrhage was sustained during one of these rather insignificant injuries. The headaches increased in severity and on August 1, while on a vacation, he became confused and temporarily wandered away from his family. He returned to work, August 18, but did not feel rested. September 15 he suffered a temporary numbness and shooting pain in the left knee and had difficulty in speech for a few minutes. The headaches subsequently increased in severity but were tem-

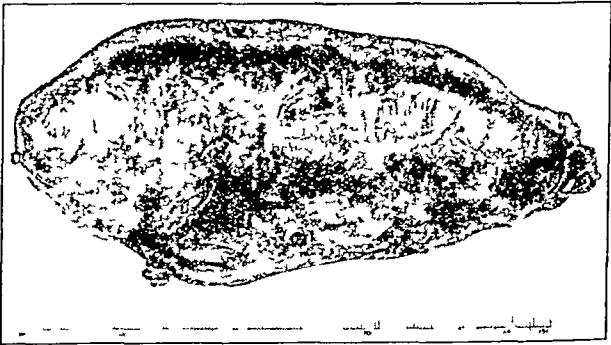


Fig 2—Right subdural hematoma

encapsulated hematoma was removed intact from the left occipitoparietal region. The patient's postoperative course was uneventful and the euphoria promptly disappeared. He has remained symptom free six months since the last operation and has returned to work.

PATHOLOGIC STUDIES

*Right Subdural Hematoma*—Gross Examination. The specimen was a flattened, ovoid fluid-containing sac measuring 16 cm in length, 7.5 cm in maximum width, and 1.5 cm in maximum thickness (fig 2). When immersed in saline solu-

2 Putnam T J, in discussion on Gardner<sup>1</sup>

tion it displaced 120 cc of fluid. Its walls were fibrous but did not measure over a millimeter in thickness. The thin enveloping membrane and the fluid character of the cyst contents gave the sac a very flabby consistency. The flattened surface, which had been pressed against the arachnoid, was smooth and glistening. The surface that had been adjacent to the dura was somewhat dull, slightly roughened, and a little irregular in contour. The hematoma was dark red, but in a few areas there were brownish and greenish deposits of blood pigments. The hematoma fluid was thin and dark reddish

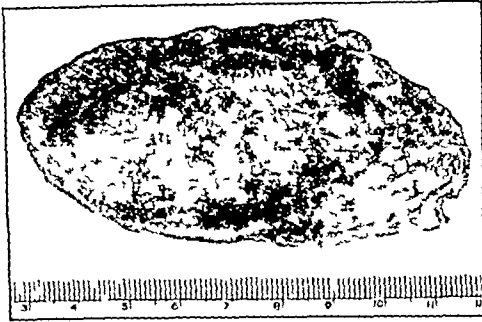


Fig 3—Left subdural hematoma

brown. It resembled dilute, partially hemolyzed and disintegrated blood. Cultures of this fluid were sterile.

**Microscopic Examination.** The membrane of the sac was composed of dense fibrous tissue which often was hyalinized. The dural side was thicker and more plentifully supplied with vessels than that which had been contiguous to the arachnoid. In some places a thin organized blood clot was found on the inner surface. The wall had occasional infiltrations of polymorphonuclear leukocytes and lymphocytes. A few macrophages contained blood pigment.

**Left Subdural Hematoma—Gross Examination.** The specimen was an ovoid, flattened hematoma measuring 9 cm in length, 4 cm in greatest width and 1.1 cm in maximum thickness (fig 3). Except for the smaller size, the general appearance was similar to the one that previously had been removed from the right side of the head. Again, the surface adjacent to the arachnoid was smooth as contrasted to the dural surface which was a little irregular and rough. The walls were less than a millimeter in thickness. Though the external surface was mostly a dark red, there were scattered mottled areas of reddish brown and green deposits of altered blood pigment. The cavity contained diluted fluid blood. Cultures of this were negative.

#### COMMENT

We believed that chemical examination of the contents of the hematoma sac might offer some explanation for the increase in size of the sac, which must have occurred to explain satisfactorily the clinical course. Determinations made on the right hematoma, in which the entire fluid including the serous portion and remaining red blood cells was used, were as follows: total protein, 8 Gm per hundred cubic centimeters, globulin, 5.1 Gm per hundred cubic centimeters, albumin, 2.9 Gm per hundred cubic centimeters, nonprotein nitrogen 31 mg per hundred cubic centimeters, and chlorine as sodium chloride, 615 mg per hundred cubic centimeters.

The total protein in normal whole blood is approximately 18.5 Gm per hundred cubic centimeters of blood. This includes the plasma protein, which consists of approximately 2.8 Gm of albumin, 0.95 Gm of globulin and 0.25 Gm of fibrinogen per hundred cubic centimeters of whole blood. The hemoglobin of the cells accounts for the additional 14.5 Gm.

The whole blood, then, which originally comprised the subdural hemorrhage had a total protein value of from 18 to 19 Gm. In contrast to this, the hematoma

sac fluid as found at operation had a total protein content of only 8 Gm. This important difference may be accounted for in two ways. First, that a portion of the encysted blood had been reduced to substances that could diffuse out of the sac and hence lessen the remaining total protein value. Second, that the contents of the sac had been diluted. Both factors may have played a part to bring about the observed changes, but it is likely that the latter process was the more important one. The reduction of the hematoma total protein figure from 18-19 Gm to 8 Gm is probably a fair indication that the blood originally in the cyst had been diluted about two and a third times, or, conversely, that the volume of the hematoma had increased to about two and a third times its initial size.

Chemical examination was subsequently made on the material removed from the left subdural hematoma. The total protein value of the whole fluid was 6 Gm per hundred cubic centimeters. It may again be inferred that dilution had taken place and the reduction from 18-19 Gm to 6 Gm of protein indicated a dilution of three times or a corresponding increase in volume of the cyst to about three times its original size.

The left sided subdural hemorrhage presumably occurred at the same time as did the right one, but it remained undisturbed in the subdural spaces for twenty days longer than the right one. Coincidental with this longer stay in the subdural space there was a greater dilution in the left sac. One therefore suspects that the fibrous wall of such a hematoma acts as semiper-

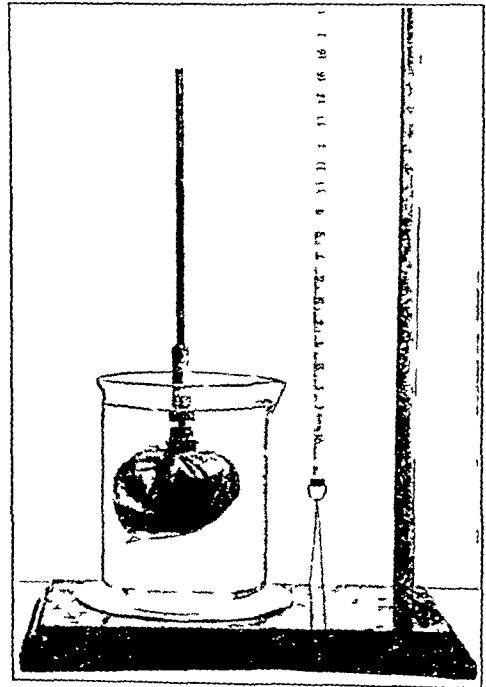


Fig 4—Apparatus employed for testing left subdural hematoma as a semipermeable membrane

meable membrane, which permits the ingress of water and crystalloids but does not allow protein to escape.

In order to study some properties of the membrane the left hematoma sac was emptied of its contents and refilled with oxalated whole blood (by R. G.). A small bore manometer tube was tied into one end of it and the sac then immersed in a beaker of 0.9 per cent sodium chloride and 0.1 per cent sodium oxalate (fig 4). Observations over a twenty-four hour period showed

a maximum rise to 15.5 cm in the manometer tube. Frequent tests on the external fluid with 2 per cent tannic acid showed the bath to be protein free. These facts demonstrated that the membrane allowed the passage of water and sodium chloride into the sac but did not allow egress of the protein molecules.

It is shown from the preceding discussion that the hematoma wall acts as a semipermeable membrane and

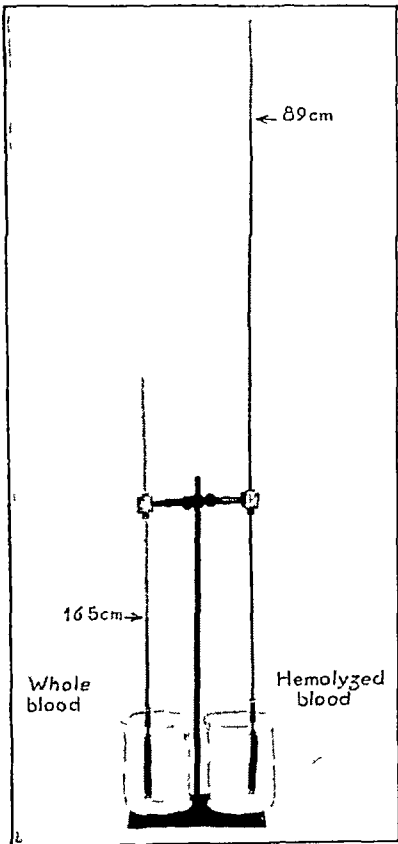


Fig 5.—Apparatus employed for comparative studies on relative osmotic pressures of nonhemolyzed blood (at left) and of hemolyzed blood (at right)

that the contents of the sacs had been diluted. In order to complete the chain of pathologic processes, the factor must be found that induces fluid to distend such a cyst many months after the original hemorrhage. It has been well known that red blood cells may remain intact for long periods of time when encysted within these hematomas. It is commonly observed that when found soon after their formation these extravasations contain practically whole blood, that after a few months many red cells have disintegrated, and that after many months most of the cells have disappeared. (A red blood cell count on the fluid from the left hematoma of

our patient showed about one fifth of the erythrocytes remaining.) In other words, there is a gradual and progressive breakdown of red cells over a long period of time. When erythrocytes disintegrate, two major processes take place which need consideration. The first, and most important, is the liberation of hemoglobin from the cell stroma. The second is the reduction of this released hemoglobin to smaller molecular protein aggregates.

Hemoglobin, when present within the red cell, has little effective osmotic tension with relation to surrounding tissue fluids. However, when hemoglobin is liberated from the limiting cell membrane it has a distinctly higher effective osmotic pressure. The following experiments were undertaken (R. G.) to demonstrate this change in effective osmotic pressure when hemoglobin is released from the red cells.

Human whole blood was treated with oxalate crystals to prevent its coagulation. Powdered sodium oxalate was added in amounts of 100 mg per hundred cubic centimeters of blood. This blood was then divided into two portions. Half of it was treated with chemically pure saponin which is a powerful hemolyzing agent even in dilutions of 1:100,000 parts of blood. A few milligrams of this material per hundred cubic centi-

meters of blood was sufficient to cause complete hemolysis in a few minutes. This small amount of added saponin had no intrinsic osmotic pressure effect, as shown by appropriate studies. The second half of the blood was not treated with saponin and was used as a control.

These two specimens of blood, one completely hemolyzed and the other normal, were placed in semipermeable membrane sacs of cellophane 600 seamless tubing. Each of these sacs was then attached to a small bore manometer tube and each was placed in a bath (fig 5) consisting of 0.9 per cent sodium chloride and 0.1 per cent of sodium oxalate. The oxalate in the outer baths was then of the same concentration as that within the sacs and prevented coagulation of the control blood. Each piece of apparatus was maintained at room temperature. Observations showed maximum rises in the two manometer tubes within eighteen to thirty hours. Repeated experiments gave an average rise of 16.5 cm for the nonhemolyzed blood, compared with an average rise of 89 cm for the hemolyzed blood.

One might expect that there should be no rise in the manometer of the control (nonhemolyzed) blood when exposed to an essentially isotonic solution. This rise of 16.5 cm is explained by the fact that, though the blood on the inside of the sac and the fluid surrounding the sac have essentially the same osmotic pressure when examined by freezing point methods, yet when they are placed on opposite sides of a semipermeable membrane the protein is held back while the sodium chloride diffuses through and is present on both sides of the membrane in proportions that follow the law of Donnan's equilibrium.

The reduction of hemoglobin molecules, as mentioned previously, also has a considerable bearing on the subject under discussion. The molecular weight of this substance has been estimated to be at least 16,000 and by some authorities is said to be as high as 64,000. When this huge molecule breaks down, a very large number of smaller aggregates are formed, and the molecular concentration per unit of space is thereby greatly increased. Since osmotic pressure is directly proportional to the molecular concentration of a fluid, it follows that the disintegration of hemoglobin, to a certain point, is attended by an enormous rise in osmotic tension.

The following series of events represent the conditions as we believe them to occur in these subdural hemorrhages. A head injury, often so trivial that it is

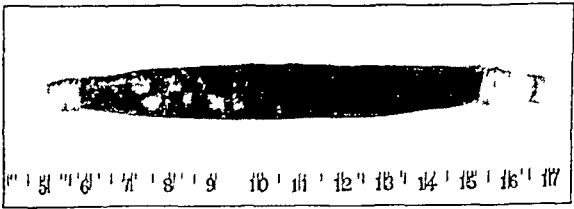


Fig 6.—Cellophane tubing sac employed to measure amount of fluid that blood absorbs by osmotic tension (when immersed in physiologic solutions)

forgotten, causes a rupture of a vein as it crosses the subdural space. A large hemorrhage then occurs and the entrapped blood is rapidly surrounded by a fibrinous wall, which is later organized to a fibrous and vascularized structure. The wall, acting as a semipermeable membrane, permits passage of fluid into the cyst to compensate for the differential osmotic tension that exists between whole blood and adjacent tissue fluids. This first stabilization occurs fairly rapidly. The encysted red cells then gradually and slowly disintegrate.

over a period of several months and this process causes a slow but great rise in the osmotic tension of the hematoma fluid, which is compensated for by the acquisition of fluid from the surrounding structures. The resulting late increase in volume of the hematoma causes late onset of symptoms by direct pressure on the adjacent brain and by increasing the general intracranial tension.

The following experiments were undertaken in order to gain some idea of the amount of fluid that blood might take up by osmotic tension.

About 1 cc of oxalated whole blood was placed in a cellophane sac and the ends were sealed (fig 6). This sac was then placed in a bath of 0.9 per cent sodium chloride and 0.1 per cent sodium oxalate. Weights were made of (1) the sac (2) the sac plus the blood (3) the sac and its contents after immersion in the bath for from twenty-four to thirty-six hours. When nonhemolyzed blood was employed there was an average of 90 per cent increase in weight of the blood after the immersion. When (saponin treated) hemolyzed blood was placed in such a sac and subjected to the same immersion, the increase in weight averaged 230 per cent (final fluid weight was three and a third times that of original blood weight).

From these observations it seems reasonable that subdural hematomas may in a similar manner increase to two or three times their original volume.

Gardner stated that the fluid which entered the subdural hematoma was derived from the surrounding tissues and particularly the cerebrospinal fluid. It would seem likely, however, that the added substance may come in part from the plasma of the circulating blood. As has often been noted, there is a rich vascular capillary system within the walls of the hematoma sac. By microscopic examination, many of these vessels are seen to lie very close to the lumen of the cyst and conditions appear to be favorable for an exchange of fluid between these capillaries and the contents of the sac. It would appear more logical for the necessary fluid to come from these capillaries rather than from the arachnoid spaces by traversing the arachnoid and the hematoma sac wall. Ordinarily the cerebrospinal fluid does not pass through the arachnoid into the subdural space. The effect of a close approximation of a hematoma sac to the external surface of the arachnoid is unknown, but it is not necessary to draw upon an unknown factor for a ready means for exchange of fluids, namely, from the capillary networks of the hematoma wall.

#### SUMMARY AND CONCLUSIONS

Evidence is presented from clinical and experimental observations made from a case of bilateral subdural hematoma that (1) the wall of a subdural hematoma acts as a semipermeable membrane, (2) blood within a subdural hematoma breaks down slowly over a period of months, (3) disintegration of blood produces a great rise in its effective osmotic pressure, and (4) blood within a subdural hematoma is progressively diluted.

It is believed that progressive liberation of hemoglobin from the erythrocyte stroma and subsequent disintegration of the hemoglobin molecule increase the osmotic tension in a hematoma sac over a period of months and that fluid is therefore gradually drawn in from the surrounding structures. The resultant augmentation in size of the lesion causes rising intracranial pressure and progression of clinical symptoms. The late onset of symptoms is therefore directly dependent on the slow disintegration of red blood cells encapsulated within the hematoma membrane.

## AGRANULOCYTIC ANGINA FOLLOWING INGESTION OF DINITROPHENOL

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ANN ARBOR, MICH

During recent months the medical literature has been characterized by numerous reports of cases illustrating unfavorable reactions and deaths following the use of dinitrophenol, the barbiturates and amidopyrine. In the instances of these reactions following therapy with the barbiturates and amidopyrine, several observers have cited a resulting neutropenia or agranulocytic angina. There is reference made, however, to only one case of agranulocytic angina following the ingestion of dinitrophenol.<sup>1</sup> The report includes a case in which agranulocytosis developed after the ingestion of dinitrophenol over a period of two weeks, the patient recovering following treatment. Since no mention was made in this case regarding the amount of the drug taken during the two weeks or of the blood picture, and since in no other report of dinitrophenol poisoning has there been reference made to an ensuing neutropenia (those reports including a blood picture showed essentially normal white blood counts, while the remaining reports did not include any data concerning the white blood cells), a case of agranulocytic angina following the ingestion of dinitrophenol is here submitted.

#### REPORT OF CASE

*History*—C. P., a Jewish girl, aged 19 years, single, a stenographer, who entered St. Joseph's Mercy Hospital, May 4, 1934, complained of a severe sore throat, hoarseness and dysphagia. She was brought into the hospital by her physician, Dr. F. L. Arner, who stated that she had been taking "Nitraphen" (the sodium salt of 2, 4 dinitrophenol) in order to reduce her weight. The following history was then obtained.

Eighteen months before admission her weight had been 181 pounds (82.3 Kg.), this being the most she had ever weighed. At that time she was 18 years of age. She went on a diet and experienced a progressive loss of weight to 162 pounds (73.6 Kg.) within eight months. Her weight fluctuated about this point till four months before admission, when she states that a relative informed her of a person who had been taking dinitrophenol and had lost weight without ill effects. She was also told that this person's physician had "analyzed" the drug, found it to be "all right" and was himself using it in order to lose weight. Our patient bought a bottle of "Nitraphen" containing fifty capsules, each capsule containing 100 mg (0.1 Gm) of 2, 4 dinitrophenol sodium. She did not seek a physician's advice nor did she ask the druggist from whom she bought the drug regarding the dosage. The label on the bottle stated "The usual dosage—1 to 3 capsules per day, taken with meals and after a week's interval increase medication as necessary until a weight loss of 2 or 3 pounds weekly is produced. Three capsules per day will usually produce an average weight loss of 2 or 3 pounds weekly." There was on the label a reference to THE JOURNAL.<sup>2</sup>

Her weight at this time was 166 pounds (74.5 Kg.), and she started by taking one capsule three times a day following meals for the first two weeks. The dosage was then increased to twice that amount for a week but with no loss in weight. She began to menstruate and, feeling quite miserable, stopped taking the drug. With the completion of her period she resumed the ingestion of two capsules three times a day for two weeks but began to perspire freely, feeling warm even in cold weather and still with no loss in weight. She stopped medication and resumed its ingestion as before in two weeks. She perspired continuously, even while scantily clothed in cold

From St. Joseph's Mercy Hospital.  
1. Hoffman, A. M., Butt, E. M., and Hickey, N. G. Neutropenia following Amidopyrine. *J. A. M. A.* 102:1213 (April 14), 1934.  
2. Tainter, M. L., Stockton, A. B., and Cutting, W. C. Use of Dinitrophenol in Obesity and Related Conditions. *J. A. M. A.* 101:1472 (Nov. 4), 1933.

weather. She felt tired but attributed this to the fact that she was working hard in her office. After ten weeks of medication in this manner she contracted a cold and at the same time noticed a rash on the neck, chest and anterior surfaces of the arms. The rash was a maculopapular eruption and was quite pruritic. She did not go to a physician but stopped the drug and applied an alcohol rub, which relieved the itching. Several days later she noticed a patch on her left shoulder and one on her right arm, these patches being covered with what she termed "blood blisters." She felt warm, but since her temperature was not determined with a thermometer the degree of fever could not be ascertained.

All these symptoms eventually disappeared and six weeks before admission she again started using 2, 4 dinitrophenol sodium as before. In ten days she again experienced a pruritic macular eruption on the chest and neck, as well as "blood blisters" beneath her breasts. She felt extremely warm and complained of a sore throat. Stopping the drug and visiting a physician, she was told that she had a streptococcal sore throat and therapy was instituted in the form of bed rest for two days, gargles, swabbing of the throat and the taking of

had no appetite. She became very hoarse, could not swallow solids and had a fever of 104 F. The hoarseness increased until she could only whisper. The menses stopped two days before her admission, but the hoarseness, temperature, dysphagia and soreness of the throat became progressively worse until she was admitted, at which time she weighed 154 pounds (70 Kg). She had stopped the use of 2, 4 dinitrophenol sodium four days previously.

There was nothing significant in the past history, and there was no history of allergy.

**Physical Examination**—At examination the patient was slightly overweight, she perspired freely and had a temperature of 104.4 F. She was very hoarse, speaking only in a whisper and having difficulty in opening her mouth wide. There was some cyanosis about the lips, but no rashes. The patient was oriented and answered questions intelligently but dozed off easily. The remainder of the general examination was not significant. The blood pressure and a basal metabolic rate were not taken. The heart and lungs were normal. The patient was referred to Dr. A. C. Furstenberg, professor of otolaryngology, University of Michigan, who submitted the following report:

"On admission to the hospital the patient's throat gave the following appearance. Both tonsils were covered with a white membrane. It was diffuse and extended on to both pillars on both sides. The spread of the membrane was not unlike that of diphtheria, although its color was not characteristic of a Klebs-Loeffler infection. There was marked hyperemia of the pillars, soft palate and posterior wall of the pharynx. Because of the extensive inflammatory process, together with marked prostration of the patient, a tentative diagnosis of agranulocytic angina was made.

"Forty-eight hours following admission a rather extensive ulceration occurred within the upper pole of the right tonsil and the adjacent pillars and soft palate. This ulceration was large enough to admit the index finger in the region of the supratonsillar fossa. It involved considerable of the soft palate in this region. There was a similar ulceration on the left side, only it was considerably smaller."

**Laboratory Examination**—Examination of the urine showed albumin, three plus. The sediment was loaded with granular casts and contained from fifteen to twenty pus cells per high power field.

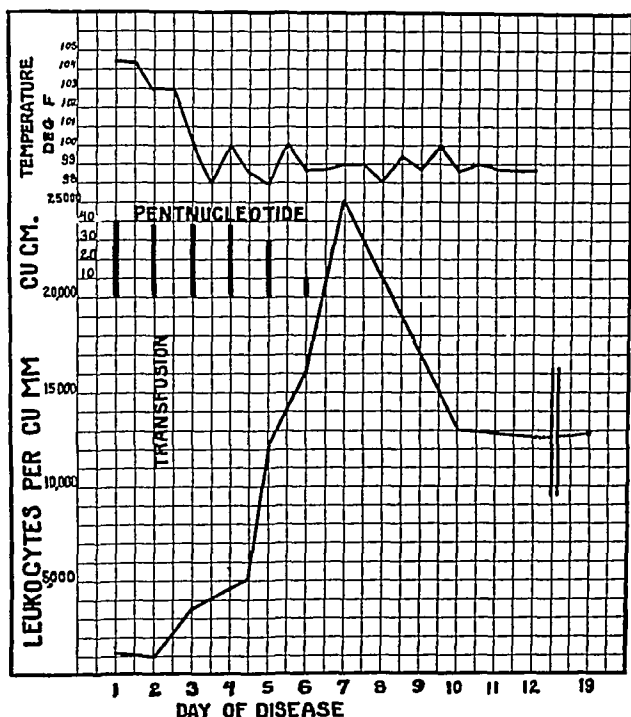
A blood count revealed hemoglobin, 103 per cent (Sahli), red blood cells, 4,860,000 per cubic millimeter, white blood cells, 1,150 per cubic millimeter. In the differential count fifty cells were counted, of which forty were lymphocytes and ten were large mononuclear leukocytes.

A smear from the throat showed mixed bacterial flora, culture of the throat smear showed mixed staphylococci and streptococci but no Klebs-Loeffler bacilli.

The Kahn test of the blood was negative.

**Progress in the Hospital**—For three days the patient was given hot saline throat irrigations, powdered acetylsalicylic acid to the back of the tongue and an ice collar about the neck. An attempt was made to force fluids by mouth at the beginning. Twenty cubic centimeters of pentnucleotide was given twice daily, intramuscularly for four days, 30 cc on the fifth day and 10 cc on the sixth day. On the second hospital day a blood transfusion of 250 cc of whole blood was given as well as an intravenous infusion of 500 cc of 5 per cent dextrose. On the third day 1,000 cc of physiologic solution of sodium chloride was given subcutaneously, and when the patient became irrational morphine sulphate one-fourth grain (0.016 Gm.), was given hypodermically. Late that evening she became quite restless. The temperature was 100 F, respirations were 20 per minute and the pulse was 90 per minute but irregular. She was given digifolm and then put into an oxygen tent, following which the cyanosis decreased, her respirations became easier and she took more fluids by mouth.

May 7, the blood pressure was 112 systolic and 72 diastolic. She received 100 cc of 50 per cent dextrose intravenously. On this day she was seen by Dr. Raphael Isaacs of the Simpson Memorial Institute, University of Michigan, who reported the following: "Red blood cells, 4,240,000 per cubic millimeter, white blood cells, 5,500 per cubic millimeter, hemoglobin, 88



Clinical course in case of agranulocytic angina following ingestion of 2, 4 dinitrophenol sodium

some white pills. She then noticed a red and slightly pruritic rash along the anterior surfaces of both legs. On getting out of bed at one time she felt dizzy and fainted. Occasionally she became nauseated but did not vomit.

By this time she had taken the contents of four bottles of "Nitra-phen." On purchasing the fifth bottle ten days before admission she again started ingestion of the drug as before until eighteen capsules had been taken, when she experienced another onset of the menses, this one coming on two weeks early. (Her previous menstrual periods had been essentially normal, coming on about once a month, although rarely she was one week early or one week late but not during the past four months. The menses usually extended over a period of two days and were characterized by cramps, headaches, dizziness and some fatigue, but no bed rest was ever required.) This menstrual period had its onset four days before her admission and was associated with a sore throat, headache and fever. Her weight was 158 pounds (71.8 Kg). She went on a picnic that night but was forced to come home early. She was worse the following morning and went to her physician, who gave her some pills, swabbed her throat and advised gargles. She returned to bed, became worse that night and

per cent (Sahl), polymorphonuclears (neutrophil), metamyelocytes and immature forms, 52 per cent, large lymphocytes, 6 per cent, small lymphocytes, 31 per cent, monocytes, 11 per cent, eosinophils, 0. There was an extreme degree of basophilia of the granules of the polymorphonuclears, suggesting septicemia. Platelets were increased in number. The red blood cells were essentially normal. There was marked rouleau formation. The impression was that the condition as seen was the recovery phase in malignant neutropenia with septicemia."

The urine showed decreasing amounts of albumin, pus cells and casts till the specimens were normal after one week of treatment.

The data in the accompanying table concern the white blood cells during treatment.

White Blood Cells During Treatment

Date	White Blood Cells per Cmm	Percentage of Adult Polymorphonuclear Neutrophils
May 4 (day of admission)	1 150	0
May 5	1 000	5
May 6 (a m)	3 550	5
May 6 (p m)	3 900	4
May 7	4 400	6
May 8	12 700	5
May 9	16 700	12
May 10	25 400	28
May 11	21 150	25
May 13	13 700	44

Dr Furstenberg's final report was that during convalescence these ulcers healed very slowly, and when the patient was discharged from the hospital the membrane had entirely disappeared but that there was still a small ulceration on the right side. Thus, however was clean and appeared to be healing slowly but satisfactorily.

Since the patient was known to have taken other drugs, an effort was made to ascertain their relation to her illness. The only drugs she had taken recently were "anacin" (acetphenetidin, an acetanilid derivative with acetylsalicylic acid quinine and caffeine), acetylsalicylic acid and 2, 4 (dinitrophenol sodium). She usually took one or two tablets of "anacin" during her menstrual periods in order to obtain relief from the cramplike pains but stated that the last time she used this drug was during her menstrual period six weeks before admission. She discontinued this drug because she found that acetylsalicylic acid gave her almost as much relief, and she has been in the habit of taking from 5 to 10 grains (0.32 to 0.65 Gm) during the menses. Since acetylsalicylic acid was used freely during the treatment and the patient made a good recovery it may be assumed that this drug probably had no etiologic bearing concerning the neutropenia.

All indications thus point toward 2, 4 dinitrophenol sodium as being the only drug responsible for her illness. Over a period of four months she took 21 800 mg (21.8 Gm), usually starting by taking one capsule (0.1 Gm) three times a day for two weeks and then doubling the dosage for one or two weeks. She would then experience unfavorable reactions such as a feeling of warmth, perspiration, fatigue, sore throat, vertigo and a pruritic maculopapular eruption of the skin. The blood pressure was not taken. When the ingestion of the drug was stopped, these symptoms would disappear within two or three weeks but would recur when the process was repeated. There was no yellowish discoloration of the skin, as has been reported by some observers.

It is significant to note that, by dieting the patient was safely able to lose 19 pounds (8.6 Kg) within eight months while she lost only 12 pounds (5.4 Kg) over a period of four months, during which time she took a total of 21.8 Gm of 2, 4 dinitrophenol sodium and which resulted in an extreme neutropenia. During this period of four months she did not adhere to rigid dietary reduction measures but made an attempt to

exclude only fattening foods. It is also significant that the initial dosage in this case corresponded to that advised by Cutting.<sup>3</sup> Weighing 75 Kg four months before and starting with a dosage of 300 mg (0.3 Gm) a day, she was ingesting 4 mg per kilogram of body weight daily for the first two weeks and then increased this to 8 mg per kilogram of body weight daily till the unfavorable reactions appeared, usually within two weeks following the increase in dosage. Cutting<sup>3</sup> stated that in his eight cases single doses of from 3 to 5 mg per kilogram of body weight increased the basal metabolic rate from 20 to 30 per cent in the first hour and that this level was maintained for twenty-four hours. None of his patients noticed unfavorable reactions with this dosage but they did lose weight. He also stated that single doses of between 5 and 10 mg per kilogram caused copious perspiration and that 10 mg per kilogram three times a day was too dangerous. Our patient experienced no loss of weight even with 8 mg per kilogram of body weight until extremely unfavorable reactions, including neutropenia, had been produced.

#### SUMMARY

1 Agranulocytic angina developed in a patient after the ingestion of 21.8 Gm of 2, 4 dinitrophenol sodium over a period of four months.

2 The dosage was 4 mg per kilogram of body weight daily for two weeks and then doubled until the onset of unfavorable reactions.

3 Treatment consisted of discontinuing the drug, administration of pentnucleotide and one transfusion of 250 cc of whole blood, following which the patient recovered.

## UNDULANT FEVER MENINGITIS

### REPORT OF CASE WITH RECOVERY

G. A. HARTLEY, MD

G. S. MILLICE, MD

BATTLE CREEK, IOWA

AND

PAUL H. JORDAN, MD

HARTFORD, CONN.

The patient with proved undulant fever meningo-encephalitis who formed the subject of a report by Sanders<sup>1</sup> in September 1931 died in the University Hospital at Iowa City, Nov. 3, 1931. The case has since been reported with postmortem observations by Hansmann and Schencken.<sup>2</sup> Incidentally, the case is the first reported proved occurrence of a meningeal infection in man with the porcine variety of *Brucella melitensis*. While proved infections of the human meninges by organisms of the *Brucella* group are rare, the recovery from such an infection is still more uncommon. The present case report should therefore be of especial interest, particularly from the standpoint of therapy.

#### REPORT OF CASE

*Epidemiology*—About March 12, 1931, L. M., with four other men was dehorning a herd of feeding cattle which had been recently received from various shipping centers. Nothing is known about abortions occurring before or since in that

3. Cutting, W. C., Mehrten, H. G. and Tainter, M. L. Actions and Uses of Dinitrophenol. J. A. M. A. 101: 193 (July 15) 1933.

From the Battle Creek Hospital, Battle Creek, Iowa.

1. Sanders, W. E. Undulant Fever Meningitis. Organism in Spinal Fluid. J. Iowa M. Soc. 21: 50 (Sept.) 1931.

2. Hansmann, C. H. and Schencken, J. R. Melitensis Meningo-encephalitis. Mycotic Aneurysm Due to *Brucella melitensis* Var. Por. Am. J. Path. 8: 435 (July) 1932.



stock. The other four men were not ill subsequently. About the same time, the patient alone skinned two ewe sheep which had died supposedly following injuries produced by dogs. There was an unusual amount of serum beneath the skin of the animals, and ecchymoses about the back were present. Another ewe aborted two lambs at that time but lived. In the fall of 1931, one brood sow on the place aborted her litter.

*History*—L. M., a white American male farmer, aged 35 was brought to the Battle Creek (Iowa) Hospital, April 7, 1931, complaining of intermittent fever, daily chills, throbbing right parietal and temporal headache, rash over the hands and arms, stiffness of the ankles, and increased constipation during a period of nineteen days. The family history was irrelevant. The past history was also irrelevant except for the presence of a severe sore throat with slight hemoptysis at times, which began three weeks prior to and merged with the present illness. The patient had always been slightly costive.

March 19 the patient became suddenly ill with a severe shaking chill followed by fever and accompanied by a severe throbbing right parietal and temporal headache. An erythematous rash over the hands and arms together with some slight pain, swelling and stiffness in both ankles occurred within the first forty-eight hours. The temperature March 22, was 103 F orally. From the onset until the administration of the second dose of the toxic filtrate, April 23 there were daily chills preceded by fever and followed by profuse diaphoresis. The daily fever at first began in the afternoon, but later in the course it occurred in the morning with the daily duration of the hyperpyrexia tending to increase. The headache, always a prominent symptom, subsided somewhat prior to hospitalization but returned almost immediately afterward. The patient was confined to bed from the onset. He had always been somewhat costive but this condition became much more marked while he was ill, requiring daily laxatives or enemas. He lost much weight, although the exact amount is not known. Prior to hospitalization, a definite diagnosis had not been established.

*Course in Hospital*—On admission to the hospital the patient's temperature was of 101 F rectally. The only significant physical finding, aside from the erythematous rash over both upper extremities and the stiffness of the ankles, was a quite definite enlargement of the spleen. Until April 21, treatment was chiefly symptomatic and supportive together with the use of a total of three intramuscular injections of a nonspecific foreign protein, which resulted in essentially no improvement. For the first ten days of hospitalization the temperature ranged from normal or slightly above to 103 to 104 F rectally the same day, the maximum elevation occurring at no regular period in the day. The patient's consciousness was somewhat clouded after the first three or four days of hospitalization but on the night of April 16 (exactly four weeks from the onset of the illness) he was probably more noisy than usual, and the following morning he complained of a stiff neck. The usual physical and cerebrospinal fluid signs of a meningitis were present.

Special therapy with a toxic filtrate of a culture of certain members of the *Brucella* group was begun April 21, two injections of 0.5 cc each being given on that date, the first subcutaneously and succeeding ones intramuscularly. A third injection of 1 cc was given two days later, with the result that for the first time the temperature was normal for an entire day and remained normal. The injections were followed by local induration and erythema, but no necrosis or abscess formation occurred. The other therapy consisted aside from symptomatic and supportive measures, of repeated lumbar punctures, with the withdrawal of sufficient amounts of cerebrospinal fluid to bring the pressure to normal as much as 60 cc being obtained at times. Each withdrawal of fluid was followed by quite definite symptomatic relief. A total of eight such lumbar punctures were done from April 17 to April 24 inclusive, and following the administration of the toxic filtrate the spinal fluid cell count steadily decreased until it was normal (below 6 cells) April 24. However, the irrationality and disorientation continued and on May 5 another intramuscular injection of 1 cc of the toxic filtrate was given. Periods of rationality began on May 10 but a normal mental status was not obtained until eleven days later, and even then there was

occasional involuntary micturition for several days. The patient was discharged from the hospital mentally normal, although much weakened physically, May 24. There had been no convulsions at any time.

*Subsequent Course*—The patient was again seen on Nov 14 1931, and stated that for two months after hospitalization there was considerable swelling of the feet and ankles whenever he was up and about. June 6 he weighed 118 pounds (53.5 Kg) and gained 18 pounds (8 Kg) in the next three weeks. His weight, November 14, was 140 pounds (63.5 Kg). There had been no chills, fever, headaches, joint pains, nervous manifestations or persistent constipation since his discharge. He did not do much work until September because of some residual fatigability but since then had been able to do the usual work about the farm except when hindered by a neuralgia in the interscapular area, which had been present intermittently for several years. Physical examination, November 14, was essentially negative and a blood specimen drawn at that time did not agglutinate *Brucella melitensis*.

*Laboratory Examinations*—Dr A. V. Hardy, Dr I. H. Borts and Thelma Decapito, all of the Iowa State Hygienic Laboratories at Iowa City, performed the serologic and bacteriologic studies. Dr Hardy suggested the use of the toxic filtrate of a culture of members of the *Brucella* group and furnished the material.

*Serology*—Blood drawn for multiple agglutination tests was reported, April 10, as being positive for *Brucella melitensis* in a dilution of 1:80 and the same results were obtained on another specimen nine days later. Blood drawn on May 21 gave negative agglutination reactions but had been delayed in transit. A blood specimen obtained November 14 (about six months after the discharge of the patient from the hospital) was also reported as showing negative agglutination reactions for *Brucella melitensis* and had been received in good condition. A specimen of cerebrospinal fluid received at the laboratory, May 23 was reported as not agglutinating *Brucella melitensis* in any dilution.

*Bacteriology*—Two guinea-pigs inoculated with fresh blood April 24, proved to be negative on autopsy at the end of a month, while two other guinea-pigs inoculated with freshly drawn cerebrospinal fluid on the same day showed the usual changes in the liver, lymph nodes and spleen for a *melitensis* infection on autopsy, and cultures obtained from the tissues were reported on July 8 as growing the porcine variety of *Brucella melitensis*. A blood culture drawn on April 29 was also negative. The cerebrospinal fluid taken on two occasions during the acute stage of the meningitis was cultivated on ascitic fluid blood agar and chocolate agar and was reported as showing no growth after four days.

*Cerebrospinal Fluid*—The first specimen of cerebrospinal fluid, drawn on April 18, the day following the onset of the meningitis, was turbid and under increased pressure but a cell count was not made. A specimen obtained the following day contained 707 cells, with 343 polymorphonuclears and 364 mononuclears. April 20 the spinal fluid cell count was 2,280 with 1,800 polymorphonuclears and 480 mononuclears, and the fluid was distinctly purulent in character. Smears on both occasions were negative. April 24 the fluid was clear and under normal pressure, and the cell count was below 6 cells.

*Blood and Urine*—On admission to the hospital the white blood cell count was 9,000. A differential count was not made. Urinalysis was negative except for the presence of a trace to one plus albumin during the acute phase of the illness. The urine was not examined bacteriologically.

*Summary*—In a case of proved human undulant fever meningitis, with recovery the onset of the meningitis was acute and was preceded for four weeks by symptoms that could have been due to a low grade encephalitis. The blood serum obtained one week before the onset of the actual meningitis agglutinated *Brucella melitensis* in a dilution of 1:80. The cerebrospinal fluid presented a relatively high cell count with a large percentage of mononuclear cells although the percentage of mononuclear cells tended to decrease later in the course. Repeated lumbar punctures seemed to produce distinct symptomatic improvement. A toxic filtrate of a culture of organisms of the *Brucella* group injected repeatedly intramuscularly and subcutaneously relatively early in the course of

the meningitis, was followed by definite clinical improvement and recovery. The porcine variety of *Brucella melitensis* was obtained from the cerebrospinal fluid on guinea-pig inoculation but was not obtained on direct culture.

#### COMMENT

Certain interesting comparisons can be drawn between the case reported by Sanders and by Hansmann and Schencken and this one. In both instances the actual onset of the meningitis was preceded by symptoms that could possibly have been due to a low grade encephalitis. In the first case they existed probably for nine months, and in this one less than a month. In the former case the changes seen at necropsy would lead one to believe that invasion of the meninges took place by way of the blood stream. In view of the daily chills, rash and other associated symptoms in this case, a preceding bacteremia would be strongly suspected, although not proved by blood culture or guinea-pig inoculation. In both instances the actual onset of the meningitis was acute. In both instances the initial cerebrospinal fluid cell counts were relatively high, and there were more mononuclear cells than one would expect with a meningitis due to the meningococcus or one of the pyogenic organisms. In the former case, immunologic agents derived from the *Brucella* group were used rather late (over three months) in the course of the illness and the results were not so gratifying, while in this case the medication was used relatively early. In both cases, lumbar puncture produced symptomatic relief. The causative organism was isolated from the cerebrospinal fluid in both instances by guinea-pig inoculation and was of the porcine variety.

#### CONCLUSIONS

Although meager, present knowledge of undulant fever meningitis would seem to justify the drawing of certain conclusions, which may be of future value to the clinician.

- 1 A meningitis occurring in the course of proved or suspected undulant fever, and showing a relatively high cerebrospinal fluid cell count with originally a large proportion of mononuclear cells, should probably be considered—in regard to therapeutics—to be due to an infection by some organism of the *Brucella* group.

- 2 The parenteral administration of a toxic filtrate of cultures of various members of the *Brucella* group of organisms, repeated at relatively brief intervals (twenty-four hours or less), seemed to be responsible for the clinical improvement that was obtained after the third injection, and the recovery that followed the fourth treatment.

- 3 Repeated, frequent and copious drainage of the cerebrospinal fluid seems to be an important part in the treatment of the condition.

- 4 The fact that, following recovery, the blood serum fails to agglutinate the *Brucella* group of organisms does not disprove the previous presence of a meningitis due to some member of that group.

- 5 It would seem that the causative organism in an undulant fever meningitis is most surely isolated through the inoculation of freshly drawn cerebrospinal fluid into guinea-pigs, with appropriate cultures of the involved tissues when the animals have developed the pathologic manifestations of the disease in the lymph nodes, liver and spleen.

- 6 An undulant fever meningitis is a relatively rare but serious complication of undulant fever, although not necessarily fatal.

## Clinical Notes, Suggestions and New Instruments

### CAN SENSITIVITY TO DINITROPHENOL BE DETERMINED BY SKIN TESTS?

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The study here reported was undertaken to determine whether it is possible by the use of the available methods of skin testing to anticipate the skin eruptions and other signs of hypersensitiveness that not infrequently occur with the therapeutic use of dinitrophenol. Without consideration of the controversial subjects of allergy, atopy or anaphylaxis and without referring to the none too clear conceptions of antigen antibody reactions as applied to nonprotein substances, I wish to submit the results of my experiment.

#### METHODS

The three possible methods of skin testing were employed for the direct test, and the intradermal method alone was used for the indirect test.

- 1 *The Patch Test*—Ten milligrams of sodium dinitrophenol powder<sup>1</sup> was placed on the flexor surface of the forearm or of the back and covered with waxed paper, held in position with a wide strip of adhesive plaster. Readings of the reactions were recorded at intervals of twenty-four, forty-eight, seventy-two and ninety-six hours.

- 2 *The Scratch Test*—Two milligrams of sodium dinitrophenol with salt solution or 2 drops of a 2 per cent aqueous solution of sodium dinitrophenol was rubbed in a scarification one-quarter inch in length made in the skin of the forearm or back. Readings of the reactions were recorded after intervals of five minutes, fifteen minutes and twenty-four hours.

- 3 *The Intradermal Test*—From 0.02 to 0.01 cc. of an aqueous solution of sodium dinitrophenol in dilutions of 1 per cent, 0.1 per cent, 0.01 per cent and 0.001 per cent were introduced intradermally in the upper arm. Readings of reactions were recorded after periods of five minutes, fifteen minutes and twenty-four hours.

- 4 *The Indirect or Passive Transfer Test*—This was carried out by the method of Prausnitz-Kustner. Blood serum from a patient with a violent clinical reaction to dinitrophenol was introduced intradermally in nonallergic individuals. Twenty-four hours later, the sites of passive transfer were tested intradermally with sodium dinitrophenol. Readings of the reactions were recorded after intervals of five minutes, fifteen minutes and twenty-four hours.

#### RESULTS

The tests were made on 157 persons, of whom 117 were patients with hay fever, asthma or urticaria, and forty had no allergic complaints. The ages varied from 6 to 63 years, and there were 103 males and 54 females.

The three direct tests on each one of these 157 allergic and nonallergic individuals were entirely negative and hence gave no indication of skin sensitiveness to the drug.

Another patient suffered a severe skin reaction during a period of self medication with dinitrophenol. She was not tested directly for skin sensitivity at the time because there was no normal skin available. Therefore, the indirect test of passive transfer was applied. Her blood serum was injected into the skin of three normal individuals. Later these injected areas were tested directly by the intradermal method. There were no positive reactions in any of the three individuals, and hence the results were entirely negative.

Twelve individuals were given therapeutic doses of sodium dinitrophenol by mouth. Four of the number were allergic as shown by the presence of hay fever, asthma or urticaria. In three of the twelve, including one of the four allergic individuals, a definite urticarial eruption developed during which the drug was temporarily discontinued. These three individuals were given the drug again in the same or even larger doses and as yet have had no further difficulty.

<sup>1</sup> The sodium dinitrophenol used in these experiments was kindly furnished by Dr. M. L. Tainter.

The skin tests in these reacting individuals were entirely negative. Certainly, if the skin eruptions were truly allergic, repeated contacts and reexposures should lead to increasingly severe reactions. This does not seem to be the case.

Recently a single instance was reported of a passive transfer test with dinitrophenol giving positive results.<sup>2</sup> This is not in accord with my experiences.

#### CONCLUSIONS

1 Entirely negative results were obtained in tests for skin sensitivity to sodium dinitrophenol by means of the patch, scratch and intradermal methods in 157 individuals.

2 Three of these patients later showed a skin reaction to the therapeutic use of dinitrophenol.

3 In a patient who showed a severe skin reaction to dinitrophenol, passive transfer of sensitivity could not be demonstrated.

4 These results indicate that skin tests will be of no value in predicting skin sensitivity to dinitrophenol.

#### DINITROPHENOL POISONING CAUSING JAUNDICE REPORT OF CASE

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Within the past year, dinitrophenol has been used extensively as a means of reducing weight. However, its possible harmful effects have not been realized sufficiently until very recently. In papers by Anderson, Reed and Emerson,<sup>1</sup> Geiger,<sup>2</sup> Poole and Haining,<sup>3</sup> and Tainter and Wood,<sup>4</sup> fatal results from the use of dinitrophenol have been reported. In all probability a great many more poisonings and fatalities have occurred, since many druggists are dispensing dinitrophenol without a physician's prescription, under both the name of dinitrophenol and various proprietary names. A case of toxic hepatitis with intense jaundice following the use of dinitrophenol is here reported.

#### REPORT OF CASE

B. R., a white woman, unmarried, aged 26, had used various reducing diets because she weighed too much for her stature (58 inches, 145 cm). The past history and family history were essentially negative. The patient began taking dinitrophenol, Feb. 18, 1934, under a physician's direction. The exact dosage could not be determined but it was probably 1½ grains (100 mg) four times a day. After a period of fourteen days she began to feel tired and had slight cramplike pains in the epigastrium. The drug was stopped at this time, the patient had lost 10 pounds (4.5 Kg) in the two weeks. The following morning, March 7, there was severe urticaria and pruritus involving the legs and feet. The patient states that the itching was "terrific" and the urticaria appeared in the form of "large welts." Within the next twenty-four hours the entire body was involved, and the condition lasted four days. March 12, the day following the disappearance of the urticaria, a definite yellow tinge of the sclerae was observed by friends, and definite jaundice developed within the next few days. The stools were clay colored and the urine was dark brown, also, there was marked anorexia and the patient was very listless.

I saw the patient, March 20. She was poorly developed but well nourished, with marked jaundice but there was no distress. The temperature was 98 F and the pulse rate was 84. The upper part of the abdomen was somewhat prominent and a definitely tender, smooth liver edge was palpable about 5 cm below the right costal margin. The upper border of liver dullness was in the right fourth interspace. The spleen was not palpable and there was no skin eruption. A diagnosis of toxic hepatitis caused by dinitrophenol was made.

Several urine examinations were negative for sugar but showed varying amounts of albumin, a specific gravity of from

1004 to 1014 and many pus cells but no casts or red blood cells. The test for bile in the urine was strongly positive. The stool was clay colored until April 4, at which time pigment was present. The blood showed hemoglobin, 80 per cent (Sahli), red blood corpuscles, 5,250,000, white blood corpuscles, from 14,400 to 6,600. The blood smear was normal. The blood chemistry showed blood sugar, 95 mg, nonprotein nitrogen, 27 mg, and cholesterol, 168 mg. The icteric index at the height of jaundice was between 100 and 80 and the van den Bergh reaction was between 10.8 and 9.0. With bed rest for one month and a diet high in carbohydrate and low in fat supplemented by 10 units of insulin before meals and sodium phosphate each morning the strength and appetite of the patient gradually improved. There has been a gradual reduction in the jaundice, although she still presents some icterus after nine weeks. The liver has decreased in size so that it is barely palpable, the tenderness of the liver edge has practically disappeared.

#### SUMMARY

A woman, aged 26, took approximately 360 mg of dinitrophenol daily for two weeks. Urticaria with pruritus developed and subsequently intense jaundice, an enlarged tender liver and clay-colored stools. Gradual improvement is taking place, although she has been jaundiced nine weeks to date.

483 Beacon Street

### Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
H. A. CARTER, Secretary

#### SOURCES OF ULTRAVIOLET AND INFRA-RED RADIATION USED IN THERAPY

##### PHYSICAL CHARACTERISTICS

W. W. COBLENTZ, PH.D., D.Sc.  
WASHINGTON, D. C.

(Concluded from page 188)

8 *The Quartz Mercury Arc*—The radiation from the quartz mercury arc lamp is emitted principally in a series of intense spectral lines (charts 2 and 6) superposed on a faint continuous spectrum that contributes but little to the total ultraviolet emanating from the arc.

Recently a number of new types of mercury arc lamps have been put on the market. They serve two purposes: (1) those emitting a high ultraviolet intensity, for therapeutic purposes, and (2) the so-called sunlamps, usually emitting a low ultraviolet intensity, requiring long exposures, sold to the public for home use without the supervision of an experienced physician.

*The Hot Quartz Lamp*—The earliest and best known type of quartz mercury arc lamp (the so-called hot quartz lamp) operates at a high vapor pressure and a relatively high temperature. The current through the lamp is fairly large (from 3 to 4 amperes) and the voltage on the burner is low (from 65 to 70 volts).

Investigations<sup>6</sup> of quartz mercury arc lamps having (1) a solid tungsten anode and (2) a liquid mercury anode show that there is no appreciable difference in the ultraviolet component radiation emitted by these two types of lamps when operated on the same energy input in the burner. Air-cooled burners operated on alternating current (through the burner) and water-

<sup>2</sup> Frumess, G. M. Allergic Reaction to Dinitrophenol. J. A. M. A. 102:1219 (April 14) 1934.

<sup>1</sup> Anderson, H. H., Reed, A. C. and Emerson, G. A. Toxicity of Alpha Dinitrophenol. Report of Case. J. A. M. A. 101:1053-1055 (Sept. 30) 1933.

<sup>2</sup> Geiger, J. C. A Death from Alpha Dinitrophenol Poisoning. J. A. M. A. 101:1333 (Oct. 21) 1933.

<sup>3</sup> Poole, F. E. and Haining, R. B. Death from Dinitrophenol. J. A. M. A. 102:1141 (April 7) 1934.

<sup>4</sup> Tainter, M. L. and Wood, D. A. Fatal Dinitrophenol Poisoning. J. A. M. A. 102:1147 (April 7) 1934.

<sup>6</sup> Coblenz, Long and Kahler. Bur. Stds. Sc. Papers 15:1 1918 (No. 330 5 cents). Coblenz and Kahler. Bur. Stds. Sc. Papers 16:233 1920 (No. 378 5 cents).

cooled burners operated on direct current appear to have a somewhat higher ultraviolet radiation component than air-cooled, direct-current burners, owing to the lower temperature of the lamp.

Aside from several strong emission lines in the region of 10,000 to 12,000 angstroms, the quartz mercury arc emits but little infra-red radiation. The infra-red rays that are emitted emanate principally from the incandescent tungsten anode and especially (in both types of lamps) from the quartz enclosure and the hood, which emit low temperature, long wavelength, nonpenetrating radiation.

Physically there is no comparison between this type of radiation and that of the sun (chart 7), and it is hardly to be expected that these two sources will give the same results in all types of light treatment, and in dye fading.

In chart 7 is given the spectral energy distribution (unshaded vertical lines) of a 110-volt vertical Uviarc lamp operated on 65 volts, and about 4 amperes in the burner. Owing to the high current density, the temperature and the pressure are relatively high, and the resonance emission line at 2,537 angstroms is practically of the same intensity as the lines at 3,020 and 3,130 angstroms, in contrast with the so-called cold quartz vapor glow lamp (chart 7), in which the line at 2,537 angstroms contains over 95 per cent of the radiation emitted by these three lines.

**The Mazda Sunlight Lamps** A recent production (The Mazda S-1 and the Mazda S-2 "sunlight" lamps) is a combination of an incandescent tungsten filament and an arc in mercury vapor between highly incandescent electrodes of tungsten. This is accomplished by operating a V-shaped helical tungsten filament in parallel with the mercury arc, but it is at a considerably lower temperature than the incandescent tungsten electrodes forming the arc at the top of the V-shaped filament. The surrounding globe, of special glass absorbs the rays of wavelengths shorter than 2,800 angstroms which are not present in sunlight. The mercury arc supplements the ultraviolet radiation, which is only feebly emitted by the incandescent tungsten electrodes at from 2,800 to 3,650 angstroms.

The result of this combination of incandescent solid and arc-vapor radiation is an unusual emission spectrum consisting of a series of strong ultraviolet emission lines of mercury vapor (at 2,800, 2,967, 3,020, 3,130, 3,340, 3,650 and 4,050 angstroms, chart 6), superposed on a continuous spectrum radiation from the incandescent solid, which increases rapidly in intensity (beginning to be perceptible at about 3,650 angstroms) and extends throughout the visible and into the deep infra-red (chart 1).

**The "Cold Quartz" Lamp** The so-called cold quartz ultraviolet lamp is essentially a low vapor pressure low amperage (0.015 ampere), high potential (5,000 volts open circuit) glow discharge similar to the well known Geissler tube. The power consumed is small and consequently there is no great rise in temperature of the burner.

The spectral energy distribution of this type of ultraviolet lamp is illustrated in chart 7. Of the total radiation of all wavelengths less than and including the line at 3,130 angstroms, more than 95 per cent is contained in the resonance emission line of mercury

vapor at 2,537 angstroms. Two models of this type of lamp were examined—a small grid hand lamp in an aluminum reflector and a large hexagonal grid lamp in a large aluminum reflector, supported on a stand for body irradiation.

The erythemogenic efficiency of this type of lamp is high, but, as shown in chart 7, practically all the erythral effect is produced by the line at 2,537 angstroms. For this reason the question has arisen whether this type of ultraviolet radiation should be used for general body irradiation or whether its application should be confined to special conditions. The fact that the erythemogenic efficiency of a source is high is not necessarily a criterion of its suitability for therapeutic purposes.

**The Type G Mercury Glow Lamp** By providing suitable ionization by means of electrons emitted from a hot cathode, only a relatively low voltage is required

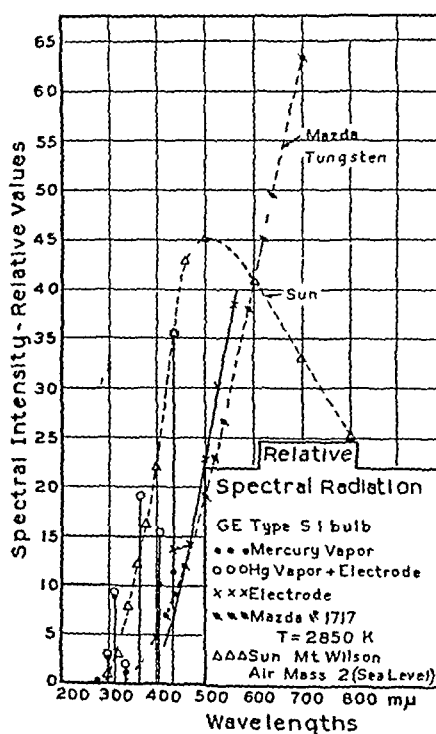


Chart 6—Relative spectral radiation

to excite resonance radiation in the glow discharge through mercury vapor. A typical example of this type of radiation is the new ultraviolet glow lamp in a bulb of special glass that absorbs almost completely all the ultraviolet rays of wavelengths shorter than about 2,800 angstroms. The operating temperature of this type of lamp is low, and the glow discharge practically fills the glass bulb.

The spectral energy distribution of this type of mercury vapor radiation is somewhat similar to that of the Mazda S-1 lamp in a corex glass bulb illustrated in chart 7. The total ultraviolet emitted being rather low, this type of lamp belongs to the category of "sun-lamps" marketed by a number of producers under a variety of trade names.

**The High Frequency Electrodes Discharge** The most recent production in ultraviolet therapeutic lamps is the electrodeless discharge, through mercury vapor, in a quartz bulb. The lamps examined were spherical

bulbs of quartz, or Corex-D, glass (without electrodes), which are placed within a helical conductor that carries the high frequency current, obtained from the transformer of a diathermy machine. The bulb is evacuated and contains a globule of mercury, the vapor of which is excited to luminescence by means of the high frequency discharge, from the 5,000 volt secondary of the transformer, passing through the helix surrounding the bulb. It is well known that the emission spectrum of the electrodeless discharge is essentially that of the neutral mercury atom, similar to that of the ordinary mercury arc, though close to the walls of the bulb there are some weak spark lines, not present in the hot quartz mercury arc lamp.

The spectral energy distribution, the total ultraviolet output, and the erythemogenic efficiency of this type of lamp were found to be closely the same as that of the ordinary mercury arc lamp (Uviarc) depicted in chart 7. Practically the only difference is the intrinsic

it would be more efficient to use a more intense source of these rays. For example, a powerful source of red and near infra-red rays is a 500 watt gas-filled tungsten filament lamp described on a preceding page. If the narrow band of red and near infra-red rays has a specific therapeutic action only when used separately from the rest of the spectrum of the tungsten lamp, it can be isolated by placing in front of the lamp a filter consisting of a sheet of red glass to shut out the shorter wavelengths, and a cell of water or a sheet of Corning heat-absorbing glass to intercept the infra-red rays of wavelengths longer than about 10,000 angstroms. The maximum of the filtered radiation will be in the spectral region of about 7,000 to 8,000 angstroms, with an intensity that far exceeds the ordinary neon glow lamp. From the clinical tests made by Cramer and Fechner<sup>9</sup> with a neon glow lamp, made for therapeutic purposes, it appears that the cold red ray lamp has little, if any, specific stimulating effect on the human body.

#### BIOLOGIC EFFECTS

This survey of the ever increasing number of types of lamps sold for therapeutic purposes, some of which are so weak in ultraviolet radiation that an exposure of from ten to thirty hours would be required to produce a minimum perceptible erythema, seems incomplete without some reference to their use.

During the past few years, experimental data have become available which show that the spectral band of ultraviolet radiation of wavelengths shorter than about 3,150 angstroms, occurring in sunlight and in some artificial sources of radiation, if sufficiently prolonged, has the power of preventing and of curing rickets. This is the underlying basis for exploiting ultraviolet of these wavelengths for general healing purposes. While this point of view may be too broad, the beneficial effects of short wavelength ultraviolet radiation in surgical tuberculosis and certain skin diseases are recognized.

An important and unanswered question is the minimum ultraviolet radiant flux (radiant power) that the source must emit in order to insure effective therapeutic action. Manifestly, the amount of ultraviolet radiation that can be applied to the body without producing a burn depends on the tolerance of the skin. This can be measured by the erythema produced. It is common knowledge that the erythema sensibility of the untanned skin is widely different for different persons and also widely different for the same person, depending on the amount of moisture on the skin. Hence, the erythemic response is in common use as an indicator of skin tolerance and of the amount of ultraviolet radiation that can be applied at any one time. Furthermore, in view of the wide variation in ultraviolet output of different kinds of lamps, and the wide variation in skin tolerance (twice as sensitive in summer as in winter), the safe procedure is to test the erythema reaction on a small area of each person before attempting to make exposures over large areas of the body.

Since most of these sources emit a wide band of ultraviolet radiation in the spectral region that produces an erythema (shown in the lower part of chart 7), the purpose of the erythema test is to avoid burns. The erythema test is not necessarily a measure of the thera-

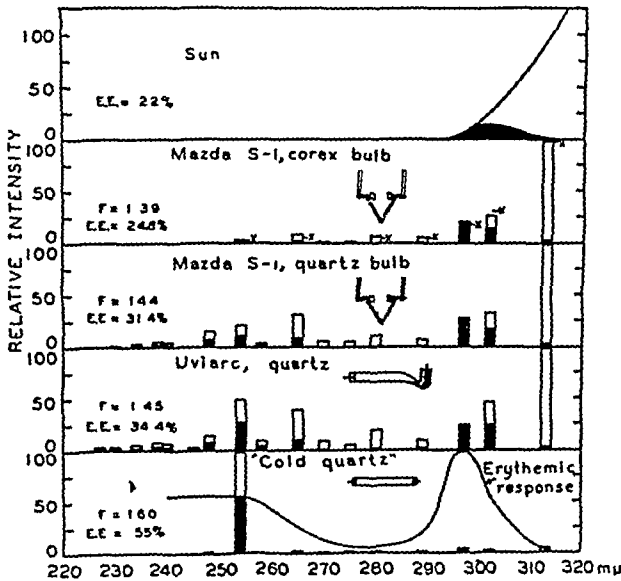


Chart 7—Ultraviolet spectral energy distribution of various sources, also spectral erythemic response curve of the untanned skin and (the shaded areas) the rubescence energy which is the product of the spectral energy and the spectral erythemic response.  $E/E$  erythemogenic efficiency the ratio of the shaded area to the total area.  $F$  factor  $F$ .

brightness (flux density), which, in the ordinary quartz mercury arc, is concentrated in a luminous column less than 10 mm in diameter, whereas in the electrodeless discharge the radiation fills the entire bulb, some 6 to 8 cm in diameter.

**9 The Cold Red Light**—But few sources of radiation remain unexploited for therapeutic purposes. A recent European production is the so-called cold red light emitted by the neon glow discharge tube, familiar to all in the form of the sign-lighting tubes in show windows and street signs. The intensity of the total radiation emitted by the neon glow lamp is low. It consists of a narrow band of wavelengths in the orange-red part of the spectrum, with a maximum in the region of 6,500 angstroms, and a weaker maximum at about 8,500 angstroms. Neon emits practically no radiation of wavelengths longer than about 10,000 angstroms.<sup>8</sup> If the deep-penetrating rays in the red and near infra-red have a specific therapeutic action,

<sup>8</sup> Coblentz W W Bull Bur Stds 9 81 116 1912 (No 191, 10 cents)

<sup>9</sup> Cramer H and Fechner G Strahlentherapie 3B 474 1931

peutic action of the lamp, although, in the case of rickets, the spectral bands of erythema and therapeutic action appear to overlap. However, if a source should be obtained having a strong emission at from 2,700 to 2,900 angstroms with little or no radiation at 2,500 and 2,967 angstroms (lower part of chart 7), a far stronger dosage than with lamps now in use could be applied, without producing a burn.

In view of these considerations<sup>10</sup> the Council on Physical Therapy of the American Medical Association has adopted<sup>11</sup> and, until a more practical procedure is proposed, will use the erythema reaction as a basis for judging the effectiveness of ultraviolet lamps for two important reasons: (1) In the case of exposure to intense sources of ultraviolet radiation it is a simple and practical means of preventing severe burns, and (2) in the case of weak sources of ultraviolet radiation it is an efficient safeguard against possible fraudulent sale of lamps that are deficient in ultraviolet radiation.

The Council's specifications of minimum intensity are based on a comfortable and convenient operating distance (24 inches, or 61 cm) from the front edge

as well as the radiometric output, of the heterogeneous ultraviolet radiation from various sources is readily correlated with this emission line as a standard.<sup>12</sup>

From our experiments<sup>12</sup> it appears that a fifteen-minute exposure to a flux density of 20 microwatts per square centimeter (or a total of 180,000 ergs) of homogeneous radiation of wavelength 2,967 angstroms does not produce an erythema on the average untanned skin, though it may be somewhat too intense for a blond skin.

The Council has therefore adopted 20 microwatts per square centimeter of homogeneous radiation of wavelength 2,967 angstroms as the erythema unit (E U) of dosage, that is, 1 E U = 20 microwatts per square centimeter of radiation of wavelength 2,967 angstroms. For a further discussion of this subject the reader is referred to the original papers.<sup>12</sup>

With 20 microwatts per square centimeter for homogeneous radiation of wavelength 2,967 angstroms as a standard, in table 2 is given the erythemogenic equivalents of the heterogeneous (the total integrated) ultraviolet radiation of wavelengths shorter than and including 3,130 angstroms, required of various sources to produce a minimum perceptible erythema on the average untanned skin in fifteen minutes. For an exposure of sixty minutes the minimum permissible values are only one-fourth as large. That is to say, the total energy of unit intensity (20 microwatts per square centimeter) falling on a surface in fifteen minutes is the same as when one-fourth the intensity (5 microwatts per square centimeter) is used and the surface irradiated sixty minutes, or four times as long. From this table it may be noticed that the lower the erythemogenic efficiency of the source, relative to the standard line at 2,967 angstroms, the greater must be the total ultraviolet intensity of wavelengths shorter than and including 3,130 angstroms in order to meet the Council's requirements.

The specification of intensities given in table 2 are average values, observed in a 0-5 degree zone subtended by the center as the source, i. e., within a circle approximately 4 inches (10 cm) in diameter, lying in a plane at right angles to the axis of the reflector, at the specified operating distance (24 inches, 61 cm), from the front edge of the reflector, it constitutes the minimum values accepted by the Council on Physical Therapy.

#### CONCLUSIONS

It may be stated that in general the lamps submitted to the Council have an intensity that is several times the minimum requirements tabulated. The operating distance and the time of exposure to a given type of lamp are specified by the manufacturer.

In the newer lamps, such as the G-type glow lamp, the first productions did not comply with the specifications, but these lamps were promptly improved to meet competition with other types.

In general, the specifications by the Council have tended to improve the output of responsible lamp manufacturers, but at present there seems to be no means to prevent the exploitation of the public by the sale of cheap lamps emitting little or no ultraviolet radiation.

2737 Macomb, N W

TABLE 2—Erythemogenic Equivalents of Ultraviolet Radiation Required to Produce Erythema

Source	Ultraviolet Intensity in Microwatts per Square Centimeter
Sun midday midsummer midlatitude sea level	91
Carbon arc blue flame cored carbon in reflector no window	48
Carbon arc glass window opaque to 2 800 angstroms and shorter (estimated)	90
Mercury arc General Electric Mazda type S1 lamp high temperature arc in parallel with V shaped tungsten filament	83
Mercury arc General Electric Mazda type S2 lamp similar to the S1 lamp but smaller both in glass bulbs	93
Mercury arc types G1 and G5 low temperature, low voltage thermionic glow discharge glass bulb	108
Mercury arc high temperature high vapor pressure low voltage quartz tube	58
Mercury arc high frequency electrodeless discharge quartz bulb	60
Mercury arc low temperature low vapor pressure high voltage cold quartz Geissler tube discharge	36

of the reflector, at which distance the exposure can be made without burning the skin by coming in contact with the burner or by the infra-red rays. The ultraviolet intensity of the lamp shall be such that the time of exposure to produce a minimum perceptible erythema (one that disappears in less than twenty-four hours) will not be longer than fifteen minutes for a therapeutic lamp and sixty minutes for so-called sunlamps.

As shown in chart 7, the emission line of the mercury arc lamp at 2,967 angstroms (297 mμ in the illustration) has an erythemogenic efficiency of 100 per cent relative to the rest of the spectral erythemic response. No other wavelength or group of wavelengths has such a high efficiency in generating an erythema. Hence the emission line of homogeneous radiation at 2,967 angstroms is a natural standard for evaluating sources of heterogeneous ultraviolet radiation.

The intensity and the erythemogenic action of the emission line of mercury at 2,967 angstroms is easily evaluated in absolute units, and the erythema action,

<sup>10</sup> Coblenz W W Ultraviolet Radiation Useful for Therapeutic Purposes J A M A 98-1082 (March 26) 1932 99 125 (July 9) 1932

<sup>11</sup> Acceptance of Sunlamps J A M A 102 1862 (June 10) 1933

<sup>12</sup> Coblenz W W Stair R and Hogue J M Tests of a Balanced Thermocouple and Filter Radiometer as a Standard Ultraviolet Dosage Intensity Meter, Bur Sids J Research 8 759 1932 (R P No 450 10 cents)



## Council on Pharmacy and Chemistry

## REPORTS OF THE COUNCIL

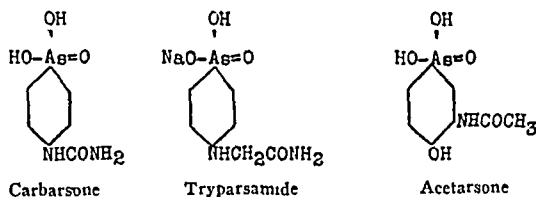
THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING  
REPORT  
PAUL NICHOLAS LEECH Secretary

## CARBARSONE

Carbarsone is a product of Eli Lilly and Company, originally proposed by Leake and his collaborators as a therapeutic agent in intestinal amebiasis. It was considered by the Council in 1931 and a preliminary report was published a short time later.<sup>1</sup> In view of subsequent publications on the use of this therapeutic agent and a report from the A M A Chemical Laboratory that the product is satisfactory chemically, the Council has now accepted Carbarsone-Lilly for inclusion in N N R. and has authorized publication of the following report.

Carbarsone is designated chemically as *p* carbamidophenylarsonic acid. It is closely related to tryparsamide, in common with both acetarsone and tryparsamide, it is a pentavalent arsenic compound.

An investigation carried out at San Quentin prison by Reed and his associates on the incidence of amebiasis in newly admitted prisoners and in the food-handling force of the institution, and the treatment of these cases with vioform or carbarsone, has been the subject of a series of progress reports. The final report<sup>2</sup> covers ninety-two treated cases, of which twenty-nine were removed elsewhere before any significant follow-up period could be established. Of the remaining sixty-three, thirty-one had been treated with vioform and thirty-two with carbarsone.



Stool examinations (smears stained with iron-hematoxylin) were made on three consecutive days at intervals of from two to four weeks on each patient. The vioform group was followed for an average period of 13.2 months (range, 7 to 18½ months), all but three of these patients remained negative (the latter were found to be positive at eight, ten and sixteen months, respectively). Of the carbarsone group, all thirty-two remained negative for an average period of 19.6 months (range, 13½ to 22 months). Of the original series of forty-two cases treated with carbarsone, one severe case did not remain negative after two courses. Of four others in which 5 Gm. of carbarsone was given in ten days, two showed recurrences six and seven weeks, respectively, after treatment. After a second course of carbarsone, these two remained negative for the one month of observation. All four patients were paroled before the follow-up period could be completed.

It appears from this unusually well controlled study, in which the possibility of reinfection was apparently relatively low, that carbarsone may be an unusually effective treatment in amebiasis.

Presson<sup>3</sup> presents results in forty cases of protozoiasis treated with carbarsone (eighteen *Endamoeba histolytica* alone, five *Endamoeba histolytica* associated with other protozoans, the remainder were *Endamoeba coli*, *Endamoeba nana*, *Trichomonas*, *Giardia*, *Chilomastix* singly or mixed). One course of 0.25 Gm. of carbarsone twice a day for ten days cleared all but two cases (one *Giardia*, the other *Endamoeba histolytica*, *Chilomastix* and *Trichomonas* mixed) from six to fifty

follow-up examinations were made in each case but the periods of observation are not stated. The only side effects reported by Presson were flatulence and "hyperperistalsis" of the intestine but "no excessive diarrhea."

Anderson and Reed<sup>4</sup> state that about 10 per cent of patients with amebiasis are found to be refractory to carbarsone orally. These are cases usually of acute dysentery or diarrhea in which motile amebas are found. The authors present twelve cases in which carbarsone was administered rectally (200 cc. of a solution containing 1 per cent of carbarsone and 2 per cent of sodium bicarbonate) as an overnight retention enema, on alternate days for five such treatments. Usually a sedative was administered to permit retention of the enema, three patients could not retain the dose. Oral treatment was interrupted to avoid overdosage. The enemas relieved the acute symptoms but the amebas were not eradicated. Eight of these patients received carbarsone by mouth subsequently, four had one course, two two courses, and two three courses. In addition, adjuvants such as bismuth subcarbonate, vioform, acriflavine, heptylresorcinol and emetine were used variously in seven patients. The latter, and five patients receiving carbarsone alone, remained ameba free for an average period of five and one-fourth months, but two of the first group were found positive again at six and twelve months, respectively. These authors believe that patients should be followed for a period of two years after completion of therapy. Of course, in a period as long as this, as has been pointed out, it is impossible to distinguish recurrence from reinfection.

Anderson<sup>5</sup> reports eighty-eight cases of amebiasis in Panama treated with carbarsone. Eighty adults received a total of 5 Gm. in ten days, six children received about one-half the adult dose, two patients did not complete treatment. Thirty-seven of these cases were followed for a month (six or more specimens) and all but one were cleared and remained so for the period of observation. The data on the others are incomplete.

Chopra, Sen and Sen<sup>6</sup> investigated the effectiveness of carbarsone in thirty-one cases of amebiasis treated in Calcutta. Twenty-three had five or more (most had six) negative examinations on different days following cessation of treatment, four patients appeared to be cleared but the authors consider the number of post-treatment examinations insufficient. There were four failures. It is obvious that, as the authors admit, the criterion of cure used by them is not adequate for reasonable certainty of an ultimately satisfactory result. Nevertheless, the results obtained, as judged by this method, appear to be better than those obtained in India with the other agents commonly used. Chopra and his associates agree with the oft-repeated claim of the California workers that carbarsone is superior in therapeutic efficacy to acetarsone.

Anderson and Reed,<sup>7</sup> report one case of toxicity from carbarsone. This consisted of icterus, pain in the right upper quadrant, enlarged tender liver, numbness of the hands and legs, weakness and "generalized aches" in a patient who one year previously had had an enlarged tender liver following carbarsone therapy. The symptoms cleared in five days with no apparent residual effects. In addition, seven cases of gastric irritation occurred with a preparation purified by a different method, since abandoned.

Anderson and Reed<sup>7</sup> state that they have seen no evidence of skin, optic nerve or renal damage following the use of carbarsone clinically. The possibility of optic nerve destruction has been particularly emphasized, as carbarsone contains a modified amino group in para position to the arsenic atom similar to the arrangement in tryparsamide. Farrington (reported by Anderson and Reed<sup>7</sup>) administered graded doses up to totals of 150, 300, 600, 800 and 1200 mg. per kilogram over a period of forty-eight weeks (alternating four weeks of administration with four weeks of rest) without evidence of toxicity in thirty-three cases as determined by clinical examina-

4 Anderson H H and Reed A C Carbarsone Rectally in Amebiasis *Am J Trop Med* 14: 257 (May) 1934

5 Anderson H H Amebiasis in Panama and California with Special Reference to Incidence and Treatment *Am J Trop Med* 12: 459 (Nov.) 1932

6 Chopra R N Sen B and Sen S Treatment of Chronic Intestinal Amebiasis with Carbarsone *Indian M Gaz* 68: 315 (June) 1933

7 Anderson H H and Reed A C Untoward Effects of Antiamebic Drugs *Am J Trop Med* 14: 269 (May) 1934

1 Preliminary report of the Council *J A M A* 98: 230 (Jun 16) 1932

2 Reed A C and Johnstone H G Amebiasis Among One Thousand Prisoners Final Report *Am J Trop Med* 14: 181 (March) 1934

3 Presson V G Treatment of protozoiasis with carbarsone to be published

tions (including visual field determinations) and tests on blood and urine, all at intervals of four weeks

In one case reported to the Council, 0.25 Gm was given twice a day for six days. On the fourth day severe headache developed, which persisted in milder form for the two subsequent days, on the fifth generalized itching occurred and on the sixth a light scaling erythematous rash was noted on the forearms. Administration was stopped and symptoms of toxicity cleared up largely within forty-eight hours.

Dr Frank Smithies, in a discussion before the Chicago Society of Internal Medicine, May 28, 1934, and in a subsequent written communication, reported several cases of severe toxic reactions from the administration of carbarsone in 0.25 Gm capsules.

"1 One patient with acute anebiasis took less than ten capsules of carbarsone and within a week had a dermatitis of the exfoliative type over the hands and arms.

"2 One patient took twenty capsules of carbarsone (three capsules daily) and experienced, after the fifth day, pulmonary edema of the lungs, chemical sore throat and very pronounced sneezing, lacrimation and running of the nose.

"3 One patient took carbarsone five days on and one week off (two capsules a day) and six weeks after treatment was begun came to me with a history of acutely swollen ankles, knees and wrists—a condition which the patient had never experienced before and which came on about the fourth week following the beginning of carbarsone therapy. When I saw him he had, in addition to moderate swelling about the soft parts of the joints named a liver four fingerbreadths below the rib margin (it was tender) and a spleen at least twice the normal size (it was readily palpable).

"4 One patient who took seven capsules of carbarsone over a period of three and one-half days, developed faulty vision and photophobia. There was moderate swelling of the eyelids, slight puffiness of the face and granular casts with a trace of albumin in the urine. Ophthalmoscopic examination showed moderate papillitis and moderate retinal edema.

"5 Several patients experienced aggravation of diarrhea, nausea and vomiting and vague pains in the stomach region, after from two to eight carbarsone capsules had been taken. One of these patients developed slight but definite icterus on the fourth day after beginning carbarsone therapy (two capsules a day)."

Dr Smithies<sup>8</sup> deprecates the present tendency toward the indiscriminate administration of fixed total doses of antiamebic drugs without regard to the sensitivity of the individual patient (or to the tissue damage that such remedies may produce) and often even without adequate diagnosis. He points out that adequate therapy often requires the use of a number of remedial agents and cautions against placing too much reliance on single specific remedies.

Reed<sup>9</sup> emphasizes the necessity of determining by suitable tests the presence or absence of hepatitis (and impairment of renal function), guarding the use of arsenicals accordingly. He warns against overstandardization of treatment and points out the frequent necessity for adjuvant therapy such as alternating courses of viotorm with those of carbarsone with ten day rest periods intervening, tannin preparations and bismuth subcarbonate in cases presenting persistent dysentery or diarrhea, emetine in amebic hepatitis, dietary adjustment, colonic irrigations with antiseptics and other measures for secondary infection, proper surgical intervention when indicated in resistant cases.

Reed and Johnstone<sup>2</sup> summarize the results in 330 cases. Our conclusion is that carbarsone is a valuable addition to the treatment of anebiasis because of an effectiveness at least as high as any other single drug combined with low toxicity, capability of oral administration, noninterference with ordinary pursuits of the patient, lack of adjuvant requirements such as bed rest, diet, hospitalization and other drugs and finally its relatively low cost. We have found a certain number of patients resistant to carbarsone and all other therapy.

It appears that carbarsone is a valuable addition to the antiamebic armamentarium. It must be considered, however, that not a few patients are resistant to this agent as well as to other amebicidal drugs, and that while toxic reactions appear to be uncommon, a few serious accidents have occurred after administration of the usual therapeutic doses of carbarsone. The individual susceptibility to arsenic compounds of each patient must be evaluated and evidences of toxic manifestations must be watched for carefully, both during the period of therapy and, in view of the slow excretion of the administered arsenic,<sup>10</sup> for a reasonable time afterward.

## NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

**CARBARSONE**—*p*-Carbamido-phenylarsonic acid—*p*-Carbamido-benzenearsonic acid— $\text{NH CONH C}_6\text{H}_4\text{As O (OH)}$   
—The *N*-carbamyl derivative of [*p*] arsanilic acid. Carbarsone contains from 28.1 to 28.8 per cent arsenic (As).

**Actions and Uses**—Carbarsone is proposed for the treatment of intestinal amebiasis. It is administered usually by mouth, in acute amebic dysentery or in resistant cases with motile amebas in the stools, retention enemas may be employed. While carbarsone is said to be less toxic than acetarsone and serious untoward effects appear to be uncommon, cutaneous disturbances and other reactions common to arsenic compounds have been observed. It has been suggested that owing to its chemical structure (in which a modified amido group is in para position to the arsenic atom, similar to the arrangement in trypanamide) the administration of carbarsone may lead to injury of the optic nerve. While visual disturbances appear to be quite rare, the possibility of their occurrence should nevertheless be kept in mind during the therapeutic use of the drug. A moderate increase in intestinal activity may be observed. Carbarsone, in common with other arsenicals, should ordinarily not be employed in the presence of hepatitis or kidney damage. Excretion of the administered arsenic is relatively slow, suitable rest periods must therefore be interposed in the treatment to prevent cumulative effects.

The diagnosis of amebiasis depends on the observation of motile forms or cysts of *Endamoeba histolytica* in stool specimens (repeated examinations are often necessary) or their recovery by means of the protoscope from the intestinal mucosa, positive diagnosis can often be made by the latter procedure when stool examinations are negative, and this is considered to be the more satisfactory as well as the more rapid method of diagnosis in many cases.

In view of the frequency of persistent infection in the absence of marked symptoms, adequate therapy includes reexaminations and repetitions of courses of treatment.

**Dosage**—Orally, for adults, the usual dose is 0.25 Gm twice a day for ten days. If necessary this may be repeated following a ten day rest period. For children the dosage may be reduced according to weight. As retention enemas, for adults, 2 Gm of the drug dissolved in 200 cc of warm 2 per cent sodium bicarbonate solution may be administered following a cleansing alkaline enema every other night for a maximum of five doses if necessary. Because of the large dosage employed (a total of 10 Gm over a period of nine days) oral administration should be interrupted during this interval.

Manufactured by Eli Lilly & Company, Indianapolis. No U. S. patent. Carbarsone is a registered U. S. trademark but the firm disclaims proprietary rights to the name.

**Units** Carbarsone 2 Gm (31 grains)

**Pinkules Carbarsone** 0.25 Gm (334 grains)

Carbarsone is a white, almost odorless powder having a slightly acid taste. It is very slightly soluble in water, slightly soluble in alcohol and nearly insoluble in ether and chloroform; freely soluble in alkalis and alkaline carbonates. The water solution yields an acid reaction to litmus paper.

Transfer 1 Gm of carbarsone to a suitable test tube, dissolve in a solution containing 10 cc of sodium hydroxide solution and 10 cc of water, add 2 Gm of sodium hydrosulphite and warm the mixture to 50°C. A light yellow precipitate is formed in an excess of sodium hydroxide solution (distinction from acetarsone).

Dissolve 0.50 Gm of carbarsone in 2 cc of ammonia water, dilute to 5 cc with water and add 3 cc of magnesia mixture solution; no

<sup>8</sup> Smithies, Frank. Editorial. *Am J Digest Dis & Nutrition* 1: 147 (April) 1934.

<sup>9</sup> Reed, A. C. Amebiasis—A Clinical Summary. *California & West Med* 40: 6 (Jan.) 1934.

<sup>10</sup> Chen, M. Y., Anderson, H. H. and Leake, C. D. Rate of Urinary Arsenic Excretion After Giving Acetarsone (Stovarsol) and Carbarsone by Mouth. *Proc Soc Exper Biol & Med* 28: 145 (Nov) 1930.

precipitate forms (absence of inorganic arsenates), allow the solution to stand for some time or heat the solution for some time. A precipitate is produced. Add 10 cc of sodium carbonate solution to 1 Gm of carbarsone in a test tube and gently rotate the mixture. A complete solution results in five minutes. Shake 0.5 Gm of carbarsone for five minutes with 10 cc of diluted nitric acid. Filter the mixture and add a few drops of silver nitrate solution to the filtrate. At most only a very slight turbidity is produced within five minutes. Carbarsone melts with decomposition at 169 to 171°C (the U. S. P. melting point determination method is to be used). Transfer 0.4 Gm of carbarsone to a test tube, add 5 cc of 20 per cent sodium hydroxide stopper with a slotted cork from which is suspended a strip of moist red litmus paper and heat gently the litmus paper turns blue.

Dissolve 0.50 Gm of carbarsone in 2 cc of ammonia water and dilute to 10 cc with water. This solution conforms to the test for heavy metals when treated according to U. S. P. X, p. 439 beginning with warm it to about 50°C etc. [The test for absence of arsenic acid as described for trypanamide N. N. R. 1934 is not applicable to this compound].

Incinerate 0.5 Gm of carbarsone not more than 0.1 per cent residue remains. Heat about 0.2 Gm accurately weighed of carbarsone for six hours at 100°C the loss in weight does not exceed 1.1 per cent.

Determine the arsenic of carbarsone by the method for arsenic in arsenamine U. S. P. X, p. 67 the arsenic (As) content corresponds to from 28.1 to 28.8 per cent of the weight of the sample.

Transfer about 0.5 Gm of carbarsone accurately weighed to a 500 cc Kjeldahl flask. Determine the nitrogen content according to the method of Medical War Manual No. 6 Laboratory Methods of the U. S. Army Second Edition Revised page 222 beginning with Add 20 cc of concentrated H<sub>2</sub>SO<sub>4</sub>. The nitrogen content is not less than 10.7 per cent nor more than 11 per cent of the weight of the sample.

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG Secretary

### JELKE'S GOOD LUCK VEGETABLE OLEOMARGARINE

**Manufacturer**—John F. Jelke Company, Chicago

**Description**—Margarine prepared from hydrogenated cottonseed oil, cottonseed oil, salt, and sucrose, churned in milk.

**Manufacturer**—The hydrogenated cottonseed oil is melted to a semiliquid state, churned with the cottonseed oil at a definite temperature, and then with pasteurized milk ripened with cultures of *Streptococcus lacticus* and associated aroma-producing strains. The resulting emulsion is solidified by cold water sprays, thoroughly cooled, and allowed to stand for a short period, subsequent to which salt and sugar are worked in and excess moisture is removed. The margarine is printed into 1, 2 and 5 pound blocks, which are automatically wrapped in parchment paper and packed in dated cartons.

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	12.5
Ash	3.2
Sodium chloride	3.1
Fat (ether extract)	82.7
Protein (N × 6.25)	0.9
Sucrose (copper reduction method)	0.7

**Calories**—7.5 per gram 213 per ounce

### MEADS DEXTRI-MALTOSE WITH VITAMIN B (CONTAINS EXTRACTS OF WHEAT EMBRYO AND YEAST)

**Manufacturer**—Mead Johnson and Company, Evansville, Ind.

**Description**—Powdered mixture of Mead's Dextri-Maltose No. 2 (essentially maltose and dextrin) and extracts of wheat embryo and yeast to provide vitamins B and G.

**Manufacture**—The extract of wheat germ is prepared by macerating wheat germ in cold water the solution is filtered through a filter press. The extract of yeast is prepared by boiling a mixture of brewers' yeast and water the solution is separated by centrifugation. The extracts of wheat embryo and yeast are added to the dextri-maltose syrup prepared as described for Mead's Dextri-Maltose No. 2 (THE JOURNAL, Oct. 31, 1931, p. 1302) in such proportion that 2 Gm of the

finished Dextri-Maltose with Vitamin B will contain the extracts of 1 Gm of wheat germ and 0.3 Gm of yeast (Wheat embryo and yeast are both used as sources of vitamins B and G in that wheat germ is richer in B and yeast in G).

**Analysis** (submitted by manufacturer) —

	per cent
Moisture (vacuum 75°C)	1.0
Ash	2.3
Fat (ether extract)	0.0
Protein (N × 6.25)	4.3
Reducing sugars as maltose	52.6
Dextrins (by difference)	39.8
Calcium (Ca)	0.02
Chlorine (Cl)	0.13
Copper (Cu)	0.002
Iron (Fe)	0.008
Magnesium (Mg)	0.10
Phosphorus (P)	0.34
Potassium (K)	0.72
Sodium (Na)	0.23

**Calories**—3.9 per gram 111 per ounce

**Claims of Manufacturer**—A carbohydrate supplement to milk for use in infant feeding, supplying liberal amounts of vitamins B and G, copper and iron.

### UNSWEETENED COOKING CHOCOLATE

- (1) CENTRELLA BRAND
- (2) COLONIAL
- (3) EDWARDS BRAND
- (4) MY-TE-GOOD BRAND
- (5) N. J. C. PURE FOOD
- (6) QUINCY BRAND
- (7) SUPREME COURT BRAND

**Distributors**—(1) Central Wholesale Grocers, Inc., Chicago, (2) Merchants Service Corp., San Francisco, Chicago and New York, (3) The William Edwards Company, Cleveland, (4) Donahoe's, Pittsburgh, (5) Northern Jobbing Company, St. Paul, (6) Quincy Wholesale Grocer, Inc., Quincy, Mass., (7) The W. H. Dunne Company, Norwich, New York.

**Manufacturer**—Moffat, Inc., Boston

**Description**—Ground cacao nibs or "chocolate liquor" in cake form. Same as Moffat Cooking Chocolate Unsweetened, THE JOURNAL, Jan. 20, 1934, page 213.

**Claims of Manufacturer**—Conforms to the United States Department of Agriculture definition and standard.

- (1) ELCO BRAND CRYSTAL WHITE TABLE SYRUP
- (2) ELCO BRAND GOLDEN TABLE SYRUP
- (3) HAPPY HOME BRAND CRYSTAL WHITE SYRUP
- (4) RED W. BRAND GOLDEN SYRUP

**Distributors**—(1) and (2) I. Cohen Grocer Co., St. Louis (3) and (4) Wulfinck Grocer Co., St. Louis

**Packer**—Union Starch and Refining Company, Granite City, Ill.

**Description**—(1) and (3) A table syrup, corn syrup sweetened with sucrose flavored with vanilla. The same as Union Brand Crystal White Syrup (THE JOURNAL, Sept. 3, 1932, p. 833).

(2) A table syrup, corn syrup flavored with refiners' syrup. The same as Union Brand Golden Table Syrup (THE JOURNAL, July 23, 1932, page 309).

(4) A table syrup, corn syrup flavored with refiners' syrup. The same as Golden Drip Brand Golden Table Syrup (THE JOURNAL, May 26, 1934, page 1763).

### LAND O' LAKES UNSWEETENED EVAPORATED MILK

**Distributor**—Land O' Lakes Creameries, Inc., Minneapolis

**Description**—Unsweetened evaporated milk.

**Manufacture**—The procedure of evaporation and canning, and the analysis are essentially the same as for the usual evaporated milk (THE JOURNAL, April 16, 1932, p. 1367).

**Claims of Manufacturer**—See announcement on the advertising of the Evaporated Milk Association (THE JOURNAL, Dec. 19, 1931, p. 1890).

**CALIFORNIA HOME BRAND TOMATO CATSUP**

**Manufacturer**—California Conserving Company, Inc., San Francisco

**Description**—Tomato catsup containing tomatoes, sucrose, distilled vinegar, sodium chloride, onions, cassia, mace, cloves, garlic, celery seed, pepper

**Manufacture**—Sorted ripe tomatoes are washed in revolving spray washers, inspected, passed through live steam to loosen the skin, pulped, screened to remove seeds, cores and peelings, and conveyed to cooking kettles. Formula proportions of the ingredients (excepting distilled vinegar) are cooked for fifteen minutes, distilled vinegar is added and the steam is turned off until batches are tested for refractometer reading, mold count and color reading and when found to conform to the standard for this brand of catsup are screened, and automatically bottled at 88 C

**Analysis** (submitted by manufacturer) —

	per cent
Moisture and volatile substances	67.0
Total solids	33.0
Ash	5.5
Fat (ether extract)	0.4
Protein (N $\times$ 6.25)	2.5
Reducing sugars as invert sugar	8.0
Sucrose	16.1
Crude fiber	0.3
Titrate acidity as citric acid	2.0
Volatile acid as acetic	0.9

**Calories**—1.2 per gram 34 per ounce

**Claims of Manufacturer**—The speed of handling tomatoes from field to finished product keeps mold and bacteria at a minimum and protects tomato flavor and color

**MORO PURE VIRGIN OLIVE OIL**

**Distributor**—E. Cerruti, Inc., New York City

**Special Distributor**—Mencacci & Co., Inc., Jamaica N. Y.

**Manufacturer**—Tommaso Moro & Figli, Genoa, Italy

**Description**—Imported Italian first cold pressing olive oil

**Manufacture**—Selected sound olives from different districts in Italy are pressed cold to expel the oil

The first pressing oil only is filtered, refined and sealed in tins under this brand name

**Analysis** (submitted by manufacturer) —

Specific gravity 15 C/15 C	0.918
Refractive index at 25 C (Zeiss)	61.6
Saponification number	192
Iodine number (Hubl)	81
Free fatty acids as oleic acid	0.6
Cottonseed oil	None
Mineral oil	None
Peanut oil	None
Sesame oil	None

**Calories**—9 per gram 256 per ounce

**Claims of Manufacturer**—Pure virgin olive oil

**ARROWHEAD SOFT SPRING WATER**

**Distributor**—California Consolidated Water Co., Los Angeles

**Description**—Spring water of low mineral content and practically free of micro-organisms

**Collecting and Bottling**—The springs are enclosed in a sealed tunnel located at an elevation of 5,000 feet in an uninhabited area of the San Bernardino Mountains, California. The water (10 C) flows by gravity through steel pipe-lines to cement holding tanks, from which it is loaded by gravity flow into special railway tank cars. The water is delivered into holding tanks in the cities, where it is automatically bottled and distributed.

All incoming demijohns are thoroughly cleansed with 2.5 per cent sodium hydroxide solution, sprayed with chlorine water and flushed with well and distilled water, forty-nine immersions and rinsings occur during this process.

The tunnel and pipe-line are cleaned regularly with a solution of sodium hypochlorite (NaOCl) and copper sulphate (CuSO<sub>4</sub>) and properly flushed with water thereafter. A filter placed in the line removes any flotation material. Cement storage and holding tanks are cleaned after each unloading by spraying with a solution of sodium hypochlorite (two ounces per 50-75 gallons) and flushing with fresh water. They are scrubbed

at frequent intervals. The interior of the tank cars is coated with wax, which is replaced each year. The tanks are cleaned as described for the cement tanks after each unloading and prior to reloading.

**Analysis** (submitted by manufacturer) —

Sanitary Analysis	Parts per million
Turbidity	none
Color	none
Odor	none
Oxygen consumed	none
Oxygen dissolved	9.6
Free carbon dioxide (CO <sub>2</sub> )	3.9
Nitrogen as	
Ammonia nitrogen	none
Albuminoid nitrogen	none
Nitrite nitrogen	none
Nitrate nitrogen	none

**Chemical Analysis**

Residue on evaporation	85.0
Residue after ignition	12.8
Ammonia nitrogen as NH <sub>4</sub>	none
Chloride (Cl)	1.4
Phosphate (PO <sub>4</sub> )	trace
Iron (Fe)	trace
Calcium (Ca)	13.1
Magnesium (Mg)	1.9
Silica (SiO <sub>2</sub> )	15.3
Sulphate (SO <sub>4</sub> )	1.2
Bicarbonate (HCO <sub>3</sub> )	73.8
Sodium (Na)	11.0
Potassium (K)	0.9
Metaborate (BO <sub>3</sub> )	none
Arsenate (AsO <sub>4</sub> )	none
Bromide (Br)	none
Iodide (I)	none
Manganese (Mn)	none

Hypothetical Combination	Parts per million
Sodium nitrate (NaNO <sub>3</sub> )	0.4
Potassium chloride (KCl)	1.7
Sodium chloride (NaCl)	1.0
Sodium sulphate (Na SO <sub>4</sub> )	1.7
Magnesium bicarbonate (Mg(HCO <sub>3</sub> ))	11.5
Sodium bicarbonate (NaHCO <sub>3</sub> )	34.7
Calcium bicarbonate (Ca(HCO <sub>3</sub> ))	52.7
Silica (SiO <sub>2</sub> )	15.3

**Micro-Organisms**—Bacterial examination shows none or very few bacteria per cubic centimeter and no *Bacillus coli*.

**Claims of Manufacturer**—A pure spring water of low mineral content

- 1 BAKEBEST BAKERS FLOUR
- 2 BAKER'S SPECIAL HARD WHEAT FLOUR
- 3 CRAFTSMAN BAKERS FLOUR
- 4 LA CAMPANA FLOUR
- 5 MELLO LOAF BAKERS FLOUR
- 6 VICTOR FLOUR

**Manufacturer**—Liberty Mills, San Antonio, Texas

**Description**—(1) Hard red winter wheat patent flour, bleached (2) and (3) Hard red winter wheat standard patent flour, bleached (4), (5) and (6) Hard red winter wheat first clear flour, bleached

**Manufacture**—Selected hard red winter wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, p 2210. Chosen flour streams are blended and bleached with nitrogen trichloride (one-ninth ounce per barrel).

- (a) WORCESTER SALT (A-BULK)
- WORCESTER SALT (CANNERS "A")
- WORCESTER SALT (FLOUR)
- WORCESTER SALT (FLOUR "AA")
- (b) WORCESTER SALT (FLAKE)
- WORCESTER SALT (FLAKE CHEESE)
- WORCESTER SALT (FLAKE FLOUR)
- WORCESTER SALT (BAKERS FLAKE)

**Manufacturer**—Worcester Salt Company, New York

**Description**—Salts for commercial purposes in "flake" and cube forms. The flour salts contain 1 per cent added calcium phosphate, which tends to preserve their free running properties.

**Manufacture**—The preparation is the same as that described for Worcester Salt (THE JOURNAL, April 22, 1933, p 1237). One per cent calcium phosphate is added to the flour salts before packing.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 28, 1934

## SERUM THERAPY IN POLIOMYELITIS

The prevalence of epidemic poliomyelitis in southern California has revived interest in treatment of the acute disease with serum. Largely as a result of the studies of Aycock and his associates,<sup>1</sup> opinion had become crystallized that convalescent serum was highly effective in preventing and minimizing paralysis if given in the preparalytic stage. In the New York epidemic of 1931, Park carried out a rigorously controlled therapeutic experiment in which unselected alternate patients received convalescent serum in the preparalytic stage. He could find no difference either in incidence of paralysis or in mortality rates in the two groups.

The treatment of the acute stage of poliomyelitis has now been reviewed by Harmon,<sup>2</sup> who has pointed out that many preparalytic cases are destined never to result in paralysis. In other words, many instances of early poliomyelitis diagnosed in the preparalytic stage by pleocytosis and an increase in protein in the cerebrospinal fluid are cases of nonparalytic poliomyelitis. According to data collected from the literature of 531 untreated preparalytic cases of poliomyelitis, paralysis never appeared in 380 (71.5 per cent). The implications of these data on the alleged beneficial results of convalescent and other serums are obvious.

Apparently there are no clear-cut experimental data that serum of any type affects the course of the experimental disease in monkeys. The *in vitro* virucidal test that utilizes monkeys is the only reliable test of polioviral properties in a serum. It has long been assumed but yet has to be definitely proved that the therapeutic efficacy of convalescent or other serum is measured by this test. Indeed, the administration of tested serum during the incubation period of the experimental dis-

ease, even in the preparalytic stage, has been a signal failure except in the hands of a few investigators. In these reports the conclusions drawn might well be questioned on the basis of the data presented.

During the last five years, many new facts concerning the incidence and distribution of the polioviral substances have been developed. These substances are to be found in comparable quantity in the serum of most adults as well as in the serum of poliomyelitis convalescents. Such results have led to the hypothesis that subclinical attacks of poliomyelitis are as common as subclinical diphtheria and scarlet fever. Storage of human convalescent serum (and presumably normal human serum) for two or three years has been shown to have little effect on the concentration of neutralizing substance. The polioviral substance is relatively thermostable, withstanding 56 C for half an hour, and is little affected by filtration through Berkefeld or Seitz filters.

The severity of the epidemic, the place on the epidemic curve when treatment is applied, the age of the patient and the type and degree of orthopedic after-care are all factors of as much importance in estimating the outcome from poliomyelitis as the use of serum itself. Notwithstanding the total failure of statistical presentations to make a case for serum therapy in this disease, clinical observations almost universally indicate rapid symptomatic response to serum administration. There seems to be an immediate drop in temperature and improvement in symptoms that cannot be totally disregarded. These clinical results have been shown equally after both normal adult serum and convalescent serum, so that there seems to be little preference between these two types of serum.

Reports on the use of serum for passive protection in epidemics are inconclusive. In two villages in Sweden, Davide<sup>3</sup> protected seventy-three persons under the age of 25 years with convalescent serum, while a group of eighty-four persons of similar age served as an uninoculated control group. Among the first group but one case of poliomyelitis occurred, while in the latter group there were fourteen cases of the frank disease and several alleged "abortive" cases. Brebner<sup>4</sup> protected 1,300 children with whole adult blood in a single town during the eastern Pennsylvania epidemic of 1932 without a single frank instance of poliomyelitis occurring in the protected group, while thirty-two additional cases of paralysis occurred in the remaining child populace of approximately 3,000 children. Henry and Johnson<sup>5</sup> reported on the immunization of 2,255 children, largely with parents' whole blood, during the Philadelphia epidemic of 1932. Four cases of frank

1 Aycock W L and Luther E L. Preparalytic Poliomyelitis. Observations in One Hundred and Six Cases in Which Convalescent Serum Was Used. *J A M A* 91: 387 (Aug 11) 1928. Aycock W L, Luther E H, Mckhann C F, Smith E C and Kramer S D. Preparalytic Poliomyelitis. Further Observations on Treatment with Convalescent Serum. *J Infect Dis* 45: 175 (Sept) 1929.

2 Harmon P H. Poliomyelitis. I. Experimental and Theoretical Basis for Serum Therapy. *Am J Dis Child* 47: 1179 (June) 1934. Harmon P H. Poliomyelitis. II. Results of Treatment in the Acute Disease. Analysis of Reports on 4,400 Patients Treated with Serum. Observations on 2,660 Untreated Patients. *ibid* 47: 1217 (June) 1934.

3 Davide H. Le serum de convalescent dans la prophylaxie de la poliomyélite. *Bull de l'Office internat d'hyg pub* 20: 74 (Jan) 1928.

4 Brebner W B. Preliminary Report of the Results of the Administration of Normal Adult Serum in the Prophylaxis of Poliomyelitis During the 1932 Epidemic in International Committee for the Study of Infantile Paralysis. *Poliomyelitis*. Baltimore: Williams & Wilkins Company 1932.

5 Henry J N and Johnson G E. Acute Anterior Poliomyelitis in Philadelphia. A Comparative Study of the 1916 and 1932 Epidemics. *J A M A* 103: 94 (July 14) 1934.

poliomyelitis and eight nonparalytic cases developed in this group, an attack rate greater than that in the general populace. It is certain in the data of the latter authors, as well as in the data of Davide, that many of these failures should not be charged against the serum, as the interval between injection of serum and onset was less than the incubation period of the disease. It will be difficult to evaluate the efficacy of a prophylactic agent in poliomyelitis on account of the low attack rate even in epidemics, and because there is no method of defining the susceptible group. More data and observation are needed before the final opinion can be given as to the value of serum treatment and prophylaxis in poliomyelitis.

### MEDICAL ETHICS AND NEW METHODS OF PRACTICE

Gradual changes in the nature of our civilization have brought ever more complex problems for solution by the medical profession. As has been stated repeatedly in these columns, the ethical principles which guide medicine are fundamentally so sound that they may be adapted to any situation arising in medical practice, provided those concerned wish to observe the spirit of these principles. Nevertheless, physicians involved in new types of organization, such as contract practice, industrial practice, hospital practice, university practice, and the practice of medicine by lay corporations which employ physicians, have been brought before the judicial councils and committees on ethical relations of various medical bodies, because of infringements of these ethical principles. In some cases there have apparently been difficulties of interpretation. To overcome these difficulties, the Judicial Council of the American Medical Association, at the Cleveland session, presented three amendments to the Principles of Medical Ethics. These were heartily endorsed by the Reference Committee on Amendments to the Constitution and By-Laws and then adopted by the House of Delegates as guiding principles for organized medicine.

The term "contract practice" is anathema to the vast majority of individual practitioners in this country, yet contracts of all kinds are matters of daily life in all forms of industry. Conceivably there are situations in which the practice of medicine under a contract may be necessary or desirable. In order to elucidate this phase of medical practice, the Principles of Medical Ethics, chapter II, article V, section 2, is now amended by addition of the following wording:

By the term "contract practice" as applied to medicine is meant the carrying out of an agreement between a physician or a group of physicians as principals or agents and a corporation, organization or individual to furnish partial or full medical services to a group or class of individuals for a definite sum or a fixed rate per capita.

Contract practice per se is not unethical. However, certain features or conditions if present make a contract unethical, among which are: 1 When there is solicitation of patients directly or indirectly. 2 When there is underbidding to secure the contract. 3 When the compensation is inadequate

to assure good medical service. 4 When there is interference with reasonable competition in a community. 5 When free choice of a physician is prevented. 6 When the conditions of employment make it impossible to render adequate service to the patients. 7 When the contract because of any of its provisions or practical results is contrary to sound public policy.

Each contract should be considered on its own merits and in the light of surrounding conditions. Judgment should not be obscured by immediate temporary or local results. The decision as to its ethical or unethical nature must be based on the ultimate effect for good or ill on the people as a whole.

Group practice and clinical practice are also phases of medical work that have aroused opposition in many communities, because of the introduction of advertising methods and commercial promotion into their work. In some places groups or clinics have employed business managers, unfamiliar with the medical point of view, who have attempted to introduce unprofessional methods into medical practice. In order to establish the proper relationship between groups and clinics with the individual practice of medicine, the Principles of Medical Ethics will now contain the following statement:

The ethical principles actuating and governing a group or clinic are exactly the same as those applicable to the individual. As a group or clinic is composed of individual doctors, each of whom, whether employer, employee or partner, is subject to the principles of ethics herein elaborated, the uniting into a business or professional organization does not relieve them either individually or as a group from the obligation they assume when entering the profession.

Regardless, however, of the damage wrought to scientific medicine by physicians who engage in contract practice or by groups of physicians competing with the individual practitioner, the worst possible type of new methods in medical practice is the incorporation by business men of organizations to engage in the practice of medicine, employing physicians on salaries and exploiting the services of these physicians unethically to the public. The most conspicuous example of such an organization is the United Medical Service, Inc., which began a few years ago to advertise its services to the people of Chicago. Regarding such types of medical practice, the Judicial Council was definite. The Principles of Medical Ethics now contains the following statement:

It is unprofessional for a physician to dispose of his professional attainments or services to any lay body organization, group or individual, by whatever name called or however organized under terms or conditions which permit a direct profit from the fees, salary or compensation received to accrue to the lay body or individual employing him. Such a procedure is beneath the dignity of professional practice, is unfair competition with the profession at large, is harmful alike to the profession of medicine and the welfare of the people, and is against sound public policy.

As was stated in the introduction to these comments, these modifications of the Principles of Medical Ethics do not in any way modify the basic character of these principles. The Principles of Medical Ethics was established for the protection of the public primarily. Methods of promotion that sell medical practice on the basis of exaggerated claims, on a fee basis rather than



the quality of service rendered, methods of practice that break down the intimate personal relationship that must exist between doctor and patient, methods that delegate the responsibility of the attending doctor to a group or a corporation or a business manager, carry with them a menace to the life and health of the people who are served

Physicians will do well to familiarize themselves with these new statements of principle, now a part of the ethics of organized medicine. The young physician who is tempted by the offer of some commercial agency to enter into such schemes or combinations should bear in mind that he thereby jeopardizes his entire future in the practice of medicine and sacrifices the medical birthright for which he has already paid six or seven years of his life

#### A POLIOMYELITIS VACCINE

The attention devoted in newspapers and current periodicals to experiments now under way in New York for the development of a vaccine against poliomyelitis recalls the fact that such attempts are not wholly new. As early as 1910, Flexner, Lewis and others attempted to develop an immunizing agent of this type. Abramson in 1917, working in the Laboratories of the Department of Health of the City of New York, tested the value of a vaccine prepared from a virus killed by heat according to a method used by Semple for developing a vaccine against rabies. In his experiments, five monkeys each received successive vaccinations with 5 cc of a 10 per cent emulsion, each dose of which had been heated to 55 C for half an hour. Since that time many other investigators have attempted to produce a vaccine that might be established as efficacious, but thus far the results have not proved satisfactory. Now Dr. Maurice Brodie, working in the Laboratories of the Department of Health of the City of New York, with funds provided by the Rockefeller and other foundations, has developed a vaccine that seems to possess the likelihood of efficacy in the diagnosis and treatment of this disease. Influenced by the earlier work already mentioned and also by the favorable results recently obtained with antigens inactivated by germicides in the prevention of other virus diseases, investigators have attempted to develop a new antigen against poliomyelitis. It was felt that previous workers had not used sufficiently large doses of the antigen and that their tests for immunity were too severe, since convalescent monkeys are only relatively immune.

According to a special communication from Dr. William H. Park, the first experiments with virus inactivated by formaldehyde produced an appreciable immunity in a majority of the animals inoculated. It was found, however, that a concentration of 0.3 per cent of solution of formaldehyde was too irritating to the skin, then with the use of the incubator instead of the icebox temperature a lower concentration of the germicide was used. With antigens prepared in this

way the majority of monkeys inoculated proved resistant to direct intracerebral inoculation of the virus. Moreover, serum obtained from these monkeys possessed neutralizing substances against the virus of poliomyelitis. These antigens rarely produced any irritation of the skin when injected intracutaneously. Using extraordinary precautions, the group in charge of these investigations decided to test out the antigenic properties on themselves before attempting inoculation of children with the antigen. Several members of the research group were injected with a vaccine prepared by adding formaldehyde to a suspension of material from the infected spinal cord. It is proposed, after testing the blood of those who have been inoculated to determine the extent of the immunity developed, to carry the investigations further, inoculating children against this disease. The vaccine will, of course, have been established as absolutely harmless by the injection into the members of the committee and also as to its efficacy by the studies that have been made on monkeys inoculated with virus following inoculation with the vaccine.

Here is a well controlled scientific experiment in which the safety of all those concerned is guaranteed by modern scientific methods. If successful, it should yield valuable information for the future. It should do much to develop a means for preventing one of the most dreaded of diseases, which strikes fear to the hearts of parents in every community in which it appears.

### Current Comment

#### SCURVY AND CLOTTING OF BLOOD

Although clinical scurvy has become more or less of a rarity in civilized countries, interest in the disease as produced in experimental animals continues. It was in this connection that the first vitamin was synthesized in the laboratory. Again, the success in elucidating the etiology of scurvy and in establishing effective treatment has led to the hope of obtaining further information on the details of the pathogenesis of the disease through experimental studies. Widespread hemorrhage has long been noted as one of the features of the pathology of scurvy, so that attention has been given to changes in the blood itself. Thus concentration of the blood, decrease both in red cells and in hemoglobin, diminution of resistance to hemolysis and decrease in serum proteins have been reported by various investigators. In a recent study Presnall<sup>1</sup> has paid special attention to the alterations of the clotting of the blood in scurvy. It was observed that increase in clotting time is the earliest sign of the disease in guinea-pigs, a measurable change taking place before the appearance of the usual symptoms. At the same time a marked decrease in the number of platelets was demonstrated and, in corroboration of other investigations, a definite anemia. It was further observed that, when the blood

<sup>1</sup> Presnall, A. K. *J. Nutrition* 8: 69 (July) 1934

of scorbutic guinea-pigs was allowed to clot and then either centrifugated or permitted to synerese, from two to three times more serum is obtained than when normal blood is similarly treated. These observations indicate that, in addition to structural defects in the vascular system, the blood itself undergoes alterations, possibly physical as well as chemical, that may influence the occurrence of hemorrhage in scurvy

## Association News

### MEDICAL BROADCASTS Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, Central daylight saving time. The speaker will be Dr. W. W. Bauer. The next three broadcasts will be as follows:

August 2 Dog Days  
August 9 Death Angel  
August 16 Black Widow

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Dr. McLester Honored**—The Jefferson County Medical Association gave a dinner at the Tutwiler Hotel in Birmingham, July 7, in honor of Dr. James Somerville McLester, President-Elect of the American Medical Association. Speakers reviewing the professional and civic activities of Dr. McLester included Dr. George S. Graham, president of the county society, Dr. Cabot Lull, Birmingham, Dr. William M. Cunningham, Jasper, president of the state medical association, Dr. James E. Paullin, Atlanta, George H. Denny, D.C.L., president of the University of Alabama, and C. B. Glenn, superintendent of schools of Birmingham.

### CALIFORNIA

**Jailed for Narcotic Violation**—Dr. Leman D. Cruce, San Diego, is now serving a fifteen months sentence in the federal prison on McNeil Island, Wash., for violation of the narcotic laws. He went to trial in the U. S. District Court at San Diego on five counts. Two of the charges were dismissed, but he was found guilty of the remaining three, March 9. On each of these he was sentenced to serve fifteen months, the sentences to run concurrently.

**Changes at University**—Included among recent promotions at the University of California Medical School, San Francisco, are the following:

Dr. Edward L. Munson professor of preventive medicine  
Dr. Edward B. Shaw associate clinical professor of pediatrics  
Nathan Shock, Ph.D. assistant professor of physiology  
Dr. Hamilton H. Anderson assistant clinical professor of pharmacology  
Dr. Keene O. Haldeman assistant clinical professor of orthopedic surgery

**Ground Squirrel Eradication**—A year's campaign to eradicate ground squirrels will be carried on in Tulare County under a special fund of \$25,000 appropriated by county supervisors, according to the bulletin of the state board of health, July 7. The state board recently conducted a survey of bubonic plague in several counties, including Tulare as the result of a noticeable increase in the ground squirrel population. Six ground squirrels from Tulare County were found to be plague infected, June 9, according to *Public Health Reports*. June 16, four ground squirrels and one wood rat from Modoc County were found to be plague infected.

**Infantile Paralysis in San Francisco**—Dr. Jacob C. Geiger, health officer of San Francisco, issued a statement July 19 on the present status of the epidemic of poliomyelitis

in San Francisco. Ninety-seven cases have occurred since May 1, with eight deaths. No new case had been reported for one week and only eleven cases were in quarantine, most of them in hospitals. The department of health has been assisted by an advisory committee comprising Karl F. Meyer, Ph.D., director, Hooper Foundation, University of California, Dr. William Palmer Lucas, representing the San Francisco County Medical Society, Dr. Edward B. Shaw, University of California School of Medicine, Dr. Le Roy C. Abbott, orthopedic surgeon, Dr. Harold K. Faber, Stanford University School of Medicine, Dr. James W. Ward, member, health advisory board, Dr. Adolph E. Schmidt, member, health committee board of supervisors, Dr. Isaac W. Thorne, president, San Francisco County Medical Society, and A. J. Gallagher, chairman, finance committee, board of supervisors.

### COLORADO

**Society News**—At the midsummer meeting of the Arkansas Valley Medical Association in Canon City, July 14, speakers included Drs. John W. Ames, Denver, on "Difficult Infant Feeding Cases", George P. Lingenfelter, Denver, "Treatment of Eczemas, Infantile and Adult", William P. McCrossin Jr., Colorado Springs, "Sterility, Its Diagnosis and Treatment", and Fred M. Heller, Pueblo, "Treatment of Nephritis". Features of the entertainment were a trap shoot and golf tournament. Speakers before the Boulder County Medical Society in Boulder, June 14, were Severance Burrage, Ph.D., and Bertram B. Jaffa, Denver, on "Microbial Fingerprints, Their Relation to Respiratory Infections," and "Immunization Campaign in Denver," respectively. Dr. William S. Bartholomew, Manzanola, among others, spoke before the Crowley County Medical Society in Ordway, June 13, on venereal diseases. At a meeting of the Fremont County Medical Society in Canon City in May, Dr. Alexander D. Waroshull, Florence, presented a paper on "Oxygen Therapy." Dr. George L. Pattee, Denver, among others, discussed "Treatment of Maxillary Sinusitis" before a joint meeting of the Larimer County Medical Society and the woman's auxiliary, June 6, in Fort Collins.

### CONNECTICUT

**Campaign Against Mosquitoes**—Hundreds of men are employed under federal auspices in eliminating the breeding places of mosquitoes in Connecticut. R. C. Botsford of the state experimental station in New Haven stated that in a few months workmen will have drained all but 500 of the 18,000 acres of salt marsh along the Connecticut shores. About \$100,000 is being expended on the project. An attempt is being made in this campaign to keep water from flooding marshes at high tide with the use of tide gates. These gates, which have been installed at Lighthouse Point and Indian Neck, hold the tide back from the marshes, lowering the water level of the upper creek and thus allowing the ditches to function normally. In this campaign, local chambers of commerce, boards of health and town officials have pledged themselves to keep ponds, ditches, dumps and rain barrels clear of breeding facilities.

### DELAWARE

**Society News**—Dr. Isidor S. Ravdin, Philadelphia, addressed the New Castle County Medical Society in Wilmington, May 15, on "Use and Abuse of Fluids." Dr. John A. Kolmer, Philadelphia, addressed the society, April 17, on "Present Status of Biologic Therapy."

**Dr. Orr Honored**—Dr. William P. Orr Jr., Lewes, was honored at a dinner given by the Sussex County Medical Society, June 21, in commemoration of his completion of fifty years of practice. Dr. Robert B. Hopkins, Milton, presented Dr. Orr with a loving cup. Dr. Orr is president of the Delaware State Board of Health and previous to his retirement a few years ago was medical officer in charge at the Delaware Breakwater Quarantine Station of the U. S. Public Health Service.

### FLORIDA

**State Board Election**—Dr. Simon E. Driskell, Jacksonville, was elected president of the Florida State Board of Medical Examiners, June 12, and Dr. Horace A. Day, Orlando, was chosen vice president. Dr. William M. Rowlett, Tampa, was reelected secretary.

**Munch Denied a License**—It is reported that the state board of medical examiners refused to renew the license to practice medicine in Florida of Dr. George A. Munch, Tampa, at its meeting in Jacksonville, June 12. Munch was convicted

in the federal courts in 1926 and served a term in the Atlanta penitentiary on charges of using the mails to defraud in connection with the Florida diploma mill

**Society News**—Dr Frederick K Herpel, West Palm Beach, was elected president of the Florida Radiological Association at its annual meeting in Jacksonville, April 30, Dr Wilfred McL Shaw, Jacksonville, secretary for many years, vice president, and Frazier J Payton, Miami Beach, secretary—Dr Thomas H Wallis, Ocala, was recently elected president of the Central Florida Medical Association, and Dr James L Strange, McIntosh, secretary

### GEORGIA

**Society News**—Dr Launcelot Minor Blackford was installed as president of the Atlanta Clinical Society, recently, succeeding Dr Joseph C Massee—At a meeting of the Georgia Medical Society, May 22, Dr John L Elliott, Savannah, discussed pneumothorax, and Dr St Julien R de Caradeuc, Savannah, reported two unusual cases of the eye—Speakers before the Crisp County Medical Society at Cordele, May 17, were Drs Calvin B Stewart, Atlanta on cancer and Richard Hugh Wood, Atlanta, glandular fever—Dr Floy S Rogers, Coleman, read a paper on "Cardiac Conditions Associated with Pain" before the Randolph County Medical Society at Cuthbert, June 7—Dr Samuel A Boland, Jefferson, addressed the Jackson-Barrow Counties Medical Society, June 4, on "Rheumatism in Children"—Dr James L Campbell read a paper on "Cancer as We Find It in Georgia. Its Diagnosis and Treatment" before the Fulton County Medical Society in Atlanta, July 5

### ILLINOIS

**Personal**—Dr Roy Sexton, Streator, received the merit award of Northwestern University Alumni Association on "illumination night" in Evanston, Ill., preceding the annual commencement exercises, June 15 The award is a certificate and is given annually to alumni for "worthy achievement which has reflected credit upon their alma mater"

### Chicago

**Dr Davis Made Emeritus Professor**—Dr Haim I Davis, professor of psychiatry at the University of Illinois College of Medicine since 1926 has been made emeritus professor, effective September 1 Dr Davis has been requested to continue with his teaching, however He has been associated with the school since 1908

**United Medical Service**—Superior Judge James J Kelly refused to vacate an order granting the state of Illinois leave to file quo warranto proceedings against United Medical Service, Inc, July 14 These proceedings, instituted May 12, question the right of the clinic to engage in the corporate practice of medicine under the provisions of the medical practice act of Illinois The court granted the request of the attorney for the clinic to have a jury trial and gave him sixty days in which to file a bill of exceptions and thirty days in which to demur to the petition for quo warranto the *Chicago Tribune* reports (THE JOURNAL, May 19, p 1686)

**Dr Wallgren Gives Sachs Lectures**—Dr Arvid Wallgren, professor of pediatrics and chief of the Children's Hospital at Gothenburg, Sweden, delivered the Theodore B Sachs resident lectures in tuberculosis of the University of Illinois College of Medicine, June 6-7 These lectures were established at the college for a five year period by the Chicago Tuberculosis Institute During the reunion of the alumni of the college, Dr Edward W A Ochsner professor and head of the department of surgery, Tulane University School of Medicine New Orleans, gave the alumni memorial lecture on "Postoperative Care in Abdominal Surgery Based on Clinical and Experimental Observations"

### INDIANA

**Society News**—Speakers before the Fifth District and Parke-Vermillion County medical societies at Turkey Run, June 23, were Drs William W Bauer, Chicago, and George E Brown, Rochester, Minn on "The Medical Profession and the Public Health" and "Newer Ideas of Hypertension, respectively

**Health at Evansville**—Telegraphic reports to the U S Department of Commerce from eighty-six cities with a total population of 37 million for the week ended July 14 indicate that the highest mortality rate (21.8) appears for Evansville and that the rate for the group of cities as a whole was 10 The mortality rate for Evansville for the corresponding week

of 1933 was 11.1 and for the group of cities, 9.6 The annual rate for eighty-six cities for the twenty-eight weeks of 1934 was 12 as against a rate of 11.4 for the corresponding period of 1933 Caution should be used in the interpretation of these weekly figures, as they fluctuate widely The fact that some cities are hospital centers for wide areas outside the city limits or that they have large Negro populations may tend to increase the death rate

### IOWA

**Society News**—A symposium on gastric and duodenal ulcer constituted the meeting of the Black Hawk County Medical Society at Wameso Lodge, June 19, speakers were Drs Walter L Palmer and Lester R Dragstedt, both of Chicago—Dr Donald P Abbott, Chicago, addressed the Cerro Gordo County Medical Society, June 21, on "Indigestion, the Diagnosis of Stomach Disorders and Their Treatment"—At a meeting of the Clinton County Medical Society, June 7, Drs Howard R Hartman and Joseph G Mayo, Rochester, Minn, spoke on "Lesions of the Small Intestine Other Than Peptic Ulcer" and "Secondary Anemias," respectively—The Hardin County Medical Society was addressed in Iowa Falls, June 26, by Dr Julia Cole, Iowa Falls, on "Diagnosis and Treatment of Bronchial Asthma"

### KANSAS

**Executive Secretary for State Society**—Mr Clarence Munns, formerly of the Phillips Petroleum Company, has been named executive secretary of the Kansas Medical Society He will visit other state executive offices before opening his office in Wichita about August 1 Mr Munns was appointed at a meeting in Wichita, June 24 Creation of this position was authorized at the recent meeting of the state medical society

### KENTUCKY

**Pioneer Physicians Commemorated**—A reproduction of a pioneer cabin on which is mounted a memorial tablet bearing the names of twenty-seven pioneer physicians was dedicated at special ceremonies in the Pioneer Memorial State Park at Harrodsburg, June 21, by the Kentucky State Medical Association and the Kentucky Pioneer Memorial Association Dr Arthur T McCormack, Louisville, secretary of the state medical association, made the dedicatory address and four descendants of Dr Thomas Walker, said to have been the first explorer of Kentucky, unveiled the tablet At a banquet following the ceremonies Dr Irvin Abell, Louisville, presided and addresses were made, among others, by Drs Philip F Barbour, Louisville, on "The Pioneer Doctor," and Mrs Bartlett K Menefee, Covington, president of the woman's auxiliary of the state medical association, on "The Pioneer Doctor's Wife" The auxiliary will later fit the cabin as a replica of a pioneer physician's office, it was announced

**Society News**—Dr Claude T Wolfe, Louisville, addressed the McCracken County Medical Society at Paducah, May 23, on "Relation of Chronic Sinus Disease to Bronchial Disorders," and Dr Oscar O Miller, Louisville, "Nontuberculous Infections of the Upper Respiratory Tract"—Dr J Isfried Hofbauer, Cincinnati, addressed the Mason County Medical Association, Maysville, May 9, on "Early Diagnosis and Etiology of Uterine Carcinoma" Dr Alphonse R Vonderahe, Cincinnati, addressed the society at a special meeting, May 2, on diseases of the brain—At the annual meeting of the Southwestern Kentucky Medical Association in Paducah, May 5, speakers were Drs Willis C Campbell, Memphis, on "Ununited Fractures", Hollis E Johnson, Nashville, "Collapse Therapy in Pulmonary Tuberculosis" William T Black, Memphis, "Uterine Bleeding" John A Toomey, Cleveland, "Treatment of Acute Contagious Diseases," and Edward R Palmer, Louisville, "The Lesser Social Evil" Dr George W Crile, Cleveland made the banquet address—Dr Albert L Bass, Louisville, was chosen president of the Eye, Ear and Throat Section of the Kentucky State Medical Association at the annual meeting in May

### MARYLAND

**Personal**—An exhibition of rare medical manuscripts and old books, chiefly the works of Jewish physicians was recently on display at the Central Enoch Pratt Free Library, through the courtesy of Dr Harry Friedenwald, Baltimore, who has been a collector for thirty years—Dr Adolf Meyer, Henry Phipps professor of psychiatry, Johns Hopkins University School of Medicine, Baltimore was awarded the honorary degree of doctor of science by Yale University, June 21—Drs Daniel H and Lauretta E Kress, Takoma Park cele-

brated their golden wedding anniversary, July 9, 2,000 persons at whose birth Dr Lauretta Kress had officiated were invited to the reception and 500 were in attendance. Dr Lauretta Kress has assisted at 3,571 births during her career.

### MASSACHUSETTS

**Dr Shattuck Fined**—According to the *New England Journal of Medicine*, Dr Ray H Shattuck, Boston, was found guilty on five counts in the Dorchester District Court, June 28, on a charge of prescribing drugs not in good faith and not in the course of his professional practice. A fine of \$50 on each count was imposed. The case was appealed.

**Outbreak of Gastro-Intestinal Disorder**—About 600 persons suddenly became ill recently in Fitchburg. The water supply was investigated immediately. Since a CWA camp, employing about thirty men, was situated near the watershed of Overlook reservoir, which served most of the persons stricken, pollution from this source was suspected. Specimens taken from twenty-four workers at the camp were negative for typhoid, however. Analyses of the water showed the presence of B coli the first day. Subsequent analyses showed the reservoir to be free from the colon bacillus, and no more cases appeared after the third day. It was believed that heavy rains at the time contaminated the reservoir. No deaths were reported.

### MICHIGAN

**Physician Honored**—A reception was held for Dr and Mrs Will L Griffin, Shelby, May 26, as a mark of appreciation for his services. Of the 600 persons in attendance at the reception, it was stated that 500 had been born with the assistance of Dr Griffin. Infants and grandparents were among the guests.

**Upper Peninsula Meeting**—The thirty-seventh annual meeting of the Upper Peninsula Medical Society will be held under the auspices of the Gogebic County Medical Society at Ironwood, August 16-17. The following physicians will participate in the program, among others:

John L Garvey, Milwaukee, Differential Diagnosis of Common Neurologic Conditions as Met with in General Practice  
Stuart Pritchard, Battle Creek, A Ray Diagnosis of Chest Lesions  
John S Lundy and Ralph M Tovell, Rochester, Minn., Indications and Technique of Blood Transfusions  
Walter A. Fansler, Minneapolis, Injection Treatment of Hemorrhoids  
Bert E Hempstead, Rochester, Minn., Sinus Infection—Diagnosis and Treatment  
Charles L Brown, Ann Arbor, Allergy in General Medicine  
Richard M Hewitt, chief of publications Mayo Clinic, Rochester, Minn., Art of Writing Medical Papers

Five minute talks will be given at the evening session, Thursday, by Drs John J Walch, Escanaba, president of the society, Frederick C Warnshuis, Grand Rapids, secretary, Michigan State Medical Society, Clyde C Slemmons, Grand Rapids, state health commissioner, and George L Le Fevre, Muskegon, president of the state medical society. Dr James D Bruce, Ann Arbor, and Governor William Comstock will deliver addresses at this session. Entertainment has also been planned.

### MISSISSIPPI

**Graduates of Foreign Schools**—In accordance with a resolution adopted by the Mississippi State Board of Health, June 25, only graduates of grade A medical schools of the United States and Canada will be permitted to take the examination for license to practice medicine in the state, and only graduates of grades A and B medical colleges of the United States and Canada will be granted license by reciprocity. The resolution further provides that any graduate of a foreign school making application for license, either by examination or by reciprocity, must show proof from the Council on Medical Education and Hospitals of the American Medical Association that his premedical training and medical education are equivalent to the standards of the Council. Even then the resolution states, his application may be accepted or rejected by the Mississippi State Board of Health.

### MISSOURI

**Precautions for Infantile Paralysis Epidemic**—A conference was called by the director of health of Kansas City recently to consider precautions to be taken should infantile paralysis occur in the city. According to the *Jackson County Medical Journal*, all private hospitals are urged to have wards or wings set aside for the care of infantile paralysis patients or suspects. In these wards the precautions to be adopted are those usually followed in typhoid isolation. Infantile paralysis patients admitted to the Kansas City General Hospital in the

last five years are being asked if they will be available for supplies of blood. While no serum or blood will be distributed through the general hospital, it will prepare a list of possible donors.

### NEW JERSEY

**Physician Honored**—Dr Herbert W Foster, Montclair, was guest of honor at a dinner, May 23, at the Montclair Golf Club, observing the twenty-fifth anniversary of the founding of the society known as Associated Physicians of Montclair and Vicinity. Dr Foster was the founder and first president of the society.

**Personal**—William L Sampson, ChE, assistant professor of biologic sciences at Rutgers University College of Pharmacy, New Brunswick, has been appointed to the research staff of Merck and Company, Rahway. —Dr William J Carrington, Atlantic City, was recently elected president of Kiwanis International.

**Society News**—The Society of Surgeons of New Jersey held its spring meeting at Mountinside Hospital, Montclair, May 16. Among others on the program were Drs Toufick Nicola, Cedar Grove, who conducted an orthopedic clinic, Victor B Seidler, Montclair, a thyroid clinic, John D Moore, Bloomfield, a dry clinic on diseases of the eye, Meredith F Campbell, Montclair, demonstration by roentgen rays of urologic conditions in children. Demonstrations and five minute talks were presented by the obstetric department under the direction of Dr George B Verbeck, Caldwell, and various other departments also demonstrated their work. Dr Walter B Mount, Montclair, was chairman of the program committee. —Dr Robert F Sterner, Cheltenham, Pa., addressed the Gloucester County Medical Society, Pitman, May 17, on disease of the gallbladder. —Dr James Ewing, New York, addressed the Hudson County Medical Society, Jersey City, May 8, on cancer. —Dr Frederick T Van Beuren Jr, New York, addressed the Morris County Medical Society, Grey-stone Park, May 17, on "Relation of the Hospital to the Public."

### NEW YORK

**Society News**—Dr George W Crile, Cleveland, addressed the Medical Society of the County of Nassau, Mineola, May 29, on "Five Points in Surgery of the Gallbladder and Ducts."

**New Board of Health**—A new administration in Buffalo has appointed the following board of health: Drs Carroll J Roberts, chairman, Thew Wright, Edward E Haley, Ambrose A Maciejewski and August Lascola.

### New York City

**Tuberculosis Worker Honored**—Two hundred friends of Dr Dwight Clifford Martin, chief of the tuberculosis bureau of the New York City Department of Health, gave a dinner at the Hotel McAlpin, June 12, celebrating his twentieth anniversary in that position. Speakers who paid tribute to Dr Martin were Drs John L Rice, James Alexander Miller, William H Park, George G Ornstein and Herbert R. Edwards. Dr Robert E Plunkett, director of the division of tuberculosis, New York State Department of Health, was toastmaster.

**Personal**—Dr G Canby Robinson, director of the New York Hospital—Cornell Medical College Association, has been granted a year's leave of absence. Dr Robinson has been in active charge of the building of the new medical center and reorganization of the two institutions during the past six years. —Dr Walter A Bastedo received the honorary degree of master of science at the annual commencement of the Philadelphia College of Pharmacy and Science, June 6. —A testimonial dinner was tendered to Dr Edwin R Fiske, chairman of the medical board of Kings County Hospital, by the medical staff and alumni of the hospital April 26. Dr Fiske has been associated with the hospital for thirty-three years. —Dr Robert A Fraser has been appointed chief medical director of the New York Life Insurance Company, to succeed Dr Ernest H Lmes, who retired after forty-five years of service. —Dr Horace S Warner retired July 1 from the position of medical referee for the Aetna Life Insurance Company. He was appointed in 1905.

**Group Hospitalization Plan**—The state department of social welfare has approved an application for the establishment of a nonprofit corporation to organize and administer a group hospitalization plan among the voluntary hospitals of New York and its suburbs. The establishment of the corporation to be known as Associated Hospital Service of New York now depends on the obtaining of funds to put the plan into operation and maintain it for six months, the payments

of beneficiaries will provide the hospital benefits after that time Governor Lehman recently approved a bill amending the state insurance law to permit development of this plan, which is sponsored by the United Hospital Fund, comprising fifty-six voluntary hospitals. It is anticipated that about 100 hospitals will participate. The proposed association would be controlled by eleven directors elected annually by a voting membership comprising the presidents of the Hospital Conference of the City of New York, the Brooklyn Hospital Council, the five county medical societies of New York, the Medical Society of the State of New York and the trustees of the United Hospital Fund. The individual cost would be \$10 a year and the service would be available only to the insured person, not to his dependents, though dependents may be included later, it is said. The subscriber would be entitled to three weeks of semiprivate hospital care after a ten day waiting period immediately following the signing of the contract (this waiting period would not apply in case of accident) and ten months in obstetric cases. The subscription does not include fees for medical service. Admission to the hospital would be granted only on the recommendation of the subscriber's physician. The new legislation and the development of the group payment plan are the result of a study made by a special committee of the United Hospital Fund, of which Dr Sigismund S Goldwater, now city commissioner of hospitals, was chairman.

### NORTH CAROLINA

**Study of Maternal Mortality**—Adequate prenatal care for expectant mothers was indicated as the principal means by which maternal mortality may be reduced, in a study of 550 deaths attributed to puerperal causes made by the bureau of vital statistics of the state board of health. Inquiries of physicians and midwives brought adequate information concerning 334 deaths. Of 209 white women who died in 1933 from puerperal causes, 187 were attended by physicians. Of forty-four women who consulted a physician before the end of the fourth month of pregnancy, twenty-six sought aid because of alarming symptoms. Among the 125 Negro women who died, only nine went to physicians before the fourth month and seven of those were already ill. Therefore only twenty of the 334 saw a physician early in pregnancy and while still apparently in good health. Of the 334 maternal deaths, 114 were caused by puerperal albuminuria and eclampsia and 24 by other toxemias of pregnancy. Puerperal septicemia caused the second largest number of deaths, 51. According to this evidence it appears that in the vast majority of cases the medical profession has had no opportunity to give protection to mothers, the report concluded. The marked prevalence of toxemias of pregnancy revealed in this study demands an investigation of the cause as well as the prevention and treatment of this condition, it was urged in the report. Conferences of physicians and health officers were held in twelve sections of the state in the course of the study, culminating in a general conference in Raleigh, March 26. All phases of medical care of prospective and actual mothers and of infants were discussed. A committee composed of Drs Harry H Johnson, Louisville, James Street Brewer, Roseboro, Forest M Houser, Cherryville, and Thomas Leshe Lee, Kinston, drew up a set of minimum standards of prenatal and postnatal care, dissemination of which throughout the state will, it is believed, contribute to the solution of this problem.

### OHIO

**Personal**—Dr Henry R O'Brien, Oberlin, resigned as health commissioner of Lorain County in May—Dr James Angus Doull, professor of hygiene and public health, Western Reserve University School of Medicine, Cleveland, has been elected to honorary membership in the Royal Sanitary Institute of Great Britain—Dr Charles R Pontius, Fremont, was guest of honor at a dinner given by the Sandusky County Medical Society at DeMars Point Club, June 19, in celebration of the fiftieth anniversary of his medical practice. Dr Charles J Wehr, Bellevue, secretary of the society, was toastmaster and the speakers were Dr Norris W Gillette, Toledo, and George B Smith, DDS, Fremont. Dr Pontius reviewed changes in medical practice during the past fifty years.

**Dr Bachmeyer Honored**—At the annual reunion of the Alumni Association of the University of Cincinnati College of Medicine, June 14, tribute was paid to Dr Arthur C Bachmeyer, who has resigned as dean of the college. Dr Martin H Fischer presented a silver coffee service to Dr Bachmeyer on behalf of his colleagues at the college and the Cincinnati General Hospital. Other speakers of the evening were President Raymond Walters of the university. Drs William M Doughty and Fred Heinold and the guest speaker, Dr David

Riesman, Philadelphia, who discussed "Medical Progress in One Generation." Dr Ben L Bryant was elected president of the association.

### OKLAHOMA

**Society News**—The Muskogee County Medical Society held a joint meeting with the society of Sebastian County, Ark., in Muskogee in May. Speakers were the following Fort Smith physicians: Drs Curtis H Kennedy, "The Decline of Prescription Writing", Clarence B Billingsley, "Management of Labor," and Davis W Goldstein, "Unusual Malignancies About the Face"—Drs John L Day and Carl T Steen of the Central Oklahoma State Hospital, Norman, addressed the Comanche County Medical Society, Lawton, May 10, on mental hygiene and manic depressive psychosis, respectively—The Stephens County Medical Society sponsored a public meeting on cancer in Duncan, May 29, speakers were Drs Everett S Lain and Wendell M Long, Oklahoma City.

### PENNSYLVANIA

**Hospital News**—The ex-residents' society of the Abington Memorial Hospital, Abington, held its second annual meeting June 28. The day was devoted to medical and surgical clinics, followed by a banquet in the evening. Dr Paul M Kistler, Wayne, is secretary of the society.

**Society News**—The Pittsburgh Medical Forum held the first of a series of symposiums on medical economics, June 21. Speakers were Drs Samuel B Goodstone, on "Voluntary Health Insurance", Louis Lasday, "Compulsory Health Insurance" and Henry M Snitzer, "Dispensary Practice as It Affects Medical Economics"—Dr Pascal Brooke Bland, Philadelphia, was guest speaker at a meeting of the eleventh councilor district of the Medical Society of Pennsylvania at the Summit Hotel, near Uniontown, July 12, on "Intracranial Injuries of the New-Born from the Standpoint of the General Practitioner." Dr Moses Behrend, president-elect of the state medical society, discussed workmen's compensation—Speakers before the Fayette County Medical Society, Uniontown, June 7, were Drs James E Van Gilder, on pernicious anemia, Arthur E Crow, appendicitis, and Robert H Jeffrey, inguinal hernia—Dr Roy R Snowden, Pittsburgh, addressed the Cambria County Medical Society, Johnstown, July 13, on "Newer Conceptions of Hypertension and Nephritis." Dr Herbert P Leopold, Philadelphia, addressed the society, June 21, on "Acute Appendicitis—Its Surgical Significance and Mortality"—Drs William V Mullin, Cleveland, and Thomas B Holloway, Philadelphia, addressed the Western Pennsylvania Eye, Ear, Nose and Throat Society, May 17, on "Influence of Allergy on Rhinology" and "Ocular Manifestations of Certain Intracranial Basal Lesions," respectively.

### TEXAS

**Special Society Elections**—Drs Ramsey H Moore, Dallas, and Frank H Lancaster, Houston, were elected president and secretary, respectively, of the Texas Pediatric Society at the annual meeting in San Antonio, May 16. At the meeting of the Texas Neurological Society, May 14, Drs Guy F Witt, Dallas, and Wilmer L Allison, Fort Worth, were elected president and secretary, respectively. New officers of the Texas Dermatological Society, elected at the annual meeting, May 14, were Drs Cornelius F Lehman, San Antonio, president, and Everett R Seale, Houston, secretary. Dr Everett F Jones, Wichita Falls, was elected president of the Texas Railway Surgeons' Association at the annual meeting, May 14, and Dr Ross B Trigg, Fort Worth, secretary.

### VIRGINIA

**Site of Civil War Hospital Marked**—A bronze tablet was placed on a worn boulder on Chimborazo Hill in Richmond, May 26, marking the site of Chimborazo Hospital, said to have been the largest military hospital in the world during the Civil War. It consisted of 150 wooden buildings and cared for a total of 76,000 patients during the war. The commandant of the hospital was Dr James B McCaw, father of Brig Gen Walter D McCaw, for many years librarian of the Army Medical Library at Washington, D C. Dr Edgar Erskine Hume, present librarian, was to have delivered the address of the occasion on the history of the hospital. Dr Hume was unable to attend, but his address was read by Dr Greer Baughman, Richmond, and the tablet was unveiled by Mrs Dabney H Maury, a daughter of Dr James B McCaw. The memorial was placed by the Confederate Memorial Literary Society.

**Society News**—Dr Frank P Coleman, Stuarts Draft, addressed the quarterly meeting of the Augusta County Medi-

cal Association, Staunton, May 2, on treatment of internal hemorrhoids by injection—Drs John M T Finney and Thomas R Boggs, among others, addressed the Fredericksburg Medical Society, May 29, on acute conditions in the abdomen and fungous infections of the tongue, respectively. At this meeting the society had as guests members of the Piedmont, Loudon and Fauquier county medical societies, the Northern Neck Medical Society, medical officers stationed at Quantico and Dahlgren and at the Civilian Conservation Corps camps at Bloody Angle, Wilderness and Chancellorsville—Drs John A C Colston Baltimore, and Samuel F Driver, Troutville, addressed the Roanoke Academy of Medicine, May 7, on "Serum Treatment of Tularemia" and "Urologic Problems of Childhood," respectively—Dr Thomas P Sprunt, Baltimore, addressed the Lynchburg Academy of Medicine, June 4, on "Treatment of Common Types of Arthritis"

### WASHINGTON

**Society News**—Dr Ira R Watkins, Aberdeen, addressed the Grays Harbor County Medical Society, May 16, on fractures—Dr Arthur C Jones, Portland, presented a paper on "The Physiologic Basis of Physical Therapy" at a meeting of the Pierce County Medical Society, Tacoma, May 22—Drs Otis F Lamson, Seattle, and Souren H Tashjian, Seattle, addressed the Yakima County Medical Society, Yakima, May 14, on intrathoracic goiter and treatment of infections by nutrient broth, respectively—Speakers at a meeting of the Walla Walla Valley Medical Society Walla Walla May 10, were Drs Joseph P Brennan and Donald Wair, Pendleton on "Treatment of Tetanus" and "Toxic Psychosis in Use of Sedatives" respectively, and Drs Pius A Rohrer and Hale A Haven Seattle "Transurethral Resection" and "Neurologic and Surgical Aspects of Injuries to the Spine," respectively

### GENERAL

**Society News**—Dr Henry Kennon Dunham, Cincinnati, was elected president of the National Tuberculosis Association at its recent annual meeting and Dr Charles J Hatfield, Philadelphia, was reelected secretary. The next annual session will be held at Saranac Lake, N Y

**Automobile Fatalities Increase**—The bureau of the census, U S Department of Commerce, announced that eighty-six large cities in the United States reported 607 deaths from automobile accidents for the four weeks ended July 7 as compared with 570 for the four weeks ended July 8 1933. Of the total number 498 occurred within the corporate limits of cities. For the fifty-two week periods ended July 7, 1934, and July 8, 1933, the totals for all the cities were 8,697 and 7,794, which indicate a recent rate of 233 per hundred thousand of population as against an earlier rate of 209

**Examinations in Dermatology and Syphilology**—The American Board of Dermatology and Syphilology will hold examinations at the annual meeting of the Southern Medical Association in San Antonio November 13-16, if there are enough applications to warrant the trip. The written examination for group B applicants will be held in centers throughout the country, October 1, and the oral examinations in group A and group B at San Antonio. Applications should be filed in the office of the secretary, Dr Clarence Guy Lane, 416 Marlborough, Boston, before August 20. Application blanks and other information should be obtained from Dr Lane

**Physicians Named to U S Science Advisory Board**—New appointments to the U S Science Advisory Board include those of Dr Simon Flexner, director of the Rockefeller Institute for Medical Research New York, Dr Milton J Rosenau, Boston, Charles Wilder professor of preventive medicine and hygiene, Harvard School of Public Health, and Dr Thomas Parran Jr, Albany, health commissioner of the state of New York. Frank R Lillie, PhD professor of zoology and dean of the division of biological sciences University of Chicago, was also among those named to the board. The Science Advisory Board was created by President Roosevelt, July 31 1933 to aid him and his department heads in the conduct of research in the federal government. The board now has fifteen members

### CORRECTION

**Staff of Bronx Hospital**—In a recent article published in the department of THE JOURNAL devoted to the Council on Physical Therapy it was stated that Dr Luttinger was a member of the staff of the Bronx Hospital, New York. The superintendent of that hospital writes to say that Dr Luttinger is not connected with that hospital

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

June 30, 1934

### The Tax on Cod Liver Oil

It was reported previously (THE JOURNAL, Oct 8, 1932, p 1275) that one result of the Ottawa conference was increased duties on foreign imports of certain drugs, notably cod liver oil, honey and linseed. What was said in the markets about honey and linseed, according to the *Lancet*, was "hardly audible above the noise made about the increase of duty on foreign cod liver oil." This was done to please Newfoundland and applied mainly to Norwegian cod liver oil. It was pointed out at the time that nearly all the Newfoundland cod liver oil was consumed in the United States and that Britain depended on Norway for the main supply. The increased price brought about by the duty would enable Newfoundland to send her oil across the Atlantic and get more for it. The diminished supply for the United States would also increase the price there and enable Norway to send its oil, excluded from Britain across the Atlantic. Thus the fundamental flaw of protection—the turning of industry from natural into artificial channels—is demonstrated in the result: dearer oil for everybody and two unnecessary journeys across the Atlantic.

Another evil of the mistaken Ottawa policy is now shown in a letter to the *Times* from an exporter of cod liver oil, who points out that the duty on cod liver oil was intended primarily to assist the sale of the Newfoundland oil. But there is considerable trade done in importing the Norwegian oil in bulk and reexporting it in bottles to the Far East. The margin of profit in this trade is small, but its importance lies in the fact that many general orders from wholesale dealers in the drug trade include cod liver oil, and if the oil cannot be obtained from the English dealers at competitive prices the general order goes elsewhere. The duty of 32 cents per gallon on the oil makes it impossible to compete with other nations. This exporter has been forced to raise the price. In spite of an advertising campaign abroad where his brand of oil is well known, his sales have gone rapidly down. This has been accompanied by a loss of general business, though exceptional efforts were made to retain it. Employment suffers accordingly and British ships lose freight. Perhaps, as in the case of the insulin tax, our protectionist government will give way after doing much mischief.

### Making Motor Cars Less Noisy

The efforts to mitigate the noise evil have been described in previous letters. In the *Times* Lord Horder, chairman of the committee of the Anti-Noise League, calls attention to an amendment to the road traffic bill, which is strongly supported by the league. Under the road traffic act of 1930, the minister of transport made a regulation that every vehicle propelled by internal combustion engine should have a silencer for reducing the noise of the exhaust. But this regulation is ignored by the manufacturers of many motorcycles and some of the most popular sports cars. One of the manufacturers of silencers publicly admitted that he supplies "partial silencers" not because of any difficulty, mechanical or economic, in supplying efficient ones, but because purchasers demand unnecessary noise. They cannot be punished for doing so as the liability for noncompliance with the regulation arises only in those using the road. As to these experience has shown that magistrates are unwilling to punish those who merely use the vehicle as sold to them. The proposed amendment will make it unlawful to sell a vehicle of which the use on the road would be unlawful. When the amendment was moved in the house of commons, the



government, while expressing sympathy with its object, was unable to accept it, as its enforcement was considered practically impossible. But the government stated that it is consulting the department of scientific research and the National Physical Laboratory and asking them to look into the scientific aspect of the silencing of automobiles to see whether it would not be possible to make a regulation dealing with the user that would be more precise and easier to apply. Voluntary cooperation is also being sought with the automobile manufacturers. The amendment was withdrawn.

### The Prevention of Tuberculosis

The twentieth annual conference of the Society for the Prevention of Tuberculosis was held in London under the chairmanship of Sir Robert Philip. Sir Hilton Young, minister of health, paid a tribute to the work of the association since its inauguration in 1898 in instructing the public. Lord Astor, chairman of the departmental committee on tuberculosis, whose recommendations for the control of the disease, made twenty-one years ago, were the basis of subsequent progress, said that the outbreak of the war prevented them from coming into effect until 1919. Some of the decline in the tuberculosis of children he attributed to dealing with the problem of tuberculous milk.

Dr A. S. Macnalty, senior medical officer to the Ministry of Health, said that the chief problem in the past had been residential institutional accommodation but that now it was instruction of the public in the early symptoms of tuberculosis. The state had realized the factors favoring the disease, such as certain occupations, malnutrition, overcrowding and bad sanitation. Antituberculous work was now an integral part of public health, and the health officer could coordinate all the branches of prevention. More attention need to be paid to the examination of contacts and the provision of adequate after-care for arrested cases, with special reference to home surroundings and occupation.

Dr N. D. Bardswell, principal assistant medical officer to the London County Council, reviewed the progress made in London, where there is a central authority that provides residential treatment and thirty-five dispensaries linked up with the neighboring hospitals. A decline of nearly 40 per cent in pulmonary tuberculosis and over 75 per cent in nonpulmonary tuberculosis in twenty-one years had resulted. Although other factors were concerned and the falling incidence had been in progress since 1875, he felt that the work in prevention had materially contributed. The popularity of tuberculin treatment had gradually faded away and today was not seriously considered as a cure. Children living in conditions of danger of infection, or those who would be left unattended if the woman of the household went away for treatment, were boarded out.

### THE TUBERCULOSIS DISPENSARY

Dr G. Lissant Cox, central tuberculosis officer for Lancashire, said that the dispensary unit should work in unison with the institutional unit and that lack of this unity was the cause of much ineffective work. The tuberculosis officer should be at the same time a medical superintendent visiting or resident, and the medical superintendent should be in part a tuberculosis dispensary officer. Dispensary units had been much too small; they should serve a population of 200,000 in a rural and 300,000 in an urban district. In the discussion it was suggested that dispensaries should be attached to the teaching and public assistance hospitals and that tuberculosis officers should look forward to clinical rather than to administrative preferment.

### RESIDENTIAL INSTITUTIONS

Dr James Watt, medical superintendent of King George V Sanatorium, pointed out the great change brought about in residential institutions by radiography and collapse therapy,

thoracoscopy and the electrical cutting of adhesions. The sanatorium no longer resembled a convalescent home but a hospital.

Dr J. B. McDougall, medical director of British Legion Village, said that too much attention had been paid to the medical aspects of tuberculosis and too little to the economic. After-care committees failed for lack of financial support. The village settlement, as exemplified at Papworth, sold annually about \$1,000,000 of goods to the public, and \$250,000 was paid in wages to ex-patients. This might be regarded as ideal, but local authorities were deterred by financial considerations from establishing them. In the village settlement the family as a whole was cared for as carefully as the patient.

### AFTER-CARE

Miss Edith McGaw, honorary secretary to the Paddington Tuberculosis Dispensary, insisted that the care committee was an integral part of the tuberculosis dispensary. Yet there were only 150 care committees to the 750 dispensaries in the country. Tuberculosis was a many-sided social problem as well as a medical one. The family, not the individual patient, was the unit. The rehabilitation of the patient's home was as essential as the treatment of its members. The members of care committees could give help in the homes by instruction in cooking, advice regarding the amount of clothing desirable, and other matters. Assistance was often needed as regards home work, and handicraft classes should be encouraged.

### The Sterilization of Mental Defectives

The Mental Hospitals Committee of the London County Council has decided by a majority to recommend that mental defectives be permitted to offer themselves voluntarily for sterilization. The decision followed consideration of a recommendation of the Ministry of Health to the committee. It is understood that sterilization is to be applied only to patients who are likely again to be able to take their places in the community after leaving institutions and to transmit their defects. The vote was 23 to 11. For the first time since the socialists have obtained control of the London County Council, the party whips were taken off and so the vote was a free one.

### PARIS

(From Our Regular Correspondent)

June 6, 1934

### Dangers of Barbituric Acid Derivatives

Injections of strychnine to combat the toxic effects of barbituric acid derivatives, according to the Idd method, are accepted today in France as the only remedy offering any chances of success. The conclusion has been reached that there is a pharmacodynamic antagonism between strychnine and the barbiturates. Carriere, Huriez and Villoquet have experimented on animals, examining the lesions found at necropsies, and have raised a protest against the commonly accepted view. In experimental animals they discovered grave lesions of the kidney, the liver, the lung and the nerve centers, which no medicinal action eliminated. Carriere does not think there is an antagonism between strychnine and the barbiturates. On the contrary, he found that poisonings due to the two substances may be superimposed each of the substances exerting totally different effects on the nervous system. Furthermore, the good results ascribed to the Idd method are far from constant. There are a number of failures, which are not due solely to the dose of ingested toxin but partly to the peculiar predisposition of the subject. In case of suicide due to an overdose, the subject though often an addict to barbiturates, may develop hepatic lesions that lower resistance and which strychnine will not overcome. In cases in which strychnine has given good results, it is never the only remedy.

used, often the practitioner resorts to venesection, injections of serum with dextrose, epinephrine, camphorated oil and inhalations of oxygen. Carriere states that one may use strychnine, since no remedy should be neglected in the presence of the danger of death, but it should not be relied on or be the sole remedy. The practitioner must use conjointly all other remedies and not be surprised if they fail, especially if he is dealing with persons addicted to barbiturates. In operating on animals, Carriere secured excellent results with intravenous injections of coramin and a 30 per cent solution of alcohol. He recommends applying this remedy to man.

### The General Association of Physicians of France

The Association generale des medecine de France, which is not concerned with scientific questions but rather with professional problems and the providing of mutual aid for physicians, held recently its seventy-second general assembly. The association has vast resources derived from numerous bequests of benefactors. It provides places of retirement for its aged members no longer able to practice their profession, and aid for physicians who are bereft of resources (or cares for their widows), even though they are not subscribing members of the association. The general secretary, Dr. Lutaud, announced that the association is prosperous. He described the services that it renders and emphasized the value of preserving close relations with the medical syndicates. Formerly there was a feeling of rivalry between the association and the syndicates, but today the relations are cordial. The association has relinquished to the medical syndicates, whose meetings are more frequent, many questions that formerly overloaded its program and which it was not in as good a position to solve as were the syndicates. The secretary, in concluding his remarks, advised all physicians of France to be loyal to both the association and the local syndicates. The assembly adopted a resolution in favor of suppressing the special tax termed "patente," imposed on certain liberal professions (physicians and lawyers) and which, proportioned according to the amount of house rent paid by the taxpayer, without taking account of the relative family expenses, rests heavily on the profession. The assembly rejected the proposal of Perrin of Nancy, who suggested that this tax (patente) be applied also to physicians who are not engaged in actual practice but who occupy posts as directors of sanatoriums and various institutions and are now exempted.

### The Forty-Seventh Congress of Ophthalmology

The Congress ophthalmologie de Paris, always well attended, was the occasion for presenting a wide range of topics, which give a survey of the present status of ophthalmology. In addition, a single main topic was treated in a paper presented by Cherod and Nataf of Tunis on 'Biopsy of the Normal and Pathologic Conjunctiva'. Examination with the slit lamp facilitates the study of microscopic phenomena in living subjects. In this manner one may study the mechanism of the formation of lesions of the cornea, iris and crystalline lens and even of the vitreous body, the reactions of the tissues, the effects of traumatism and infection, and the development of local vascularization and lymphoid elements. The authors think that this marks a new era in knowledge of the mechanism of various lesions of the eye. In addition Mr. Kalt of Paris described his operative procedure for senile cataract. He extracts the cataract within its capsule. Mr. Terson of Paris discussed hypertension in glaucoma. Mr. Lacat emphasized the inefficiency of iridectomy in the glaucomatous manifestations of certain forms of choroiditis. Mr. Trantas of Athens called attention to the high frequency of glaucoma in Greece and in Turkey. Jandelize, Baudelot and Gautz (Nancy) have treated retinal detachment, without visible laceration by diathermocoagulation. Mr. Genet of Lyons reported the results

of diathermic applications to retinal cicatrices following detachment. Mr. Magitot of Paris called attention to the amelioration secured by means of pericarotid sympathectomy in certain degenerative lesions of the retina and the optic nerve. Mr. Bailliart described the role of vascular spasms in diseases of the eye. Mr. Villard of Montpellier discussed the eye dangers peculiar to each type of sport. Among other foreign speakers were Arruga of Barcelona, Poyales and Moreno of Madrid, Amat of Madrid, Marquez of Madrid, Goun of Lausanne, Fritz of Mons, Borel of Neufchatel, François of Charleroi, Kapuscinski of Posnan, and Van der Stacten and Appermans of Louvain.

### The Institute of Legal Medicine at Lille

At Lille the opening of the new institute of legal medicine, recently erected, was the occasion of a congress presided over by Professor Leclercq, director of the institute, which was largely attended by medicolegalists of the north of France and by delegations of specialists from Paris and foreign countries. Balthazard Guibert and Piedelievre of Paris, Firket of Liege, Zangger of Zurich, Tullio and Salvatore Diez of Rome, Lattes of Pavia, Georgiades of Athens, Ribero and Ciala of Rio de Janeiro, Stanesco of Bucharest, and Amot and Vervaeck of Brussels. The arrangements and equipment of the institute enable investigators to devote themselves not only to traditional legal medicine but also to its newer branches: criminal anthropology, research on penitentiaries, occupational medicine and psychopathologic examinations of delinquents. The institute will serve not only as a research center but also as a school for the training of medicolegalists. In the opening address, Professor Leclercq stressed the evolution of legal medicine and the importance of psychophysiologic examination of delinquents. Papers were presented on the contradictory results of expert mental examinations, on social defense and on criminal prophylaxis, and the like by Professors Raviart and Vullhan of Lille, Professor di Tullio of Rome (a pupil of Lombroso), Professor Balthazard of Paris, and Professor Vervaeck of Brussels.

### BERLIN

(From Our Regular Correspondent)

June 4, 1934

### Meeting of the German Roentgen Society

The Deutsche Röntgengesellschaft has been reorganized in accordance with the "leader" principle. The new director is Friß of Berlin. At a session of the society in Baden-Baden, April 14-15, Forssell of Stockholm presented a paper on "The Motor Mechanism of the Gastric Mucosa." He explained his basis for the theory he advanced eleven years ago to the effect that the surface of the gastric mucosa is characterized by changeable features and is formed by the muscularis mucosae (under the influence of the autonomic nervous system). He presented new evidence in support of his belief. The gastric mucosa forms channels and digestive nooks, in which solid pieces of food are retained. The vessels of the mucosa may become distended but cannot form rugae.

In an address "The Real and the Apparent in Roentgenograms," H. Franke of Berlin discussed the many deceptions that may arise in the interpretation of roentgenograms, through technical and physical errors, faulty delineation shadows, errors of amplifying screens and the treatment of films, and also through optical illusions, quite apart from the erroneous interpretations due to lack of experience and critical judgment. He emphasized that there is no common agreement as to what roentgen apparatus and tubes are best for certain purposes.

A number of papers dealt with roentgen kymography, which is superior to kinematography. It enables the examiner to obtain a graphic registration of motions and their course in

point of time In the heart, synchronous registrations of the arterial pulse, the apical beat and the heart margin pulsations, together with a time analysis of the heart cycle, may be made By means of kymography, the value of which was emphasized by the papers of Stumpf and Bickenbach of Munich, the cardiac apex is more easily located in connection with heart measurement, likewise the dividing line between the left ventricle and the left auricle and pulmonary arteries Kymography aids also in the diagnosis of aortic defects, likewise in the differential diagnosis between aneurysm and tumor The method is useful in dealing with the kidneys, ureters and stomach, it likewise gives information on the position and extent of adhesions and contraction of lungs in connection with collapse treatment of pulmonary tuberculosis, also in cardiac infarct

A paper was presented by Fichera of Milan on his method of biologic treatment of cancer, which is the result of years of study on the biology of cancer in connection with clinical observations The fact that many organs seldom develop cancer metastases, that their absence furthers the growth of tumors and that their implantation checks such growth was utilized Logical application of such biologic observations, together with carefully planned imitation of natural defense processes, led to the injection of corresponding organ extracts, with the result that, of 160 inoperable tumors, 9 per cent retrogressed entirely and 8 per cent partially By simultaneous application of radiologic therapy the effects are improved, since the action of the two different agents on the tumor tissue has much in common By means of microscopic sections, Fichera showed the retrogression in the tumors during the treatment During the discussion various opinions were expressed, and some were not favorable In any event, more observations should be made

Other papers dealt with the cancer problem, partly with statistics and partly with the results of irradiation in carcinomas of various organs Technical questions were considered and observations in several cases were reported The outcome of short wave therapy in a number of cases was announced In contrast with former conditions, new apparatus has achieved good results even in inflammatory gynecologic disorders Specific effects of short waves in the treatment of malignant tumors were denied and such apparent effects were explained as due to the action of heat

#### The Effects of Nicotine

In connection with the success of the Deutsches Tabakforschungsinstitut in Forchheim, with the cultivation of tobacco plants with a reduced nicotine content, it is time for the medical profession to raise the question as to whether nicotine should not be renounced in the interest of public health Dr Stroo-mann discussed these questions before the medical society of Frankfurt-on-Main Nicotine is a poison which, acting on the vegetative nervous system, exerts an irritative and also stimulative effect before it paralyzes If the right kind of tobacco is selected and the method of smoking is correct (no inhaling, observance of proper intervals, discarding of the stump, in which a 11-13 per cent enrichment occurs), the stimulative effects of nicotine will usually predominate over the narcotic effects, for example, smoking often promotes digestion, through the excretion of epinephrine it may possibly have a stimulative influence on the circulation through its psychic influence it may affect work output concentration, mood and fatigue The abstinence manifestations (languor, irritability, restlessness, headache, indigestion) are usually of a moderate type, genuine addiction is extremely rare That smoking is habit forming has not been proved by animal experimentation although it has been shown to be probable In the detoxication process the liver plays a special part Of the injuries resulting from immoderate and improper smoking cardiac and vascular disorders are important Severe damage to the coronary vessels,

which occurs clinically in about 28 per cent of smokers, has received a satisfactory explanation through Professor Reim of Gottingen In the dog, nicotine produces an unequivocal marked vasoconstriction of the coronary vessels Heavy doses occasion the well known increase of blood pressure, with simultaneous increase of the heart beat That signifies, however, stimulation of the heart to make undue efforts, while, at the same time, the coronary arteries are suppressed—a catastrophe Coronary infarct of purely vasomotor origin is assumed In association with nicotine gangrene in a juvenile smoker, he found a certain constitutional narrowing and thinness in the walls of the vessels A sure explanation of the predominant injury of vessels of the extremities and the viscera cannot be given as yet In any event, importance attaches to the condition of the corresponding sympathetic ganglions Spastic injury over a long period, due to nicotine, may prepare the way for later anatomic narrowing of the vessels Increase of blood pressure in man as a result of nicotine must not be over-emphasized The transitory increase of pressure due to excretion of epinephrine as a result of nicotine must be regarded as more important Frequent occurrence of bronchial carcinoma in smokers appears possible Gastritis with superacidity and supersecretion is frequent in association with acute abuse of smoking, in chronic abuse of tobacco, anacidity occurs Cases of ulcers in juvenile smokers appear to be assured The increase of blood sugar resulting from nicotine in diabetic persons is so slight that it has no practical value Increase of basal metabolism through action on the thyroid is assumed clinically The enjoyment of smoking lies chiefly in the taste and secondarily in the odor, the influence of ocular perception is overestimated Acute poisonings due to nicotine have increased in recent years, since high concentrates of nicotine can be bought as insecticide, without a "poison" label

#### Nutritional Treatment of Diabetes Mellitus

According to Naunyn and others, the principal task in the dietetic treatment of diabetes mellitus lay in a restriction of the carbohydrates and proteins, with occasionally generous additions of fat Stolte, however, gives diabetic children carbohydrates up to normal requirements, comparatively little fat and an average quantity of proteins, but at the same time, insulin until aglycosuria is established A similar procedure in dealing with adult diabetic patients, as W Ercklentz of Breslau now reports, showed the favorable effects of this diet The notable increase in the carbohydrates requires no proportionate increase of insulin, for example, patients who, with 50 Gm of carbohydrates, required 70 units of insulin, needed only 120 units when the carbohydrate was increased to 500 Gm Thus far the following results have been attained The sharp increase of carbohydrates is highly appreciated by the patient and is well borne, the rise in the blood sugar is balanced by an increase of insulin The amount of insulin required for the elaboration of the increased quantity of carbohydrates is much less than would be expected from the amount of insulin required with the ingestion of the smaller quantities of carbohydrates Following a prolonged administration of large quantities of carbohydrates, a gradual improvement in the state of metabolism becomes evident, which enables the practitioner to reduce materially the insulin dosage and occasionally to omit it entirely for a time

#### Deaths in the Early Morning Hours

The observation that a high percentage of moribund persons die during the early morning hours has been inquired into by Dr Jusatz and Dr Eckhardt, of the hygienic institute at the University of Marburg, and the results of their inquiry were reported recently in the *Münchener medizinische Nachrichten* A comparison was made between 3,294 deaths occurring during

the past six years in Marburg, on the one hand, and 3,769 deaths from Rostock and 1,444 deaths from Kovno (Lithuania). Suicides and deaths due to accident were not considered. In all the statistics there was a general agreement that the greatest number of deaths occurred in the early morning hours, while the smallest number at night is around midnight. The same course of events occurred ninety years ago. The smallest number of deaths during the twenty-four hours occurs at noon—in Rostock around 11 o'clock. In the afternoon there is considerable variation in the curves. An explanation of the connection between the daily course of mortality and physically measurable periods of time would be of great biologic interest. It may be noted with reference to the daily fluctuations of electrical conductivity that the maximums lie between 4 and 5 o'clock in the morning and the minimums in the midday hours.

#### A New Outbreak of Psittacosis

In the *Reichsgesundheitsblatt*, Prof. J. Fortner and R. Pfaffenberger report from the Institut für Infektionskrankheiten Robert Koch, Berlin, a new outbreak of psittacosis. Since the beginning of 1934 Germany has had a recrudescence of cases of psittacosis in man. According to reports sent to the Robert Koch Institute there have been seventeen familial outbreaks so far this year, fourteen of which were in Berlin. The total number of cases is forty-two, ten of which were fatal. In seventeen instances, investigators found the causative agent in parrots that had recently been furnished by bird dealers. The birds that carried the virus were all apparently well except one.

#### ITALY

(From Our Regular Correspondent)

May 15, 1934

#### The Blood Sugar Curve in Mental Diseases

Dr. Telatin has made a comparative study of the blood sugar and of the sugar of the spinal fluid following the administration of 1 mg. of epinephrine, in mental patients. Discussing before the Accademia delle scienze mediche e naturali di Ferrara his results, the author, who made use of the Folin-Wu procedure, called attention to a characteristic spinal fluid sugar curve of dementia praecox. An ascending curve was observed in all patients studied. In epileptic patients the curve is almost constantly ascending and without interruptions. In dementia praecox patients, however, Telatin found constantly a negative curve, and as the blood sugar was increased the spinal fluid sugar was lowered, the lowest value being observed at the moment when the blood sugar reached its highest point. From that moment the spinal fluid sugar increased slowly, until it reached and exceeded the index that it presented at the beginning of the test.

#### The Academy of Medicine of Turin

The recent session of the Accademia di medicina di Torino opened with Professor Tirelli in the chair. Angioleri recalled the various forms of constitutional and hereditary hemorrhagic diathesis and described the fundamental characteristics of Osler's disease, or familial hemorrhagic angiomatosis. These characteristics consist in the transmission of the morbid syndrome as the expression of a dominant character, in the appearance of mucous and cutaneous hemorrhages, or in the presence on the skin or on the mucosae of smooth angiomas of various size. At the base of the symptomatology lie certain lesions of the connective tissue and of the mesenchymal apparatus of the skin. Also the blood vessels appear changed—so much so as sometimes to appear constituted solely of endothelium which is supported by tissue of normal quality. The etiology of this rare form of familial hemorrhagic diathesis is unknown, and the treatment is symptomatic.

Pioliti described the results of the administration of arsphenamines in large doses to persons overnourished with carbohydrates and subjected to the action of insulin. This method produces a notable increase in the tolerance of the organism for arsenical therapy. The speaker interprets the action of the insulin, and of many other substances that serve the same purpose, as an action designed to save the protein substances of the liver, on which devolves the normal antitoxic function.

Bobbio reported the results of researches on the permeability of the lymph glands invaded by tuberculosis. As a result of a tuberculous invasion, one observes in the lymph glands changes in the lymphatic circulation, and the persistence of a certain degree of permeability is demonstrated by the absorption of India ink injected into adjacent areas. The entity of the lymphatic current is diminished in relation to the diminution of the functioning lymphatic tissue, and the velocity of the current is diminished by the obstruction occasioned by the discontinuity that is created in the lymph paths through the irregular invasion by the tuberculous process.

Battistini and Herlitzka announced the results of studies on the behavior of the blood sugar and the urinary sugar following subcutaneous injections of phlorhizin, whether with a burdening test or otherwise. In healthy persons they always found that the urinary sugar varied within wide limits and independent of the blood sugar values, which shows that phlorhizin induces a notable increase in the difference between the capillary and the venous values. This leads to the supposition that phlorhizin increases the fixation potency of the peripheral tissues through the dextrose.

#### Recent Developments in the Anemias

Dr. Di Guglielmo presented recently before the Società medico-chirurgica di Catania a communication on the anemias. Since the almost complete disappearance of chlorosis, there remain in the large group of anemias only two types that are not secondary: pernicious anemia and essential hypochromic anemia. The last mentioned type, which has been known only a few years, is characterized by hypochromia, microcytosis and gastric achylia or anachlorhydria. Pernicious anemia and essential hypochromic anemia, while entirely different from the hematologic point of view, have gastric achylia in common, which, however, is to be regarded as also of a different nature, for the action directed against pernicious anemia, which is secured with meat predigested in vitro by the gastric juice of a patient with essential hypochromic anemia, is completely lacking when one uses the gastric juice of a patient with pernicious anemia. Hence, in the present state of knowledge of the subject it can only be stated that the two morbid processes belong to the group of achylic anemias, which must be studied now more profoundly.

Essential hypochromic anemia, in contradistinction to the pernicious type, is not affected by the action of liver preparations, although it may be cured by the use of iron in heavy doses orally.

#### Use of Therapeutic Products

The Public Health Service recently sent a circular letter to the prefects establishing rules governing the application to man of new therapeutic products not yet offered for sale on the public market. Heretofore it has been held by many that such application might be made, provided it was done by a physician, on his own responsibility. According to the new rulings, the prohibition of sale to the public of medicines and preparations to which are attributed specific curative and prophylactic properties presupposes also the prohibition of free application to man until there has been secured the registration prescribed by the regulations pertaining to serums, vaccines and medicinal specialties, and until the formula and the mode of employment

have been announced and approved. Authorization is to be intrusted to the minister of the interior. When it is a question of remedies or treatments that are to be kept secret, the authorization is dependent on the conditions that the application be gratuitous, be effected in public institutions on the written consent of the patient, and that a report be sent to the provincial health officer on the results secured.

The circular letter contained also regulations concerning the advertising of remedies for the prevention and treatment of disease. The insertion in newspapers of notices or correspondence referring to special procedures for the prompt and radical treatment of malignant tumors, tuberculosis, venereal infections and all those diseases for which no quick cure has as yet been discovered is prohibited. The proper place for scientific communications of this type is the medical congress and the medical journals.

#### Pathology of the Intervertebral Disks

A recent meeting of the Societa Piemontese di chirurgia was devoted entirely to the pathologic aspects of the intervertebral disks.

Camera took up the question of the pathogenesis of the symptom complex. According to the speaker so called kyphosis of adolescents should be regarded as an epiphyseal dystrophia. The calcification of the nucleus pulposus is not to be regarded as a pathogenetic peculiarity but must be considered as an expression of a local, changed calcium metabolism due to the existence of an involvement of the disks.

Dogliotti reported his observations on 120 cases of spinal algias. Teneff reported his observations in cases in which there were lesions on an intervertebral disk between the fourth and fifth lumbar vertebrae and between the fifth vertebra and the sacrum, in which there was a frank monolateral peripheral sciatic symptomatology of funicular origin but without any symptoms of lumbago arthritis. He believes that in such cases the pathogenesis of the ischialgia is in mechanical, circulatory or inflammatory changes in the intervertebral foramina following changes in the intervertebral disks.

The same speaker, on examination of 600 roentgenograms of the spinal columns of patients who presented an intervertebral pain symptomatology, found a case of hernia intraspongiosa of the disk.

A case of lesions of the intervertebral disk due to gonococcal infection was described by Lucca. He observed in a woman aged 73 a lesion that he regarded as a calcified hernia of the body of a vertebra.

### Marriages

ARCHIBALD CORY RANDOLPH to Mrs. Rebecca Dulaney McElhone, both of Upperville, Va., June 2.

JEROME J. BREDALL Perryville, Mo., to Miss Mary Katherine Lacey of St. Louis, June 30.

EDWIN JAMES RENNELL, Manistee, Mich., to Miss Mary Foster of Traverse City, June 2.

JONAS B. RAYMAN Toledo, Ohio, to Miss Lila Tobin of Miami Beach, Fla., May 22.

JOHN B. TUTTLE to Mrs. Minnie H. Buchanan, both of Craigsville, Va., June 7.

SIMON YOUNG SALTMAN, Chicago, to Miss Goldye Lazarus of Brooklyn, July 1.

NORMAN E. FISHER, Toledo, Ohio, to Miss Jeanne Littwitz of Dayton, May 30.

SIMON S. RUBIN Chicago to Miss Anna Chesney of Philadelphia, May 25.

HOWARD G. BRUSS to Miss Catherine White, both of Toledo, May 30.

DARRELL C. CRAIN JR., Washington, D. C., to Miss Louise Moore, July 12.

### Deaths

**Robert Gibson Eccles** of Brooklyn, Long Island College Hospital, Brooklyn, 1881, member of the American Association of Anatomists, professor of organic chemistry and dean, Brooklyn College of Pharmacy, at one time chemist to the United States Department of Indian Affairs, past president of the New York Pharmaceutical Association and the chemical section of the Brooklyn Institute of Arts and Sciences, author of 'Food Preservatives, Their Advantage and Proper Use,' and others, also monographs on medicine, pharmacy and scientific subjects, aged 86, died, June 9, in St. John's Hospital of injuries received when he was struck by a street car.

**Frank Anderson Overbay** of New Orleans, Tulane University of Louisiana School of Medicine, New Orleans, 1914, assistant professor of ophthalmology, Louisiana State University Medical Center, fellow of the American College of Surgeons, visiting ophthalmologist to the Toussaint Infirmary, 1914-1918, senior ophthalmologist to the Presbyterian Hospital 1918-1924, senior ophthalmologist to the French Hospital senior associate ophthalmologist to the Southern Baptist Hospital and visiting ophthalmologist to the Charity Hospital, aged 51, died suddenly, May 10, of heart disease.

**Fred Albert Simmons**, Boston, Columbia University College of Physicians and Surgeons, New York, 1903, member of the Massachusetts Medical Society and the New England Otolaryngological and Laryngological Society, at one time instructor in otology, Harvard University Medical School, veteran of the Spanish-American and World wars, formerly on the staffs of the Massachusetts General Hospital and Massachusetts Eye and Ear Infirmary, aged 56, died May 27, of hypertension, arteriosclerosis and dissecting aneurysm of the aorta.

**Herman Campbell Stevens** of Elyria, Ohio, Rush Medical College, Chicago, 1913, past president of the Lorain County Medical Society, research fellow in experimental medicine, Western Reserve University, Cleveland, since 1928, physician for the American Red Cross during the World War, assistant professor of neurology, University of Illinois College of Medicine, Chicago, 1918-1919, aged 55, formerly on the staffs of St. Luke's Hospital, Cleveland, and the Elyria Memorial Hospital, where he died, May 27, of pneumonia.

**Chester Allen Amos** of Alexandria, Va., University of Virginia Department of Medicine, Charlottesville, 1917, formerly professor of histology and embryology, Georgetown University School of Medicine, Washington, D. C., served during the World War on the staff of the Alexandria Hospital, aged 41, was killed, June 10, when the automobile in which he was driving was struck by a train.

**Edward Danforth Keyes**, Winona, Minn., Rush Medical College, Chicago, 1885, president of the American Association of Railway Surgeons, member of the Minnesota State Medical Association, past president of the Winona County Medical Society, formerly health officer of Winona for many years on the staff of the Winona General Hospital, aged 75, died, May 21, of cerebral thrombosis.

**Hjalmar Ostrom** of Quincy, Mass., John A. Creighton Medical College, Omaha, 1911, missionary to the Belgian Congo for seventeen years representing the American Baptist Foreign Missionary Society, aged 52, died, May 24, in the New England Baptist Hospital, Boston, of peritonitis and hemorrhage, following subtotal gastrectomy.

**Everett Augustin Lockett** of Winston-Salem, N. C., University of Pennsylvania School of Medicine, Philadelphia, 1902, fellow of the American College of Surgeons, served during the World War, on the staffs of the City Memorial and North Carolina Baptist hospitals, aged 55, was found dead, June 26, of angina pectoris.

**Nicholas Vincent Walsh**, Staten Island, N. Y., Long Island College Hospital, Brooklyn, 1918, member of the Medical Society of the State of New York, on the staff of St. Vincent's Hospital, aged 45, died, May 25, at Deal Lake, N. J., of hypertension, and heart disease.

**Albert De Forest Wickett**, Ann Arbor, Mich., University of Michigan Medical School, Ann Arbor, 1917, formerly assistant professor of internal medicine at his alma mater, on the staff of St. Joseph's Mercy Hospital, aged 44, died suddenly, May 1, of coronary thrombosis.

**Harry Michael Hepperlen** of Beatrice, Neb., Keokuk (Iowa) Medical College, 1891, Jefferson Medical College of Philadelphia, 1896, fellow of the American College of Surgeons, on the staff of the Lutheran Hospital, aged 66, died May 5, of carcinoma of the prostate.

**Eugene Kneeland Smith**, Lovelock, Nev., Medical Department of the University of California, San Francisco, 1904, served during the Spanish-American and World wars, formerly medical superintendent of the Lovelock Hospital, aged 54, was killed, May 16, in an automobile accident

**Harry Arthur Vosburg Jr.**, Du Bois, Pa., Jefferson Medical College of Philadelphia, 1912, member of the Medical Society of the State of Pennsylvania, on the staffs of the Du Bois and Maple Avenue hospitals, aged 44, died, May 18, of acute hemorrhagic nephritis

**Samuel Wellington Irving** ♂ New Britain, Conn., Yale University School of Medicine, New Haven, 1891, past president of the Hartford County Medical Society, aged 73, on the staff of the New Britain General Hospital, where he died, May 8, of coronary occlusion

**Walter Baer Weidler** ♂ New York University of Pennsylvania School of Medicine, Philadelphia 1898 formerly on the staffs of the Sharon (Conn.) Hospital Flushing (N. Y.) and Nassau Hospital, Mineola, aged 60, hanged himself, June 22

**William S. Davis**, Detroit, Medical College of Ohio Cincinnati 1890, veteran of the Spanish-American War, at one time health commissioner of Vigo County, Indiana, aged 68, died, June 2, of cerebral embolism and chronic myocarditis

**Frederick Rhinhart Dorn**, Echo Ore, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903, member of the Oregon State Medical Society, aged 63, died, April 4, of heart disease

**Herman Bocken** ♂ Harlan Iowa, University of Nebraska College of Medicine, Omaha, 1911, past president of the Shelby County Medical Society county coroner, on the staff of the Harlan Hospital, aged 46 died, June 10, of pneumonia

**Ernest Oliver Winship** ♂ New London, Conn., University of Vermont College of Medicine, Burlington, 1900 on the staff of the Lawrence and Memorial Associated Hospitals, aged 58, died, June 1, of carcinoma of the liver

**Saul Steiner**, New York University of Bucarest School of Medicine, Bucarest, Roumania, 1901 on the staffs of the Westside Hospital and Dispensary and the Broad Street Hospital, aged 62, died, June 10, of heart disease

**David Edward Bowman**, Toledo, Ohio University of Michigan Medical School, Ann Arbor, 1881 member of the Ohio State Medical Association, aged 77, died, June 21, of lobar pneumonia and intestinal obstruction

**David Christian Batson**, Birmingham Ala., University of Nashville (Tenn.) Medical Department 1905 member of the Medical Association of the State of Alabama aged 56, died May 17, of a self inflicted bullet wound

**William H. Pallett**, Crete Neb., Kansas City (Mo.) Medical College, 1898, served during the World War for twenty-five years member of the school board, aged 63, died, June 19 of cerebral hemorrhage

**John H. Reagan**, San Antonio Texas (registered by Texas State Board of Medical Examiners, Act of 1907), member of the State Medical Association of Texas, aged 64 died suddenly, June 22, of heart disease

**Harrie Milton Gardner**, Cambridge, Mass. University of Vermont College of Medicine, Burlington 1895, member of the Massachusetts Medical Society aged 64, died May 11, of cirrhosis of the liver

**William Fletcher Penn** Tuskegee Ala., Yale University School of Medicine, New Haven Conn. 1897 connected with the Veterans Administration Facility aged 62 died, May 31, of chronic myocarditis

**Elbert L. Huestis**, Colorado Springs, Colo. Medical College of Ohio Cincinnati 1888, aged 71 died May 8, in the Modern Woodmen of America Sanatorium, Woodmen, of pulmonary tuberculosis

**Charles G. Parker**, Gallipolis Ohio Medical College of Ohio Cincinnati 1888 member of the Ohio State Medical Association for many years coroner aged 76, died June 12 of heart disease

**Samuel Johnson Stewart** ♂ Seattle Hahnemann Hospital College of San Francisco 1897, Medico-Chirurgical College of Philadelphia, 1901, aged 71 died May 14 of arteriosclerosis and heart disease

**Herbert Harmon Purinton** ♂ Somersworth N. H. Medical School of Maine Portland 1891 member of the Massachusetts Medical Society aged 69 died June 7, of diabetes mellitus

**William W. Pirkle**, Cumming Ga. Atlanta Medical College, 1897 member of the Medical Association of Georgia,

formerly mayor, aged 64, died suddenly, June 8, of heart disease

**John P. Neely**, New London, Mo., College of Physicians and Surgeons, Keokuk, Iowa, 1877, formerly county coroner, aged 80, died, March 31, at Palmyra, of cerebral embolism

**Raymond Hayes Spence**, Painesville, Ohio, Miami Medical College, Cincinnati, 1901, aged 58, died, May 28, in the Lake County Memorial Hospital, of coronary occlusion

**Clarence James Whalen**, Utica, N. Y., Syracuse University College of Medicine, 1904, on the staff of the Faxon Hospital, aged 52, died, May 21, of lobar pneumonia

**Alexander Patterson**, Oakland, Calif., Cooper Medical College San Francisco, 1893, served during the World War, aged 70, died, May 29, of arthritis and pneumonia

**Edward Frank Partello**, Detroit, Dutton Medical College, Chicago, 1899, veteran of the Spanish-American War, aged 69 died, June 17, of cardiovascular renal disease

**Joseph H. Hindman**, Humboldt, Kan., Kansas Medical College, Medical Department of Washburn College, Topeka, 1895 aged 61, died, May 27, of spinal sclerosis

**Alvah Negus**, Keswick, Iowa, State University of Iowa College of Medicine, Iowa City, 1906, served during the World War, aged 68, died, April 15, of encephalitis

**Joseph Montgomery Slaughter**, Van Alstyne, Texas, Tulane University of Louisiana Medical Department, New Orleans, 1904, aged 53, died May 10

**Charles Chandler Farmer**, Centralia, Mo., University of Missouri School of Medicine Columbia, 1898 aged 61 died, May 25 of acute edema of the lungs

**Bernard M. Ross**, Holland Mich., Eclectic Medical Institute, Cincinnati, 1882, aged 74, died, May 21, of pulmonary edema and multiple spinal sclerosis

**John Edgar Walsh** ♂ Washington, D. C., Columbian University Medical Department Washington, 1890, aged 69, died, June 22, of cerebral hemorrhage

**Jacob Mendelsohn** ♂ New York Columbia University College of Physicians and Surgeons, New York 1922, aged 33, died, May 8, of tuberculosis

**Aaron W. Snyder**, Indianapolis, Central College of Physicians and Surgeons, Indianapolis, 1901, aged 81, died, June 13, of cystitis and chronic prostatitis

**James Lupton Neave**, Zanesville, Ohio Miami Medical College Cincinnati 1874, aged 84, died, June 17, in the Good Samaritan Hospital, of senility

**Elhu Duane Tallman**, Covert, Mich. University of Michigan Medical School, Ann Arbor, 1882, aged 79, died, June 6, of chronic myocarditis

**Charles Cecil Huff**, Homestead, Pa., University of Michigan Homeopathic Medical School, Ann Arbor, 1881, aged 79, died June 12, of heart block

**William Brownlow Spoon**, Morristown, Tenn., Chattanooga Medical College, 1893, aged 69, was killed, May 27, in an automobile accident

**John Phillip Ott**, Columbia, S. C., Medical College of the State of South Carolina Charleston, 1878 aged 79, died, April 29, of heart disease

**Benjamin Baumoehl**, New York, University and Bellevue Hospital Medical College, New York, 1913, aged 44, died, May 18, of myocarditis

**Carmen Frank Russo**, Chicago University of Illinois College of Medicine, Chicago, 1931, aged 32, died, May 25 of pulmonary tuberculosis

**Henrietta A. Buchanan**, Cincinnati Woman's Medical College of Cincinnati, 1894, aged 79, died June 11, of chronic interstitial nephritis

**Dodson Ramseur Schenck**, Greenville, S. C., Jefferson Medical College of Philadelphia, 1883, aged 73, died, June 7, of angina pectoris

**Norman M. Spradley**, Boonville, Ind. Louisville (Ky.) Medical College, 1890, aged 73, died, June 4, of cerebral arteriosclerosis

**John H. Stigall**, Burnside Ky. University of Louisville School of Medicine, 1889, aged 72 died May 28, of cerebral hemorrhage

**Harry E. Palmer**, Dayton, Ohio New York Homeopathic Medical College, 1885 aged 76, died, May 20, of cerebral hemorrhage

**William C. Reid**, Oakland, Calif., University of Louisville (Ky.) School of Medicine, 1877, aged 80, died, May 6, of pneumonia



## Correspondence

### ESTIMATION OF VITAMIN C

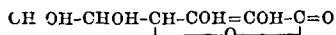
To the Editor—I enjoyed reading the editorial on the estimation of vitamin C in *THE JOURNAL*, June 2. May I call your attention to one sentence in the first paragraph, which states that vitamin C is clearly recognized as one of the hexuronic acids. This is, I believe, an error of chemical description.

R. B., New York

NOTE—Our correspondent is quite correct in pointing out that ascorbic acid, now identified with vitamin C, can no longer be regarded as one of the hexuronic acids, since its structure has been clearly demonstrated. E. H. Farmer (Annual Reports on the Progress of Chemistry for 1933, p. 167) says: "Szent-Gyorgyi's compound is not a member of the uronic acid class and has been renamed ascorbic acid." This statement is evidently based on an article by Haworth and Szent-Gyorgyi (*Nature* 131:24, 1933) in which it appears that

in view of the fact that (1) hexuronic acid is the name of a class of substances rather than that of one individual compound and that (2) the material described as a hexuronic acid isolated from adrenal cortex and now from Paprika contains a molecule of water less than is required for a hexuronic acid, we wish to ascribe the name ascorbic acid to the crystalline substance  $C_6H_8O_6$  which has been the subject of earlier communications from our laboratories.

The uronic acids, of which glycuronic acid is a typical example, have the empirical formula  $C_6H_{10}O_7$ . They contain both an aldehyde and a carboxyl group. The formula for ascorbic acid is



(Compare Hirst and others, *J. Chem. Soc.*, 1933, pp. 1270, 1419, 1564, 1934, p. 62)—ED

### TINTED LENSES IN OPHTHALMOLOGY

To the Editor—I congratulate W. W. Coblenz for calling attention to the unproved theories and extravagant claims made by certain manufacturers concerning tinted lenses. In his effort to emphasize his criticism, however, I feel that he has gone too far in creating the impression that tinted lenses are without merit. Tinted lenses have a definite and positive therapeutic value in many ocular diseases. I base this statement not on theory but on practical experience in prescribing tinted lenses for many purposes over a period of many years and on the answers to a questionnaire recently addressed to prominent ophthalmologists throughout the United States. The replies are all from ophthalmologists certified by the American Board of Ophthalmic Examinations and from eye surgeons in various sections of the country, representing a cross section of the ophthalmic profession. A great majority of these recommend the use of tinted lenses for the following diseases of the eye: acute, subacute and chronic conjunctivitis, chronic blepharitis, blepharospasm, vernal conjunctivitis, trachoma, phlyctenular conjunctivitis, keratoconjunctivitis, interstitial keratitis, iritis, iridocyclitis, incipient cataract, postoperative cataract, uveitis, scleritis, neuroretinitis, retinitis, retinitis pigmentosa, retinal hyperesthesia, optic neuritis, myopia, aniridia, photophobia, albinism, and blond approaching albinism.

There is added to this long list of diseases the following persons who are generally nervous (sympatheticotonia): those engaged in occupations requiring exposure to sunlight or constant, bright, artificial light; automobile driving; exposure to sunlight, reflection from sand, water and highways. To these I add my own suggestion—persons wearing moderate and high grade myopic lenses.

My chief complaint is based on Coblenz's evaluation of tinted lenses purely on their physical properties resulting from 'test tube' experiments, that he has failed to give consideration

to the many disease conditions of the eye, and that he has regarded the human eye as a camera and has failed to realize that vision is concerned not only with the eyeball itself but with the central nervous system, particularly a sympathetic nervous system and a series of visual centers and subcenters in the brain, all of which react directly or indirectly under the influence of light.

Judging that Coblenz has based his remarks in *THE JOURNAL* of April 14 on another article published in the *American Journal of Ophthalmology* in October 1932, I take it that his analysis of the value of tinted lenses is based on their transmission properties. From a laboratory standpoint his assumption is true, but only in the use of tinted glasses for industrial purposes to protect the eye from ultraviolet rays used in industries and from infra-red rays in occupations under great heat. He has arrived at the conclusion without proof that a tinted lens in order to eliminate glare must be so dark that it would reduce considerably visual acuity and would be impossible for use at night.

I wish to correct this error. There is a definite physiologic and pathologic disturbance of the retina known as hyperesthesia. It is just as distinct an entity as allergy of the skin in persons in whom dermatographia may be produced by mechanical irritation. Just as some persons are sensitive to heat and mechanical irritations, so the eyes of certain individuals are sensitive to light. Nearly every individual has a certain tolerance to the glare of light. This degree of tolerance varies very widely in persons of dark complexion compared with blond.

Most often pigmentation of the retinal epithelium of the eye determines the tolerance to light. For hyperesthetic individuals it is only necessary to reduce the glare in a sufficient degree to bring about tolerance to light in that particular person. Therefore it is entirely erroneous for the physicist to tell the ophthalmologist that in order to reduce glare in a given individual it is necessary to eliminate light itself. There is no intent on the part of tinted lenses to eliminate glare completely but to reduce it in such a manner as to make it tolerant. Therefore I have found in my own practice that the light tinted lenses are of great importance for constant wear in those individuals who have an unusual sensitivity to glare or to light itself.

Coblenz fails to recognize certain pathologic states of the eye that require tinted lenses in order to bring about comfort for the patient. He has failed to realize that many children with photophobia due to a supersensitive nervous system may have endocrine disturbances or infections, as in the case of chorea. These cases are greatly benefited by light tinted lenses aiming to cut down only partially the sensitivity of the retina, which in turn reduces the sensitivity of the general nervous system.

The whole matter of tinted lenses in ophthalmology needs investigation. For over a year I have been collecting data on this particular subject and am now making a detailed study which may lead to a clearer understanding from the ophthalmologist's point of view as to the need of tinted lenses in various pathologic states and in the apparently normal eye with marked reduction of pigment in the uveal tract. It is hoped that with the completion of this study there will be a more rational understanding of the indications for colored glasses.

If the manufacturers of tinted lenses have exaggerated their claims, and I believe some have, it is because the physicists, the ophthalmologists and the makers have not joined forces in determining the exact status of this type of lenses. Many thousands of people wear tinted lenses with comfort not obtainable with nontinted lenses. Many physicians wear them and defend their value. If the public has discovered the value of colored lenses for which the physicist and ophthalmologist have not yet found an explanation, then the scientist is at fault.

Cod liver oil was used for many years before it was found that vitamin A and D were the basis for its value. I am sure that the reason will soon be discovered for the use of tinted lenses for everyday use for individuals who wear them with comfort.

LOUIS LEHRFELD, M D, Philadelphia

NOTE—This letter was referred directly to Dr W W Coblentz, who replies

*To the Editor*—The function of the Council on Physical Therapy is to keep the medical profession and the public informed regarding developments in apparatus and devices having a direct application in medicine.

At the annual meeting of the Council last December I was requested to survey the advertising situation of tinted lenses. The manuscript report was read by a physicist qualified in physical optics, selected by myself, and an ophthalmologist of recognized standing selected by the Council. Both readers approved of the presentation and both thought I was too generous in my discussion and too optimistic in my conclusions regarding the advertising situation. With the approval of the Council as a whole the paper was published in *THE JOURNAL*, April 14. As was to be expected, the article has brought forth comments both favorable and unfavorable, the latter apparently based to some extent on a misconception of the aims and purposes of the survey.

While Dr Lehrfeld's discussion is ultracritical and in places is open to question (e g, dark glasses for night driving) as a whole it is constructive and is a step in the right direction. As pointed out in my earlier discussion of the subject (*Am J Ophth* 15 932 [Oct] 1932) it is the duty of researchers in ophthalmology to prescribe what is needed, instead of allowing themselves to be told by advertisers of new fangled lenses of improved merits.

A few comments on Dr Lehrfeld's paper are in order. At the outset it is to be distinctly emphasized that neither the Council as a whole, nor myself, who have become personally responsible because my name is attached to the paper, desire to give the impression that "tinted lenses are without merit."

My discussion of the tinted lens situation is confined to the advertising situation, not to the prescribing of tinted lenses to alleviate disease conditions of the eye. In accepting physical therapy devices the Council makes the broad distinction that the advertiser shall confine himself to descriptions of the construction and operation of his device, leaving diagnosis and treatment to the medical profession. If the paper apparently has failed to give due consideration to the many disease conditions of the eye it is because the reader has misunderstood the scope of the survey.

Dr Lehrfeld's enumeration of the various diseases of the eye for which tinted lenses are recommended should prove useful in future considerations relative to the use of tinted lenses for healthy and diseased eyes. But as he so aptly points out, since, for hyperesthetic individuals the shade of lens to be prescribed to bring about tolerance of light varies with the particular person it seems hazardous, at least until the subject is better understood, to use the physiologic test instead of the physical evaluation of the lens by the "test tube" method, which Dr Lehrfeld criticizes.

For the present it seems to me that the surest procedure to guard against the effects of glare is to determine the transmissive property of the tinted lens. For example, just now I am making measurements of solar ultraviolet radiation in Arizona, at altitudes of 7,000 and 11,000 feet, under an illumination of some 10,000 foot candles. The tinted lens commonly worn is a shade 3, opaque to ultraviolet and infra-red, transmitting about 14 per cent of light, visible radiation. Tem-

porarily I attempted to use another similar type of lens, apparently only slightly lighter in color. Finding that it was producing eyestrain and headache, I shipped it to the National Bureau of Standards, receiving a report that it transmitted 29 per cent visible radiation. Evidently the eyestrain was caused by the excess light transmitted.

Dr Lehrfeld's statement that "the whole matter of tinted lenses in ophthalmology needs investigation" is entirely in agreement with what I have claimed all along. My own contribution has been and will continue to be the description of the physical (transmissive) properties of tinted lenses, looking forward to the correlation, if any, of the physical properties with the physiologic observations. In the meantime Dr Lehrfeld's promised contribution to the ophthalmologic questions will be awaited with interest.

W W COBLENTZ, PH D,  
Lowell Observatory,  
Flagstaff, Ariz

### SIMULTANEOUS IMMUNIZATIONS

*To the Editor*—I am interested in the communications on simultaneous immunizations in *THE JOURNAL*, April 14, April 21 and June 2.

I was in charge of a mobile clinic in Utah from June 1928 to April 1930 for the prevention of disease. During one year I gave more than 63,000 doses of vaccine. Experience proved that a person could be immunized against diphtheria, typhoid and smallpox at the same time without more reaction than one gets from vaccine given for only one disease, as nearly as I could judge.

From April 1930 to September 1930 I served as director of the Utah County Health Unit at Provo, Utah. From September 1930 to July 1933 I served as director of Gila County Health Unit at Globe, Arizona. As deaths were occurring in Gila County from both typhoid and diphtheria and as smallpox was present I gave simultaneous inoculations for all three diseases to thousands of persons. Several schools were inoculated 100 per cent. About 10 per cent of those inoculated complained of reactions, about 1 or 2 per cent were quite ill for a day or so.

Some French observers state that a much higher percentage are made Schick negative by giving typhoid vaccine with the diphtheria toxoid.

My successor as director of the Gila County Health Unit at Globe reports that he Schick tested 350 pupils in one group and 180 in another that I had inoculated two years previously. One in seventy were Schick positive in the larger group and one in sixty in the smaller—over 98 per cent protected.

In order to avoid severe reactions in giving typhoid vaccine I believe that the dose should be carefully proportioned to the weight of the child, 0.5 cc used for the first dose and 1 cc for the second and third doses being taken as the standard for a 160 pound (72 Kg) man. The dose for a woman weighing 160 pounds should be about 20 per cent less, and any person having a sharp reaction should be given a smaller dose next time.

It was also a fact that parents would bring children for three inoculations but if one wanted them to come oftener they frequently would not do so. The children usually developed a fixed dislike to getting inoculated after three doses. If vaccines are not given simultaneously, the children usually are not protected from more than one disease.

During five years of active experience there were no fatalities, no one was made seriously ill, and no lasting ill effects were observed. But in that part of the country there are a lot of graves of persons who died of preventable diseases unprotected.

A C MCKEAN, M D, Norway, Iowa

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

### ESSENTIAL HYPERTENSION IN A YOUNG GIRL

To the Editor—Miss R. H. aged 17 came under my observation in July 1933 giving a history of high blood pressure, frequent headaches and excessive sweating. Physical examination was negative except for flushing of the face, transient erythematous mottling of the neck, slight fullness of the thyroid and a heart rate of 120. The weight was 100 pounds (45 Kg.). Urinalysis gave negative results. The basal metabolic rate on various occasions was  $-4$   $-7$   $+4$   $+4$   $-11$   $-2$   $+8$   $+3$ . A chest roentgenogram showed the lungs normal and the heart normal in size and shape. An electrocardiogram was entirely normal once and showed a flattened T wave in the second lead in a later tracing. The blood Wassermann reaction was negative, the blood nonprotein nitrogen was 31 and sugar 103. Fundus examination showed slight tortuosity of the vessels. Further roentgen studies showed a suggestion of calcification of the vessels of the forearm. The cranial vault showed evidence of increased convolitional markings, the sella turcica was small and flattened, the floor well preserved. The systolic and diastolic blood pressure fluctuates between 150/102 and 174/124. The latter blood pressure reading was taken this month, the patient feeling fine and showing a gain of 7 pounds (3.2 Kg.) over her first recorded weight. Medication with thyroid extract and phenobarbital in small doses has had no effect on symptoms or blood pressure. Is essential hypertension the only diagnosis possible? What is the probable prognosis? Please omit name.

M D New York

ANSWER—Essential hypertension is not the only diagnosis possible. In fact, essential hypertension is never a complete diagnosis, for all instances of hypertensive disease must have some etiology. When the etiology cannot be found, it is perhaps wiser to call the disturbance "hypertensive disease, etiology undetermined." This is an unusual instance of marked arterial hypertension, since it occurs in a girl so young and apparently free of objective evidence of a source or sources of intoxication.

The patient presents conspicuous evidence of marked vasomotor instability, as shown by the intense flushing and mottling of the skin, tachycardia, cephalalgia and hyperhidrosis. In part the arteriolar hypertonia may be of emotional origin, psychologic probing into the emotional life of the patient may possibly reveal intense and continuous violent conflicts. Characteristic of this form of hypertonia is the acute and violent rise in arterial tension that occurs when there is proper emotional stimulation, often a rise of from 50 to 70 mm of mercury in a few seconds is noted. These acute exacerbations are frequently accompanied by the vasomotor phenomena described. However, in the great majority of patients with purely emotional hypertension the arterial tension falls to or near normal levels when emotional calm is induced, unless the process has continued so long that progressive arterial hypertensive disease is well established.

The possibility of coarctation of the aorta must be constantly borne in mind in differentiating the etiology of hypertension in one so young as this patient. Although this congenital anomaly accounts for perhaps but one of every thousand cases of hypertension, it must not be forgotten. It may be readily ruled out by determining the arterial tension in the lower extremities, with no stenosis of the aorta this is invariably somewhat higher than in the arms, whereas in the presence of coarctation the tension in the legs is much lower.

Hyperepinephrinemia, due to suprarenal chromaffin cell neoplasms, has been found to be the explanation of a few isolated instances of severe and almost uncontrollable arterial hypertension in young persons. This rare form of hypertension of hormonal origin should show conspicuous evidences of vasomotor hyperirritability, as does the present patient. These patients frequently show disturbed dextrose metabolism and a lowered tolerance to administered dextrose. Dextrose tolerance studies on this patient are indicated.

The relation of pituitary disorders to hypertensive disease is not clearly understood as yet. That the pituitary gland secretes a hormonal pressor substance is unquestioned, but whether or not perversion of secretion or hypersecretion of this substance is clinically a frequent or significant etiologic factor in hypertension is unsettled. The data presented in the query indicate no gross evidence of pituitary change, either in the roentgenologic examination of the sella turcica or in the weight and physique of the patient. Nothing was stated about any menstrual irregularities.

The significance of the suggested calcification in the vessels of the forearm is difficult to evaluate. It has been suggested

that hypertension may be due to a hypocalcemia such as occurs in parathyropriopia. The evidence in favor of this conception is far from convincing and other studies indicate that any relationship between the blood calcium content and the arterial tension are of physiologic rather than pathologic import. At present presenile calcium deposition in the sternal cartilage is being found more and more frequently by roentgenologists in young persons. Whether this increased frequency and degree of unusual calcium deposition has any association with the far more general and liberal use of vitamin D concentrates is, of course, most uncertain, but it is a stimulating thought. Calcification in the larger arteries is by no means a common phenomenon in hypertensive disease, even in much older patients, and frequently occurs quite independently of any elevation of the blood pressure. Hypertensive disease is a hypertonic disturbance of the arteriolar media, whereas arteriosclerosis is an entirely separate entity involving the intima of the larger vessels.

If the true underlying etiology of this girl's hypertension is not found and eradicated, or at least ameliorated, the prognosis is poor. The patient is in no immediate jeopardy, but if the hypertension should continue for any great length of time the progressive degenerative changes of arterial hypertensive disease are inevitable. The ophthalmoscopic evidence of increased tortuosity of the retinal vessels indicates that some of these changes have already occurred. These are the result and not the cause of the disease. It may be taken as a general clinical axiom that the earlier in life hypertensive disease starts the more rapid are the progressive degenerative changes and therefore, the worse the prognosis. Naturally there are exceptions to this general rule, but it is applicable in the great majority of cases.

### TOXIC EFFECTS OF BEE STINGS

To the Editor—A man aged 38 has a peculiar reaction following a sting by bees, wasps, bumblebees or hornets. In about two minutes a severe palpitation develops with an increase in the pulse rate to 120 per minute or higher. A "roaring and pounding" develops in his head. On one or two occasions he has lost consciousness although this is not the rule. Urticarial eruptions soon appear. These are chiefly in the nature of puffing of the lips and face, eruptions on the extremities and occasionally the swelling of an entire extremity, usually not the one on which the sting occurred. There is usually no wheal at the sight of the sting but an oozing of a few drops of blood. Within about three quarters of an hour the symptoms gradually begin to subside and at this time a more or less generalized pruritus begins. The man formerly kept bees and was stung often without these reactions. He left his business of farming to serve in the World War. Since returning to his farm he has the reactions every time he is stung, possibly a dozen or more different times. Would the reaction be classed as an anaphylaxis? If so, is there some way in which the man may be desensitized? What should be done in the line of prevention of these reactions and treatment in case of their occurrence? Your opinion will be appreciated. If this is published kindly omit name and address.

M D Wisconsin

ANSWER—The literature contains a number of references dealing with the marked toxic effects of the sting of bees. In discussing the general question it is important to realize that any of three possible reactions may take place. The first is the toxic effect of the venom contained in the stinger. This material is toxic to man and affects every one if the dose is adequate. Some individuals may respond to a very small dose. The symptoms described consist mainly of circulatory collapse, coma and hemolytic changes in the blood stream. It is not to be regarded as an anaphylactic or allergic reaction.

Another type of reaction as the result of the sting of bees is allergic. This may consist of any of the symptoms commonly seen in ordinary clinical manifestations of allergy. Generalized urticaria and angioneurotic edema have been most frequently described. Asthma or hay fever has also been described as an effect of bee sting. Two possible explanations for the allergic reaction have been advanced. One is that the individual is pollen sensitive and the bee sting has introduced pollen (Gibb, D. F. *Anaphylaxis from Pollen Introduced by Bee Sting*, *Canad M A J* 19 461 [Oct.] 1928). From the more recent observations by Benson and others it seems unlikely that this is an important cause of allergic reaction.

The most exhaustive piece of work on allergy from bee sting (Benson, R. L., and Semenov, H. *Allergy in Its Relation to Bee Sting*, *J Allergy* 1 105 [Jan.] 1930) appears to indicate that the symptoms produced are due neither to the toxic fraction of the poison nor to the pollen but rather to the protein of the bee. These authors found that, after removal of the poison from the stinger mechanism, extracts of the stinger and of the body of the bee were capable of producing allergic responses in a sensitive individual.

Attempts at desensitization are worthy of trial (Braun, L. I. *Desensitization of a Patient Hypersensitive to Bee Sting*, *South*

*African M Record* 23 408 [Sept 26] 1925, and also Benson and Semenov) The last mentioned authors extracted the venom free stingers and the body of the bee separately and gave injections with gradually increasing doses with an apparently almost complete clinical desensitization For details the reader is advised to consult Benson's original article For prevention of reactions other than specific desensitization it is possible that the administration of ephedrine about one-half hour preceding exposure might be of partial benefit For the treatment of the reactions, epinephrine hypodermically should be the most efficacious remedy For more prolonged effect after epinephrine has been administered, ephedrine orally should be used

#### SENSITIZATION TO BLOOD—SENSITIVITY TO GASOLINE

*To the Editor*—1 Can a state of sensitivity or anaphylaxis to human blood (serum or whole) be induced in a human being by the intramuscular subcutaneous, intraperitoneal or intravenous injection of human blood? For example, if in infancy or later it is necessary to inject whole blood or convalescent serum for some reason will the patient become sensitive to human protein (blood) so as to make it dangerous to give him a blood transfusion or other injection of blood at some subsequent time? 2 Is there any way to desensitize a patient who is sensitive to gasoline? He is a mechanic and his being sensitive to this fuel makes his work in a garage irregular because of the severe skin reaction he suffers when he gets it on his clothing or body A patch test with one drop produced an intense reaction in about two hours with the development of a bulla locally and some general itching Please omit name state and address

M D Ohio

*ANSWER*—1 Although the possibility of sensitization to the proteins of the human body or its secretions has been suggested, the major opinion is that such an occurrence is not likely The reports of such occurrences are not well authenticated An individual may become sensitized, however, to a specific substance (horse dander, for example) by being transfused with the blood of an allergic person sensitive to that substance

2 Contact dermatitis due to occupational irritants is extremely difficult to manage Two possible methods of therapy may be considered The gasoline could be diluted with an oil such as almond oil and, beginning with small doses by subcutaneous or intramuscular injection, one may succeed in finally arriving at a dose which will protect the patient The other alternative is to have the patient bathe himself daily with water containing increasing amounts of the gasoline With both methods great care must be exercised because of the possibility of producing a widespread reaction It must be emphasized that such methods of therapy are as yet in the experimental stage

#### ULCER OF DUODENUM IN A CHILD

*To the Editor*—A girl aged 6 years vomited bile and had a temperature of 101 F at 1 p m October 7 The area over the appendix and especially from the appendix to the costal margin was tender The child had had several previous attacks and a druggist had given her mild mercurous chloride in small doses The child lived in Detroit and had come here October 7 with her mother At 7 p m she was in shock and died at Mercy Hospital The intern performed a post mortem which revealed a severe peritonitis beginning at the pylorus and extending about 12 inches There was also a severe parietal peritonitis After the inflamed covering was stripped from the duodenum the bowel for 12 inches looked as though it had been boiled When it was opened it had a fiery red and thickened appearance I can find only slight information in my books on duodenitis Is this condition rare or is it more than just a duodenitis? My fellow physicians are also puzzled Please omit name

M D Ohio

*ANSWER*—The clinical and pathologic observations in the case of this child, suffering with fever, vomiting and abdominal tenderness are not as detailed as one might wish to aid in an adequate explanation for the condition that caused her death

The localized peritonitis involving 12 inches of the duodenum would lead one to wonder as to the condition of surrounding organs, such as the pancreas the bile duct, the ampulla of Vater and the arteries and veins supplying the duodenum

The boiled appearance of the duodenum with the fiery red thickened appearance of its interior, together with the localized peritonitis, gives the impression of some sort of duodenal ulcer The most frequent type of ulcer of the duodenum which occurs in childhood is that found in new born and very young infants In the new born period such ulcers may be manifested clinically by hematemesis or melena In later infancy, those who have suffered from wasting illness are prone to develop such ulcers These may cause erosion of blood vessels and thereby hemorrhage, or a complete destruction of the intestinal wall may result in perforation

Following burns or scalds, an acute ulceration of the duodenum, known as "Curling's ulcer," may result It is believed that these ulcers are found in cases in which sepsis is associated with the burn, giving rise to septic emboli capable of producing hemorrhagic infiltration in the alimentary canal

Tuberculous ulceration of the duodenum is much less frequent than such ulcers occurring in the lower ileum

The perforation of acute duodenal ulcers, such as those following burns, septic processes and typhoid, are rarely recognized at the bedside Acute perforation of a chronic ulcer is characterized by sudden onset with pain, vomiting and collapse In the history of the case in question there had been several previous attacks, presumably of abdominal pain and vomiting

A subacute perforation of a duodenal ulcer may begin with sudden pain, followed by vomiting and prostration The opening may have been small, and a thick mass of adherent lymph may cover the duodenum at this point

While the finding of an ulcer or perforation is not mentioned in the pathologic examination of this case, the existence of a subacute perforation would explain the localized peritonitis, the external appearance of the bowel and the internal inflammation The occurrence of such a condition in a 6 year old child would be unusual and rare Perforation by a sharp foreign body that had passed through the intestine might be a possible cause

Thrombosis of the branch of the pancreatoduodenal artery supplying the involved portion of the duodenum might result in such a clinical and pathologic picture

The condition termed duodenitis is a catarrhal inflammation of the duodenum, probably associated with a catarrhal gastritis or cholecystitis The symptoms produced by such a condition in the duodenum would be altogether different from those described in the case here considered

#### TRICHLORETHYLENE AND ASTHMA

*To the Editor*—Does the vapor of trichlorethylene aggravate asthma? This question is asked by an asthmatic patient who has been working during the past three years in a dry cleansing plant where for the past two years trichlorethylene has been used and he comes in contact with the vapor two or three times a day for a few minutes Sometimes the effect is such as to make him feel drunk and requires his going out of the plant into the fresh air During the past two years his asthma has been worse than it was the year prior to these exposures to trichlorethylene There is no legal action involved in this case Please omit name

M D Massachusetts

*ANSWER*—The vapor of trichlorethylene, like vapors of all other noxious materials, does aggravate bronchial asthma However, it is not the cause of the attacks, as no cases have ever been reported due to this agent It merely acts like the fumes of coal gas, sulphur and other chemicals by making the asthma worse than it would otherwise be

It would seem in this case that the exposure to the vapor is too slight to be of much importance The fact that the asthma is worse has probably no relationship to the exposure to the chemical

This patient, like all other asthmatic patients, should be thoroughly studied from the allergic standpoint, this should include a careful history, an examination, Wassermann test, urine blood and sputum tests and a roentgenogram of the chest In addition, complete protein sensitization tests should be carried out

#### SENSITIVITY TO SUNLIGHT

*To the Editor*—Please give me references or suggest a line of treatment for a patient who is hypersensitive to direct sunlight and to ultra violet rays Even short exposure produces the next day an erythematous rash with pruritus which is not easily controlled by ordinary local applications Apparently no increased resistance is developed by one attack for the reaction to each subsequent exposure is of equal severity Please omit name

M D Wyoming

*ANSWER*—There are two types of sensitivity to sunlight The first reacts at the point of contact soon after exposure to light with an edematous reaction confined to the point of contact with light, i e, by a typical hive reaction This reaction may be delayed one or several hours, but rarely for twenty-four hours

The second type of case reacts at the point of contact with light with eczema, characterized by itching redness of the skin secretion and scaling This reaction is always delayed and instead of disappearing promptly as the hive case, becomes more pronounced on the second day and usually persists for one week

Both types of case can be treated with ultraviolet rays in doses preferably just short of the amount that produces a local

reaction The rays should be applied generally, points of natural exposure, such as the face, neck and hands, being avoided The hive cases, on account of the quickness of appearance and disappearance of the reaction, can be treated at intervals of from one to three days However, the eczematous type should not be treated so often In both types, exposure of the skin to undue amounts of sunlight should be avoided by having the patient stay indoors on bright days, or protect the skin with colored scarfs on venturing out doors Overexposure of a gross amount of skin to excessive doses of radiation may result seriously, so that treatment should be given with great care The reader is referred to "Treatment of Physical Allergy" (treatment of heat and effort sensitiveness and cold sensitiveness and treatment of contact urticaria caused by light, cold and scratches) by W. W. Duke, *J. Allergy* 3:408 (May) 1932

#### TREATMENT OF SYPHILIS

*To the Editor*—A man aged 28 came to me saying that he contracted syphilis while in college and received prompt and rather extensive treatment He states that he had in all about forty injections of neoarsphenamine and a smaller number of injections of bismuth and mercury compounds and bismuth arsphenamine sulphate The Wassermann reactions became negative after the third series of injections and has remained so Each year he has had his blood examined and it was for this he came The report on the specimen I drew was 4 plus He desires treatment The literature of syphilis with its conflicting claims for the various soluble and insoluble preparations of bismuth and mercury and the numerous arsenicals makes one wonder whether there is any consensus among syphilologists as to the proper regimen in a given case I would value your opinion on this case I should add that physical examination is negative No spinal tap has as yet been made Please omit name

M D Oklahoma

*ANSWER*—The Wassermann test in this case should be repeated and, if still found to be 4 plus, treatment should be commenced If the spinal fluid and physical examinations are negative, the case can be classified as asymptomatic or latent There is no consensus among syphilologists as to the proper regimen in any stage of syphilis The general trend is toward a combined therapy with one of the arsenicals conjointly with the heavy metals bismuth or mercury compounds, and iodides in the interim Some men feel that arsphenamine gives better results than neoarsphenamine Others prefer bismuth arsphenamine sulphate or silver arsphenamine The large number of bismuth preparations put out by different manufacturers adds greatly to the confusion The brands accepted by the Council on Pharmacy and Chemistry may be given the preference The number of courses to be given, the total dosage and the duration of the treatment will depend on the response of the patient and periodic serologic control Valuable information as to the treatment of syphilis may be found in the recent books by Schamberg and Wright and by Moore

#### ALUM PRECIPITATED DIPHTHERIA TOXOID

*To the Editor*—Will you please give me information about toxoid and alum precipitate? Would you advise giving it as a public health immunization from the age of 6 months through 8 years? Is the technic of giving it any different than when using the toxin antitoxin?

INQUIRER

*ANSWER*—Alum precipitated diphtheria toxoid, "alum toxoid" for short, is a grayish white precipitate suspended in physiologic solution of sodium chloride Diphtheria toxoid is adsorbed by this precipitate The antigenic value of the alum toxoid is determined by its power to induce the formation of diphtheria antitoxin on injection into a guinea-pig The indication for the use of alum toxoid is susceptibility to diphtheria

For practical purposes all children of preschool age are regarded as susceptible, and the preferable age for preventive immunization by means of alum toxoid is between 6 months and 2 years In children over 8 years of age the question of susceptibility should be determined by means of the Schick test The alum toxoid may be obtainable in packages containing one or more immunizing doses Active immunization is effected by injecting a single dose of alum toxoid subcutaneously at the insertion of the deltoid muscle or in younger children between the shoulder blades Before injection the vial containing the alum toxoid must be shaken vigorously because, as stated, it is the precipitate that carries the immunizing toxoid There may remain for weeks a swelling or lump at the site of injection, because the material is absorbed slowly Immunity develops gradually, as a rule the Schick test becomes negative six weeks or so after the injection Up to this time at least, one dose of alum toxoid has given highly satisfactory results and the method appears to be an advance of great practical value

#### HEAT TREATMENT OF MULTIPLE SCLEROSIS

*To the Editor*—In the April issue of the *Ladies Home Journal* appears a very pretentious article entitled Young Doctor Heat written by Paul de Kruijff This article has been read and thoroughly digested by an intelligent patient of mine aged 39 and a victim of multiple sclerosis Naturally he is willing to try anything to produce a cure Mr de Kruijff's article speaks of a mechanical fever booster which is now in use at the Mayo Clinic the Cleveland City Hospital the Milwaukee General Hospital and the Henry Ford Hospital in Detroit The article mentions multiple sclerosis among the hopeless diseases that are being benefited Apparently the latest, finest "hot box" is the new Vapotherm built by George H. Spencer Can you tell me whether any patient would be justified in undertaking the trouble and expense of a course of treatment with this artificial temperature producing machine? The blood and spinal fluid Wassermann reactions are negative Please omit name

M D, New York

*ANSWER*—There is probably no disease in which it is more difficult to gauge the effects of therapeutic efforts than multiple sclerosis The course of the disease is extremely chronic, and remissions and exacerbations are frequent even without treatment Consequently, new methods are liable to meet with undue optimism when improvements arise from natural causes rather than from the method applied Fever therapy in this disease is not founded on a rational basis but has been applied empirically, mainly with the realization that nothing else has produced results While claims have been made that improvement has followed this procedure, facts available are not sufficient to justify much hope of success The causative factor of multiple sclerosis is as yet unknown While it has been alleged that a spirochete has been observed, this has not been proved and the pathologic changes are not in any way similar to those produced by the spirochete of syphilis or other invading organisms The disease attacks primarily the myelin sheaths, causing their dissolution The scar, or patch of sclerosis, is the terminal stage of this process and is permanent when once formed, though the loss of the myelin sheath does not necessarily mean the death of the nerve fiber There is some evidence to suggest that this process of demyelination results from the action of a ferment of some kind It has been demonstrated also that some such ferments are inhibited or neutralized by quinine On this basis Dr. Richard M. Bricker of New York has employed quinine in the treatment of patients with this disease and has reported facts which at least justify its continued application This procedure has at least some rational foundation and is without danger other than those that belong to an idiosyncrasy to quinine

#### EFFECTS OF SODIUM FLUORIDE

*To the Editor*—What effect if any would a 15 per cent aqueous fluoride solution used as a moth proofing agent on clothing rugs and furniture have on the human body? Would it cause a dermatitis? Kindly omit name

M D Connecticut

*ANSWER*—Glass etchers and embossers who use hydrofluoric acid are affected with slow healing burns and loss of the nails The double fluoride of sodium and ammonium produces the same results Ulcerations may develop also from the acid fumes of hydrogen fluoride evolved in the manufacture of hydrofluoric acid Fluoride of antimony is also used as a fixative for some of the basic dyes to produce some of the brightest and fastest colors It is questionable whether a 15 per cent aqueous fluoride solution used as a moth-proofing agent on clothing, rugs and furniture would cause a dermatitis The most certain way of finding out would be to make a patch test, applying to the skin a square inch of gauze saturated with the solution and covered with rubber dam for twenty-four hours and noting the reaction, if any

#### HAZARDS OF BAKELITE INDUSTRY

*To the Editor*—The workmen on a job are exposed to a certain amount of inhalation hazard of a fine dust from bakelite this dust consisting of a phenol formaldehyde compound mixed with wood flour Would your consulting service be able to advise me whether there would be expected to be any definite health hazard to workmen on this job and if the hazard is great enough to justify the wearing of respirators?

GEORGE S. GILPIN, M D Cleveland

*ANSWER*—The operation described has been carried out in a number of plants utilizing bakelite The chief hazard appears to reside in skin irritation Especially during the summer months a fair number of those exposed may present an occupational dermatitis chiefly of the hands, but occasionally of the face or neck This irritation may involve the eyes and the membranes of the respiratory tract The wood dust is relatively unimportant, although not entirely harmless Apparently these workers are subject to increased probability of pneumonia The wearing of respirators in connection with this work is

attended by some difficulty, as the mechanical action of the respirator face piece is favorable to the production of a facial dermatitis. Instead, it is preferable that installation be made of spot exhaust systems at the point of origin of dust in the molding operation.

#### REFLEX PAIN FROM PROSTATIC URETHRA

*To the Editor*—A man aged 50, has had for three years an almost continuous and at times quite severe burning sensation on the under side of the penis just back of the corona. There is a slight redness of the skin and nothing more. He has some prostatic enlargement and has bloody seminal emissions. Cystoscopy shows a very large verumontanum with some ulceration. The median part of the prostate bleeds easily when touched. Applications of silver nitrate to the verumontanum and prostate have helped this but the burning of the penis continues. Can you give me any information about this burning and what to do for it?

W L LAMBERT, MD Asheville N C

*ANSWER*—Unless there is something more than a slight redness at the site of the burning sensation, and nothing is found in the anterior urethra at that point, the symptom can easily be explained as a reflex from the prostatic urethra. Similar reflex symptoms are quite common from that cause. Direct applications to the verumontanum do not as a rule relieve these symptoms. Much better and more permanent results are obtained by the passage of a full size sound into the bladder at weekly intervals or the use of the straight dilator into the anterior urethra, with gradual dilation till the maximum is reached. At times, instillations of weak silver nitrate solutions (from 1:3,000 to 1:500) into both the anterior and the posterior urethra with the Bangs sound syringe will be found to be efficacious.

#### WATER SOFTENERS AND DERMATITIS

*To the Editor*—Have you any data on hand in regard water softening machines and skin diseases? I have installed in my home a Twin City water softener which operates by running the water over a mineral (I do not know what it is and the agents here cannot or will not tell me what it is). Every so often the flow of water through the machine is changed and the mineral washed with salt water. This is called reconditioning and restores the mineral to its pristine purity. Now for reasons which are unimportant I have used this water to drink, being advised that it is pure. I developed a skin rash, which is almost intolerably itchy and which has baffled several skin men. I am wondering whether the water might be the cause. I have discontinued drinking it but not enough time has elapsed to give me much result as yet. Please omit name.

MD Ohio

*ANSWER*—It is presumed that the chemical employed in this form of household water softening is potassium-sodium-aluminum silicate. It is believed that this chemical is or is akin to the well known trade substances, "zeolite" and "permutite." "Green sand" is a widely used term designating this filtering medium. Calcium and magnesium unite with this silicate replacing the sodium present and thus accomplishing the softening process. Through the passing of brine over the filtering bed, the bed is chemically rejuvenated.

It may be doubted whether any change in the water produced by this procedure is associated with the causation of skin disease. To an even greater extent may it be doubted that the ingestion of this water is associated as the producing factor with any skin disease.

On occasion, the use of sodium carbonate in water softening may lead to skin disease from direct contact but not from water ingestion. Waters containing arsenic have produced systemic arsenic poisoning embracing a dermatitis as one manifestation. When skin diseases are to be connected with the use of water it is usually true that irritating soaps and other toilet articles are more to blame than the water itself.

#### UNILATERAL CLUBBING OF FINGERS

*To the Editor*—Could you put me in touch with any information relative to clubbing of the fingers and distortion of the finger nails occurring unilaterally? I am inclined to believe that this is an unusual condition, and if you can inform me where I can obtain any reference or literature I will be greatly obliged.

GROSBECK WALKER MD Fairfield Ala

*ANSWER*—Unilateral clubbing of the finger tips is very rare. Any case listed in this category must be of some duration for Julius Heller (*Handbuch für Haut- und Geschlechtskrankheiten* Berlin Julius Springer 12:278 1927) mentions the fact that the deformity begins on one side in most cases later involving the other extremities.

Loucaides has recently reported a case of unilateral club fingers (*Einseitige Trommelschlegelfinger* *Ztschr f klin Med* 121:724 1932) and has found but seventeen previously recorded

cases, all caused by one sided aneurysms except one in which there was a long standing dislocation of the shoulder joint. The case reported by Loucaides was of particular interest because the deformity of the fingers, with enlargement of the hand and local nervous symptoms, did not appear until the aneurysms, which involved the aortic arch and the right subclavian artery, were complicated by a suppurative chronic bronchitis.

The deformity is due to edema of the soft tissues at the proximal ends of the distal phalanges. This lifts the proximal end of the nail and causes it to grow downward and forward over the end of the finger. The obstructed circulation results in overgrowth of horn and the nail becomes thick. The blood vessels are dilated and the lunula tends to disappear. The skin proximal to the nail is distended and glossy and this end of the nail rests on a soft cushion, on which it can be rocked by slight pressure. The whole phalanx including even the bone in severe cases, becomes enlarged to resemble the head of a drumstick.

The literature of one sided club fingers is listed by Loucaides.

#### INJECTION TREATMENT OF HYDROCELE

*To the Editor*—Is it practical to use sodium morrhuate 5 per cent to obliterate the sac of a hydrocele? The patient is an elderly man in poor physical condition. Aspirating the hydrocele causes it to refill quickly. If it is practical, please give details of technique. Please omit name.

MD New York

*ANSWER*—Before deciding on the injection treatment of a hydrocele, one must make certain that there is no communication with the peritoneal cavity, such as occurs in the congenital type of hydrocele, and that there is no associated inguinal hernia. The latter may become irreducible if the hydrocele is obliterated. Furthermore, a gonorrheal tuberculous or non-gonorrheal epididymitis and a tumor of the testicle must be excluded. Such lesions might become palpable after the sac has been tapped. If the foregoing factors in producing a symptomatic hydrocele are excluded and the patient is not fit for operation, an aspiration of the sac may be done. The scrotal skin is carefully sterilized with mercurochrome or acriflavine hydrochloride, a dermal wheal is produced with 1 per cent procaine hydrochloride, and a spinal puncture needle is used to tap the sac, puncture of the testicle being avoided. The fluid should be completely withdrawn, care being taken that the needle still remains free in the cavity and is not caught in the wall of the sac. The sclerosing substance is now injected, the needle withdrawn and the site of puncture sealed with collodium.

The sac may be gently massaged to insure better distribution of the irritating substance. Solutions used for this purpose include from 0.5 to 2 cc of pure phenol (carbolic acid) or 10 per cent quinine and ethyl carbamate solution, not exceeding 4 or 5 cc for the first time. A 5 per cent sodium morrhuate solution is used by Porritt (*Proc Roy Soc Med* 24:971 [May] 1931), who washes the sac first with sterile water and then injects from 4 to 5 cc of the solution. It would seem more logical to use a 10 per cent solution for this purpose. Following the injection, the scrotal sac is supported. It may get tender and swell. A second injection is usually necessary after a week or two. Great care should be exercised not to produce an infection of the hydrocele.

#### VERTIGO FROM WORK WITH HANDY REPAIR CEMENT

*To the Editor*—I have a patient whose chief complaint is vertigo at irregular intervals. He spends about six hours a day working and handling handy repair cement. He informs me that this contains butyl acetate, ethyl acetate and acetone. He inhales more or less fumes during the day. Are these apt to be injurious and if so what symptoms do they produce?

HENRY B SMITH MD Hempstead N Y

*ANSWER*—The constituents of "handy repair cement" are not constant among the several manufacturers and for any given manufacturer it is probable that the formula changes from time to time depending on market conditions. At least in times past, benzene has been much used and probably is used at the present time. If in fact, benzene was employed as an ingredient, vertigo along with various other manifestations such as leukopenia is a reasonable result of exposure. If, on the contrary, the cement contains nothing more than butyl and ethyl acetates along with acetone, extensive harm is not a prospect. The action of these substances in small quantities is usually limited to minor degrees of irritation of the eyes, skin and respiratory tract. Headache and nausea are possibilities and the occurrence of vertigo is not beyond the bounds of expectancy.



## SALT LOSS IN PERSPIRATION

To the Editor—Will you kindly advise us as to the amount of salt required to compensate for the loss by perspiration in men in industrial plants. Also advise as to the best method of administration and also whether salt in tablet form is available and if so where it may be obtained. Please omit name.

M D, Illinois

ANSWER—The practical aspects of this subject are covered in an article, "Heat Cramps in Industry Their Treatment and Prevention by Means of Sodium Chloride" by Dr Donald M Glover (*J Indust Hyg* 13 347 [Dec] 1931). Glover illustrates a machine for dispensing 16 grain (1 Gm) sodium chloride tablets made by the McKesson Hall Van Gorder Company, Cleveland, and the Fairway Laboratories, Belleville, Ill. Workers in the steel and aluminum industry, under extreme conditions of heat, took one of the tablets with each drink of water and usually drank two or three times an hour while doing muscular work. It is apparently safe to allow workers to eat as much salt as they feel that they require, and the material should be made completely available if the preventive measure is to be effective.

## TREATMENT OF TABES

To the Editor—Kindly outline treatment for a late stage of syphilis in a man aged 42 complaining of imperfect erection and diminished libido. He has a three plus Wassermann reaction, rigid pupils, irregular knee jerks and some urinary incontinence. Five years ago he had a course of intravenous and intraspinal arsenicals. He was under treatment for two years under different physicians and by different methods. For the past two or three years he has had no medication. He refuses a spinal puncture because of previous painful experiences. Please omit name.

M D, Wisconsin

ANSWER—The data suggest that this patient has a deterioration of the posterior column (tabes), which accounts for the pupillary changes, the incontinence and the diminished knee jerks. If he has no cardiac lesion and is otherwise in fair health, it is not unlikely that a course of malarial treatment will be of great benefit to him.

The lumbar puncture, however, should be repeated, as it is an excellent guide not only to diagnosis but as a criterion for recovery following the malarial therapy. If done properly, it should give rise to little or no pain.

## MEASURING PRESCRIPTIONS

To the Editor—I have read with much pleasure the article on the Therapy of Cook County Hospital in THE JOURNAL for June 2 but was rather surprised at the form of the prescriptions. As I read them one dose is supposed to be contained in 4 cc. If these are administered in the wards does it imply that doses of medicine in the wards are measured in teaspoons rather than in measuring glasses and if they are used for outpatients why is it assumed that a teaspoon holds 4 cc? The average teaspoon at least in this part of the country holds from 5 to 6 cc.

J M HAYMAN JR, M D Cleveland

ANSWER—The criticism is well taken. Unfortunately, the Cook County Hospital has been, up to the present, committed to the old system of weights and measures and is equipped with medicine glasses graduated according to the old one drachm equals one teaspoonful. This series represents an attempt to substitute the metric for the old system. It would be practically impossible, if for no other than financial reasons, to discard all the old measuring devices and introduce new ones, hence this compromise.

## EFFECT OF COMPOUND SOLUTION OF IODINE ON BASAL METABOLIC RATE

To the Editor—Please tell me whether compound solution of iodine (Lugol's solution) will decrease the basal metabolic rate when this increased rate is due to taking thyroid, i.e. at a more rapid rate than by simply discontinuing thyroid? Please omit name.

M D Virginia

ANSWER—The administration of compound solution of iodine has no effect on the increased basal metabolic rate caused by the taking of thyroid extract or thyroxine, in rabbits (Sturgis, C C, and others *J Clin Investigation* 2 289 [Feb] 1925), in dogs (Kunde, Margarete M *Am J Physiol* 82 195 [Sept] 1927) or in man (Carson, D A and Dock, William *Am J M Sc* 176 701 [Nov] 1928). This is explained by the authors last mentioned as being due to the fact that the site of action of the iodine is on the thyroid gland itself rather than on the thyroid products. However, Abelin has reported that the elevation of the basal metabolic rate caused by feeding thyroid substance to rats is decreased when diiodotyrosine is given in addition (*Biochem Ztschr* 233 483, 1931, *Klin Wchnschr* 10 2201, 1931).

## TELEPHONE NOISES AND AUDITORY DISTURBANCES

To the Editor—I have a patient who claims that following the picking up of a telephone receiver and the cracking that occurs as the operator rings the number his ear drum burst. Otoscopic examination did show a ruptured ear drum. He is at present suing the telephone company for the accident and impaired hearing. Can you cite any similar cases in medical literature? Is such an occurrence possible?

MILTON WOLPERT, M D, Chester, W Va.

ANSWER—It seems rather strange that vibrations of the telephone receiver diaphragm should cause such a change in the air pressure of the external auditory canal that rupture of the drum membrane would ensue. The only reference in the literature dealing with changes in the ear due to the use of a telephone is Moriez, A. *Auditory and Neurologic Disturbances Caused by Traumatizing Telephone Noises. The Nature of the Noises and Mode of Operation*, Rev d'oto neuro ophth 2 171 (March) 1933.

## VALUE OF SYPHILIS VACCINE NOT ESTABLISHED

To the Editor—In THE JOURNAL, April 28 page 1444 is a short abstract of an article entitled Spirochete Vaccine in Treatment of Syphilis from the *Dermatologische Wochenschrift*. Kindly give the status of this mode of treatment in the United States. Has it been confirmed to be effective? Please state whether that vaccine can be obtained in the United States and if so, where, if not, where can it be obtained in Germany?

AARON I LEVIS M D Madison N Y

ANSWER—The treatment in question is purely experimental. It has no definite standing in this or any other country. It has not been confirmed as effective. There is no place in this country where the vaccine used by the author mentioned in the question (Neuber, E. *Therapeutic Experiments with Living Spirochetes in Cases of Early Syphilis*, *Dermatol Wchnschr* 98 229 [Feb 24] 1934) can be obtained, and so far as we know the vaccine is not for sale in Germany either.

## THERAPEUTICS OF GOLD TRIBROMIDE AND OF IRON PREPARATIONS—ARSPHENAMINE AND TEETH

To the Editor—1 I have been using gold tribromide in whooping cough. The patient's parents are so enthusiastic that I find they are renewing the prescription for all sorts of coughs. Is there any danger to the patient in a prolonged use of this drug? Is there any danger in the staining of the teeth? 2 Do the following preparations imperil the teeth: syrup of ferrous iodide, Syrup of Cupriferrum (Squibb)? 3 Does present medical opinion favor the ferric or the ferrous salt in the treatment of secondary anemia? 4 Is arspenamine in glycerin used locally for Vincent's angina, injurious to the teeth? Kindly omit name.

M D, New York

- ANSWER—1 No  
2 No  
3 Ferrous salts  
4 No

## TRANSMISSION OF RABIES

To the Editor—A patient of mine was bitten by a pet dog after the dog had been given a dose of rabies vaccine. At the time the bite was inflicted the dog was quite ill as a result of the vaccination. Is there any possibility that such a bite might transmit rabies? If this is published kindly omit name.

M D, North Carolina

ANSWER—In all probability the vaccine used was killed before injection either by phenol or by chloroform and consequently there would be no danger of the transmission of rabies by the vaccine. It must be noted that in a case like the one cited the question arises whether the dog could have been suffering from rabies at the time of its bite.

## PROPER CARE OF ORBIT WITH GLASS EYE

To the Editor—I have read what you have to say on the proper care of the orbit with a glass eye (*THE JOURNAL* June 23 p 2135). Antiseptics employed in the eye will not prove of value in this case if the glass eye is several years old and should have a crevice or break in it. I have seen several cases and securing a new eye cleared up the condition. I tried everything you mention with no results. I would advise getting a new glass eye for that man.

J O CHIAPELLA M D, Chico Calif

## PSITTACOSIS

To the Editor—I note in the answer to the query on psittacosis (*THE JOURNAL* May 5 p 1521) the statement that in the majority of cases psittacosis appears to have been transmitted from sick parrots. While this was true formerly the cases in this country during the past two or three years have been in the majority of instances I believe from love birds raised in California.

STANLEY H OSBORN M D Hartford Conn  
Commissioner of Health State of Connecticut

## Council on Medical Education and Hospitals

### COMING EXAMINATIONS

ALASKA Juneau Sept 4 Sec Dr W W Council Juneau  
AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written*  
(Group B candidates) The examination will be held in various cities of the  
United States and Canada Oct 1 Oral (Group A and Group B candidates)  
San Antonio Texas Nov 13 16 Sec Dr C Guy Lane 416 Marl  
borough St Boston

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written* (Group  
B candidates) The examination will be held in various cities of the  
United States and Canada Nov 3 Sec Dr Paul Titus 1015 Highland  
Bldg Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY Chicago Sept 8 *Application*  
*must be filed sixty days prior to date of examination* Sec Dr William  
H Wilder 122 S Michigan Blvd Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY Chicago Sept 8 and San  
Antonio Texas Nov 16 Sec Dr W P Wherry 1500 Medical Arts  
Bldg Omaha

NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in  
Parts I and II will be held at centers in the United States where there  
are five or more candidates Sept 12 14 Ex Sec Mr Everett S  
Elwood 225 S 15th St., Philadelphia

NEVADA *Reciprocity* Carson City Aug 6 Sec Dr Edward E  
Hamer Carson City

NEW HAMPSHIRE Concord Sept 13 14 Sec Board of Registration  
in Medicine Dr Charles Duncan State House Concord

OKLAHOMA Oklahoma City Sept 11 12 Sec Dr J M Byrum  
Mammoth Building Shawnee

PUERTO RICO San Juan Sept 4 Sec Dr O Costa Mandry  
Box 536 San Juan

WISCONSIN Medical Green Bay Sept 11 Sec Dr Robert E  
Flynn 401 Main St LaCrosse *Basic Science* Madison Sept 22  
Sec, Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee

### Oregon April Examination

Dr Joseph F Wood, secretary, Oregon State Board of Medi-  
cal Examiners, reports the written examination held in Portland,  
April 3-5, 1934. The examination covered 11 subjects. An  
average of 75 per cent was required to pass. Seven candidates  
were examined, all of whom passed. The following schools  
were represented:

School	PASSED	Year Grad	Per Cent
Rush Medical College		(1933)	85.2*
University of Illinois College of Medicine		(1933)	85*
University of Oregon Medical School		(1932)	83.7
87 7 89 1, (1933) 85 9 88 3			

Two physicians were licensed by reciprocity and 1 physician  
was licensed by endorsement from March 6 to April 4. The  
following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Northwestern University Medical School		(1932)	Utah
University Medical College of Kansas City Missouri		(1904)	Nebraska
School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Oregon Medical School		(1931)	N B M Ex
* This applicant has completed his medical course and will receive his M D degree and Oregon license on completion of internship			

### Iowa February Examination

Mr H W Grefe, director, Division of Licensure and Regis-  
tration, reports the written examination held at Des Moines,  
Feb 26 28, 1934. The examination covered 8 subjects and  
included 100 questions. An average of 75 per cent was required  
to pass. Fourteen candidates were examined, all of whom  
passed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Northwestern University Medical School		(1933)	85.1*
Rush Medical College		(1933)	88*
Keokuk Medical College College of Physicians and			
Surgeons Iowa		(1904)	75
University of Kansas School of Medicine		(1932)	82
University of Minnesota Medical School		(1933)	80.4
85 1 85 3 (1934) 82 3			
Creighton University School of Medicine		(1933)	80.5†
82 4 86 6† 85 9†			
Temple University School of Medicine		(1933)	84.4†
Medizinische Fakultät der Universität Wien		(1926)	87.5†

One physician was licensed at a special examination held  
May 10. The following school was represented:

School	PASSED	Year Grad	Per Cent
Keokuk Medical College College of Physicians and		(1903)	75
Surgeons Iowa			

Seven physicians were licensed by reciprocity and one physi-  
cian was licensed by endorsement from January 12 to April 12.  
The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Rush Medical College		(1932)	Illinois
University of Louisville School of Medicine		(1932)	Kentucky
Univ of Michigan Dept of Medicine and Surgery		(1911)	Michigan
University of Minnesota Medical School		(1930)	Illinois
University of Nebraska College of Medicine (1925),		(1932)	Nebraska
Baylor University College of Medicine		(1932)	N Dakota
School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Pennsylvania School of Medicine		(1929)	N B M Ex
* This applicant has completed his medical course and will receive his M D degree on completion of internship License withheld			
† License will be issued on completion of internship			
‡ Verification of graduation in process			

## Book Notices

**Allergy in General Practice** By Samuel M Feinberg M D F A C P  
Assistant Professor of Medicine and Attending Physician in Asthma and  
Hay Fever Clinic Northwestern University Medical School Cloth Price  
\$4.50 Pp 339 with 24 illustrations Philadelphia Lea & Febiger  
1934

Here is a practical handbook in allergy compiled by a  
student. The first chapter is an interesting historical orienta-  
tion of the subject. The second summarizes the immunologic  
arguments. The third describes asthma clinically. In the next  
four chapters the author classifies, analyzes and sifts every  
scrap of material on the approach toward a solution of asthma.  
Three chapters are devoted to hay fever. It is not disparag-  
ing to say that the keystone of this arch-allergist's credo is  
Durham's chapter on pollen. Sheer merit makes this section  
stand out. It is the most concise account of the national situa-  
tion thus far presented. It can be appreciated only by the  
practicing allergist, who finds his every quest in the clinical  
geographic importance of pollens now ended. Every allergist,  
hay fever treating doctor and patient will henceforth be  
indebted to Mr O C Durham, chief botanist of the Abbott  
Laboratories, for the practical application of the mass of  
authoritative botanic information that he has made available  
so succinctly for clinical purposes. In another chapter are  
grouped the problem children of allergy, namely, hyperesthetic  
rhinitis, urticaria, angioneurotic edema, eczema, contact der-  
matitis, gastro-intestinal allergy, allergic headache and other  
possible allergic syndromes such as epilepsy, urinary distur-  
bances, joint manifestations, eye conditions, vascular diseases  
and malnutrition. The author has omitted a promising method  
of direct nasal testing which will solve a certain percentage  
of cases of hyperesthetic rhinitis not benefited at present. He  
must learn that infantile and childhood eczema is not all food  
allergy. There is a distinct group on an inhalant basis. He  
should know that many so-called eczemas and neurodermatitides  
occurring with pollinosis clear under pollen treatment and that  
these are distinct from the pollen oil sensitive group. The  
last chapter is a compressed but comprehensive dry clinic  
illustrating the application of the allergic approach and meth-  
ods of treatment.

The philosophy of such a compilation involves an over-  
whelming seriousness of purpose and a totally absent sense of  
humor. The older authorities in the subject have been too  
busy pushing out the borders of knowledge to write primers.  
However, every allergist of note has contributed to the authori-  
tativeness of the volume, and Feinberg makes generous and  
systematic reference to them.

The author belongs to a group of self taught allergists. He,  
at least, has achieved justification for the judiciously serious  
men behind which he masks his novitiate. A hypercritical  
attitude toward all that possesses the daring and dash of uncon-  
ventional thought is the defense mechanism of the uninitiated.  
He seems in constant fear lest his overvalued lack of formal  
training betray him and throughout the book there are qual-  
ifying clauses, half-hearted acquiescences and the "yes and then  
again no" point of view. The compilation is simple and ele-  
mentary but eminently practical as a beginner's handbook.  
This book will remain the model for allergy handbooks for a  
long time.

**Die akuten Zivilisationsseuchen Masern Pocken Keuchhusten Scharlach Diphtherie epidemische Kinderlähme Ihre Epidemiologie und Bekämpfung** Von Dr. B. de Rudder o. b. Professor Direktor der Universitäts-Kinderklinik Greifswald. Paper. Price 16 marks. Pp. 286 with 49 illustrations. Leipzig: Georg Thieme 1934.

The purpose of this book is to summarize in a practical way existing knowledge of the modes of spreading and the prevention of measles, smallpox, whooping cough, diphtheria, scarlet fever and infantile paralysis. These six diseases are regarded as the major epidemics of our times among civilized people. On account of their high contagiousness, measles, smallpox and whooping cough are grouped together. In the spread of these diseases the patient plays the most important part by far and consequently the methods of prevention are different in some respects from those used against diphtheria, scarlet fever and infantile paralysis, in which the carrier plays the essential part in spreading the infection. The epidemiology, the endemology and the principles and methods of preventing these diseases are discussed thoroughly and competently. The teachings are sound and progressive. The writing is rather cumbersome, with long and complicated sentences. The author does not seem to be familiar with the most recent American developments in the prevention of diphtheria and scarlet fever, but there is no doubt about his full acceptance of the fundamental principles on which the preventive measures are based. The book will interest all who are concerned with the six diseases to which it is devoted. There is no other book available at present that deals with their epidemiologic and preventive aspects in as thorough a fashion.

**Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern. Die Krankheiten der Nasennebenhöhlen und des Ohres im Röntgenbild.** Von Priv. Doz. Dr. med. Richard Mittermaier, Oberarzt der Klinik. Ergänzungsband XLV. Fortschritte auf dem Gebiete der Röntgenstrahlen. Herausgegeben von Prof. Dr. Grashey. Paper. Price 25 marks. Pp. 141 with 213 illustrations. Leipzig: Georg Thieme 1934.

As the author himself states, this atlas is to serve not only roentgenologists but otolaryngologists who have thus far been unable to develop a wide experience with the subject of roentgenology and its results in diseases of the nasal accessory sinuses and the ear. Furthermore, it is to serve them as a basis for their own studies. The work has been developed from actual practice and is written for practitioners. With the exception of a few pictures furnished by Professor Grashey, they are all derived from roentgenograms made in the x-ray department of the university ear, nose and throat clinic at Freiburg in Breisgau. The work is divided into two sections, of which the first deals with the various diseases of the nasal accessory sinuses and the second one with those of the ear and the temporal bone. The reproductions of the films are clear, and the descriptions of the conditions found clinically are concise and informative. Accompanying the films of the nasal accessory sinuses, outlying diagrams are furnished which greatly aid in their complete understanding. There is no text other than that of the short descriptions accompanying each picture. The work is well done and should prove of great value both to roentgenologists and to otolaryngologists in their daily practice.

**Les phlegmons de la loge amygdalienne. Diagnostic et traitement.** Par G. Canuyl, professeur de clinique oto-rhino-laryngologique à la Faculté de médecine de Strasbourg, et P. Daull, chef de clinique oto-rhino-laryngologique à la Faculté de médecine de Strasbourg. Paper. Price 16 francs. Pp. 137 with 35 illustrations. Paris: Masson & Cie 1934.

This little monograph discusses, in detail, infections of the tonsillar fossa, the authors preferring that term to those of peritonsillitis or paratonsillitis. The normal and the pathologic anatomy of the tonsillar fossa are first discussed in considerable detail, and the authors lay considerable stress on the details of the supratonsillar space. The etiology of the various infections in and about the tonsils is then described. In the chapter on clinical study, attention is called to the fact that in the posterior type of infection of the tonsillar fossa there is absence of trismus. In the next section the subject of the local complications in the pharynx, larynx and peritracheal tissues is discussed. Under the heading of "Diagnosis," the exploratory puncture of infected tissue is described. The next

chapter deals with the medical treatment, including local applications of epinephrine, chloride of zinc, tincture of iodine and light scarifications of the soft palate and pillars of the fauces. The injection of electrargol is mentioned as well as that of bacteriophage. The authors also suggest, in the general medical treatment, colloidal therapy in the way of injections of collargol, electrargol, colloidal gold and omnadin (a proprietary mixture of partial antigens). They also mention injections of stock vaccines, auto vaccines, and injections of the patient's own blood. The surgical treatment consists in incision of the suppurative area or in removal of the tonsils. The latter procedure has for some time been used quite extensively by American laryngologists.

This brochure is logically and well written, and the illustrations aid greatly in the elucidation of the text. The work is timely and will well serve those who are interested in the infections of and complications involving the tissues in and about the tonsils.

**A Study of the Ionization Method for Measuring the Intensity and Absorption of Roentgen Rays and of the Efficiency of Different Filters Used in Therapy.** By Robert Thoræus, Fil. Lic. Kalm. Akademisk Avhandling som med Tillstånd för Vinnande av Filosofisk Doktorgrad. Uppsala. Acta Radiologica Supplementum XV. Paper. Pp. 88 with 40 illustrations. Stockholm: F. Englund's Boktryckeri a. B. 1932.

In this monograph, Thoræus reports on some filtration properties of various metals checked against five qualities of radiation and illustrates in charts and tables his results. The efficiency of various metals as filters is discussed next and he presents data to assist one in selecting the best filter for a certain purpose. His new "tin filter" is described, which takes the place of 2 or 3 mm of copper, producing hard radiation with the additional advantage of not decreasing the intensity. The monograph closes with some studies made in the water phantom on the relative roles of true absorption and back-scattering. The volume is important in helping to solve many of the puzzling problems of filtration and dosage in roentgen therapy.

**National Policies Affecting Rural Life. Proceedings of the Sixteenth American Country Life Conference.** Blackburg, Virginia, August 1-4, 1933. Cloth. Price \$2. Pp. 152. Chicago: University of Chicago Press for the American Country Life Association 1934.

The addresses reported include "World Agriculture" by Henry A. Wallace, "The National Policy Needed" by Norman Thomas, "Agricultural World Economy" by Wallace McClure, "International Debts and Monetary Policies" by Leo Pasvolksky, and "World Trade Barriers" by Lynn R. Edminister. There is a round table report on "Rural Health and Welfare" by Katherine F. Lenroot of the Children's Bureau which states the problem and summarizes conditions and the institutions supplying medical care in rural neighborhoods. The participation of the federal government in state and local welfare services is urged.

**The Chemistry of Flesh Foods and Their Losses on Cooking.** By R. A. McCance and H. L. Shipp. Medical Research Council Special Report Series No. 187. Paper. Price 2s. 6d. Pp. 146 with 36 illustrations. London: His Majesty's Stationery Office 1933.

This report gives the chemical composition of cooked meat, poultry and fish. All types of cuts were used and methods of cooking suitable for each were employed. The analyses are quite complete in that they include protein and nonprotein nitrogen, fats, carbohydrates, and the elements sodium, potassium, calcium, magnesium, iron, phosphorus and chlorine. The methods of analysis used are given in detail. Among the observations made in connection with the study the following are of special interest. The losses in weight, water and salts incurred in cooking meat are the same, regardless of the temperature of the water when the meat is placed in it. The losses in salts and protein in meat roasted in an uncovered pan are appreciably less than in that roasted in a covered pan, owing to the fact that in an open pan much of the water expressed from the meat during shrinking is evaporated, leaving the salts and protein that were in solution in the expressed water concentrated at the surface of the roast. The shrinkage in meat cooked by steam at high temperature as in a pressure cooker is slightly greater than in that cooked by steam at 100 C.

**A New Physiological Psychology** By W Burrige DM MA Professor of Physiology Lucknow University With a foreword by Sir Leonard Hill MB LL D FRS Cloth Price \$3 Pp 158 with 6 Illustrations. London Edward Arnold & Company 1933

This book presents a theory of the action of the nervous system. The author believes that the end organs and central neurons are rhythmic and that the problem is one of colloidal chemistry. Muscle and nerve tissue form two sources of potential energy, which are called kinesiophores. A stimulus does not detonate the nervous system but acts rather as an anabolic agent. The author holds that this does away with explanations which are dependent on the function of the synapse. He links his theory with Freudian psychology particularly from the angle of the pleasure-pain principle, which he says is the functioning of the relationship between the two kinesiophores. Chapters are devoted to the relationship between this author's theory and the knee jerk, memory, dreams, convulsive states and other rather isolated psychologic phenomena. While the theory itself does not seem far fetched, the author's interpretations of the psychologic phenomena do appear naive. His book is not convincing.

**The Common Diseases of the Skin. A Handbook for Students and Medical Practitioners** By R Cranston Low MD FRCP Consulting Physician to the Skin Department Royal Infirmary Edinburgh Second edition Cloth Price 12/6 Pp 317 with 150 Illustrations Edinburgh & London Oliver & Boyd 1934

This is a short, concise exposition of dermatology written primarily for the student. The illustrations are carefully selected and many of them are in colors. The drawings illustrating the microscopic pathology of the more important diseases have been well executed by the author himself. The text represents the clinical conception and therapeutic methods in vogue in the present day Edinburgh school of dermatology. No attempt has been made to include syphilis, the excuse being given that this subject is adequately taken up in textbooks on venereal diseases. It is hoped that future editions will include this important subject. Medical students and practitioners will find this volume useful for a rapid review of dermatology.

**Cholera. A Manual for the Medical Profession in China** By Wu Lien Teh J W H Chun R Pollitzer and C Y Wu Cloth Price \$3 Pp 197 with 24 Illustrations Shanghai National Quarantine Service 1934

China is sometimes pictured as a country so backward that only a helping—or forcing—hand from the outside can bring it into the fellowship of civilized nations. No one, however, can read this book by Chinese authors on cholera (*huo-luan*) without realizing that strong forces are at work from the inside. The discussion of one of the most serious diseases in the Orient is on a high level, it is unpretentious but is lucid, accurate and well abreast of current knowledge. The importance of clean water supplies in the control of cholera is clearly recognized and other factors are discussed with complete understanding and good sense. Many Western readers will find the chapter on the history of *huo-luan* in China of particular interest.

**Eine Methode zur Messung von Röntgen Radium und Ultrastrahlung** nebst einige Untersuchungen über die Anwendbarkeit derselben in der Physik und der Medizin. Mit einem Anhang Enthaltend einige Formeln und Tabellen für die Berechnung der Intensitätsverteilung bei  $\gamma$  Strahlungsquellen. Av Rolf M Sievert Fil Lic Stockh Akademisk Avhandling som med Tillstånd för Vinnande av Filosofisk Doktorsgrad Upsala Acta Radiologica Supplementum XII Paper Pp 207 with Illustrations Stockholm Kungl Boktryckeriet P A Norstedt & Söner 1932

In this monograph Sievert discusses the mathematics and physics of ionization measuring devices and from these considerations favors condenser-chamber systems the advantages and disadvantages of which he analyzes in considerable detail. Sievert has developed many condenser-chamber measuring devices useful not only in measuring the various types of  $\gamma$ -rays but also gamma rays. In this way the daily treatments at Radiumhemmet can be checked up and also compared with the techniques used in other clinics. By the use of these condenser-chambers Sievert is enabled to measure not only surface doses but also those in the various body cavities. The consideration of the physics and construction of these chambers can be followed easily by any one having a meager knowledge

of mathematics and physics. The monograph has a bibliography of 171 references, 286 studies and some photographs of these ionization chambers and their accessories and closes with tables of the energy distribution of gamma radiation. It is an excellent presentation, which should be of interest to all those whose work involves the study of doses in radiotherapy.

**De la psychose paranoïaque dans ses rapports avec la personnalité** Par le Docteur Jacques Lacan Paper Price 50 francs Pp 381 Paris Librairie E Le François 1932

This is a highly technical discussion of the subject of the paranoid psychoses, giving a lucid and exhaustive exposition of the teachings of Kraepelin, Serieux and Capgras, Kretschmer, Kehrler, Lange and others. There is also an excellent report in detail of a case. The third and final part of the book discusses, in a manner that is admittedly speculative, the significance of the paranoid states, based mainly on a psychoanalytic interpretation of the delusional contents. The views offered are largely repetitions of authoritative statements rather than original concepts. The book will be of little interest to the general physician, but it contains much of value for the graduate student and the psychiatrist.

## Medicolegal

**Workmen's Compensation Acts. Hernia Attributed to Overexertion**—In the course of his employment, Feb 4, 1932, Peterson and two fellow workmen moved a metal tank, weighing about 5 tons, along a concrete floor, by means of steel rollers placed under it and shoved forward by steel pinch bars 6 feet in length. This work required much exertion and energy in pulling and lifting. At times the bars would slip, causing strain to the bodies of the workmen. When the noon hour came, Peterson, who had theretofore been an active man and quick in his movements, was observed to leave his work very slowly. He made no statement at the time of having been injured, but his face was purple or bluish. Between 12 30 and 1 o'clock he was heard to call for help and was found in his automobile, parked nearby, sitting or lying on the back seat, with his feet over the back of the front seat. He was groaning and gave evidence of great pain. A fellow workman drove him to a hospital, where it was discovered that Peterson was suffering from a strangulated hernia. He was doubled up in pain so that he could be examined only with difficulty, his pulse was rapid, his body was cold and clammy. At the time of the operation, the hernia had increased to the size of a baby's head. The operation disclosed that Peterson had a large thin sac filled with about a quart of blood, and that about a foot or foot and a half of fairly dark bowel had descended into the scrotum. Five days later, Peterson developed a paralytic ileus and death followed. His widow instituted proceedings under the workmen's compensation act of Utah and despite the fact that neither the employer nor his insurance carrier presented any evidence, the commission found that 'there was no competent evidence to establish that the decedent met with an accident or that his death was the result of an accidental injury.' From a denial of compensation the widow appealed to the Supreme Court of Utah.

The only question here present, said the Supreme Court, is whether the evidence that was produced at the hearing was sufficient to justify an award of compensation. In the opinion of the court there was sufficient competent evidence of an accidental injury. Peterson's family physician, who assisted in the operation testified that he had never treated Peterson previously for hernia and said "if I ever saw a traumatic hernia in my life that was a typical traumatic hernia." The manner in which the employee left his work, continued the court, the discolored appearance of his face at the time, the indications of severe pain and suffering when found in the automobile, and the rapidly developing hernia, all pointed directly and logically to an industrial injury as the cause of Peterson's trouble. The declarations and statements made by the deceased to his physician, before the operation, that he was

lifting on a boiler five or ten minutes before he left work and while lifting felt "terrible pains," were admissible under the rule stated in 3 Jones Comm on Evidence (2d Ed) 2234

Where it appears that the physician testifying was called by the injured person in his ordinary professional capacity and for purposes of securing relief from pain and for medical treatment, and there are no circumstances casting suspicion on the genuineness of the utterance, all statements of symptoms and sufferings whether past or present and though involving statements as to the nature of the accident, if necessary to diagnosis by the physician may be testified to by him. On the other hand where a physician examines an injured person for the express purpose of testifying as to his physical condition even declarations of present pain made by the patient to the physician have been held inadmissible.

To establish the fact of a traumatic hernia, it was contended, it was necessary to show that the injury caused immediate disability by reason of pain at the time of the accident, and that where the accident is followed by a later development of hernia, the accident must be regarded as the occasion rather than the cause of the injury. But, said the Supreme Court, in the present case the effect was immediate. It was no less immediate because the condition of the deceased grew progressively worse during the two hours between noon and the time the operation was performed. The medical testimony indicated a traumatic strangulated hernia of recent origin. There was nothing to indicate that Peterson had a previous hernia or that there were other predisposing causes. That overexertion may cause accidental injury or death, continued the court, is no longer open to serious question. The only reasonable or permissible inference from the evidence in this case is that the hernia was caused by strain or overexertion while moving the tank. The court accordingly set aside the findings and the decision of the commission and remanded the cause for further proceedings.—*Peterson v Industrial Commission of Utah (Utah)*, 27 P (2d) 31

**Malpractice Liability for Roentgen Burn**—No presumption, says the Court of Appeals of the District of Columbia, of want of skill or care ordinarily arises from the fact that medical treatment is unsuccessful. But evidence that a physician administered roentgen treatment to a patient without remaining in the room or within hearing, which treatment resulted in a burn, warrants a finding of negligence, unless satisfactorily explained. It is for the jury to determine the issue from all the evidence presented. In such a case it constitutes error for the trial court to direct the jury to return a verdict for the defendant-physician.—*Grubb v Groover (District of Columbia)* 67 F (2d) 511

## Society Proceedings

### COMING MEETINGS

- American Academy of Ophthalmology and Otolaryngology Chicago Sept 9-14 Dr William P Wherry 107 South 17th Street Omaha Executive Secretary
- American Association of Railway Surgeons Chicago August 20-22 Dr Louis J Mitchell 21 East Van Buren Street Chicago Secretary
- American Congress of Physical Therapy Philadelphia Sept 10-13 Dr Nathan H Palmer 921 Canal Street New Orleans Secretary
- American Public Health Association Pasadena Calif Sept 3-6 Dr Kendall Emerson 50 West 50th Street New York Executive Secretary
- Colorado State Medical Society Colorado Springs Sept 19-22 Mr Harvey T Sethman 537 Republic Bldg Denver Executive Secretary
- Idaho State Medical Association Lewiston Sept 7-8 Dr Harold W Stone 105 North Eighth Street Boise Secretary
- Michigan State Medical Society Battle Creek Sept 12-14 Dr F C Warnshuis 148 Monroe Avenue Grand Rapids Secretary
- National Medical Association Nashville Tenn August 13-18 Dr C A Lanon 431 Green Street South Brownsville Pennsylvania General Secretary
- Nevada State Medical Association Reno Sept 21-22 Dr Horace J Brown 120 North Virginia Street Reno Secretary
- Northern Minnesota Medical Association Brainerd Sept 10-11 Dr Oscar O Larsen Detroit Lakes Secretary
- Pacific Northwest Orthopedic Association Seattle Sept 1 Dr J C Brugman 1215 Fourth Avenue Seattle Secretary
- Western Branch of American Public Health Association Pasadena Calif Sept 3-6 Dr W P Shepard 600 Stockton Street San Francisco Secretary
- Washington State Medical Association Spokane Sept 10-13 Dr Curtis H Thomson 1305 Fourth Avenue Seattle Secretary
- Wisconsin State Medical Society of Green Bay Sept 12-14 Mr J G Crownhart 119 East Washington Avenue Madison Secretary

## MISSOURI STATE MEDICAL ASSOCIATION

Seventy Seventh Annual Meeting held in St Joseph Mo  
May 7 to 10 1934

DR W L ALLEE, Eldon, in the Chair

### The Management of Blood Diseases

DRS J H MUSSEY and D O WRIGHT, New Orleans

Instead of grouping the so called blood disorders on the basis of the etiology, the morphology of the blood cells or any other accepted classification, we have presented as a group certain blood disorders that are benefited by several forms of therapy.

1 Blood conditions benefited by vitamin therapy: pernicious anemia, sprue and pernicious anemia of pregnancy, three conditions which are alleviated by vitamin B therapy.

2 Blood conditions benefited by drugs: four anemias that are materially helped by the administration of iron in full and adequate doses—idiopathic hypochromic anemia, normocytic anemia, sideroblastic microcytic anemia and the anemia of pregnancy, here also listed polycythemia vera, which may be treated successfully with phenylhydrazine, agranulocytic angina, which apparently may be cured by pentnucleotide, and hemophilia, which is included for the purpose of discussing a form of treatment which we do not think beneficial.

3 Blood conditions benefited by radium or roentgen therapy: the two types of chronic leukemia that definitely are ameliorated by irradiation, though physical measure does not produce a cure but does relieve symptoms for a time at least and prolongs life.

4 Blood conditions benefited by splenectomy: three genetically dissimilar dyscrasias of the blood, which, however, are to all intents and purposes cured in many instances by removal of the spleen. These various therapeutic measures may not be curative in the sense that they remove the underlying cause, but at least they are definitely capable of relieving the patient.

### Fibromas of the Small Intestine with Intussusception

DRS WALLIS SMITH and GUY D CALLAWAY, Springfield

In two cases of fibromas of the ileum the symptoms and the clinical examination suggested acute intestinal obstruction. Intussusception was present in each and the tumor was found in the distal portion of the telescoped bowel. One of the patients gave a history of lower abdominal pain, cramping, distention and constipation for a period of several months before intussusception occurred. The onset of symptoms in the other case was sudden and acute but diminished after a few hours. Resection of the intussuscepted portion of the bowel was done in the first case but only ileotomy was required in the second. Microscopic examination showed the tumors to be fibromas. The patients recovered. Thirty eight instances of fibromas of the small intestine were found in the literature. Some of the tumors were discovered at autopsy but most of them were discovered during operation for acute intestinal obstruction. Intussusception was the usual complication producing a complete occlusion of the bowel. Diagnosis is difficult. Roentgen therapy offers the best possibilities but at this time it is seldom possible to differentiate occlusion due to intraluminal tumors from obstruction due to other lesions. A correct diagnosis is usually made at the time of the operation but all intestinal tumors should be examined microscopically. The only treatment required in uncomplicated cases of fibroma of the small intestine is ileotomy and removal of the tumor and its base. If an irreducible intussusception is present or gangrene has developed resection of the bowel is necessary. The mortality rate after ileotomy is low. It increases in the group of cases in which resections are done, being greatest in the group of patients in whom gangrene develops prior to operation.

### Tertian Malaria with Unusual Type of Skin Manifestations

DR A GLENN DAVIS, Kirkwood

A white girl, aged 10 years, seen Sept 9, 1933 had had apathy, weakness, loss of weight and anorexia for six weeks. Chills, rises of temperature and diarrhea had appeared, three weeks previously. The parents had given the child patent remedies and the chills ceased after two weeks, but the occurrence of fever at intervals of forty-eight hours, as well as severe diarrhea persisted. Blebs, about 6 mm in diameter, appeared September 9 and were distributed

over the entire body excepting the soles and the palms. No papules or pustules were seen at any time. To the naked eye, the small round lesions resembled the microscopic appearance of stained small lymphocytes except as to color. The dark portion of the lesions, corresponding to the nucleus of a stained cell, was red. It was in the center and located deeply under the thin epidermis overlying the lesions. The periphery of the lesions, corresponding to the cytoplasm of a stained lymphocyte, was light in color and narrow. The lesions were filled with a colorless serous fluid. The blood smear showed innumerable plasmodia. The hemoglobin was 70 per cent. The urine showed a faint trace of albumin and numerous pus cells. Atabrine was given in the recommended dosage. The diarrhea was checked after a period of twenty-four hours. The skin lesions disappeared by a gradual decrease in the size and in the depth of color until by end of the fifth day only smooth pink areas marked the sites of the lesions. There was no fever after the second day of treatment. The first impression was that the patient might have hemorrhagic smallpox. Closer observation of the lesions, however, revealed the absence of umbilication. In December I saw the patient again and found that there was marked and conspicuous pitting where the lesions had been, especially in the regions of the face and neck. That the lesions were definitely a manifestation of the malarial infection is borne out by the prompt response to specific therapy.

#### Thyroidectomy for Heart Disease

DR JULIUS JENSEN, St. Louis. Of late, considerable attention has been paid to thyroidectomy for heart disease. The procedure was initiated in 1932 in Boston by Blumgart and his co-workers and is based on the fact that the rate of metabolism is governed by the thyroid gland. If the thyroid gland is removed the metabolic rate is lowered. The lowering of the metabolic rate results in a diminished demand for oxygen by the tissues and thus the demands on the circulation are lessened. While a damaged heart may not be able to carry the full circulatory load of a normal metabolism, it may be able to carry comfortably the load of a lowered metabolism. Thus it may be possible to obtain adequate circulation with a damaged heart by removing the thyroid gland. The preliminary reports from Boston were so promising that the procedure seemed worthy of trial elsewhere. During the last six months Dr. Allen and I have studied a number of cases of heart disease with a view to thyroidectomy for the cardiac condition. Our results have been as promising as those reported from Boston, but the method is still so beset with difficulties that it can not yet be considered safe.

#### Treatment of Angina Pectoris of Effort by the So-Called Cardiac Hormones

DR J. CURTIS LYTER, St. Louis. Heberden, in his masterful description of the angina pectoris of effort, described a patient who was able to prevent his angina by sawing wood for one-half hour each morning. Demoor of Belgium, Haberlandt of Innsbruck, Zwaardemaecker and Zuelzer almost simultaneously conceived the idea that in the skeletal muscles during activity there is produced a substance capable of dilating the coronary arteries. The dilation of the coronary arteries seems to be necessary to supply the cardiac muscle with an adequate quantity of blood during muscular exercise. These authors also believed that during exercise a substance is produced in the liver and pancreas which can not only dilate the coronary arteries but can simultaneously regulate the myocardial contraction tonicity and conduction. Zuelzer produced a substance from the liver called eutonon. Frey and Kraut isolated a substance from the human urine after exercise. They considered it to be of pancreatic origin and named it padutin. Using the skeletal muscles of a calf, Fahrenkamp and Schneider produced a substance which they named lacarnol. Schwartzmann applied the name myaston to a substance which he produced from the same source. Zwaardemaecker produced a substance from the heart muscle and called it automative. He recovered what he thought was a similar substance from the circulating blood. These substances have been called cardiac hormones in continental Europe. Apparently, no two investigators agree regarding the chemical constitution of the substances which have been considered to derive their action from the intermediary products

of nuclear metabolism, from their content of histamine and from their content of adenosine. All investigators agree that they produce a dilatation of the coronary arteries, and an increase in cardiac tonicity.

I have treated twenty-one patients for angina pectoris since August 1933. Seventeen of the number had angina pectoris of effort and four had angina pectoris of decubitus. The patients were given intravenous injections of 1 cc. of padutin daily for from thirty to sixty days. Simultaneously 30 drops of lacarnol was administered three times each day. The patients suffering with angina pectoris of effort were made to exercise in the way of walking after receiving treatment for periods of from ten to twenty days. The walking was stopped with the onset of the least pain. In this way the walks were increased until the patients were able to walk from 3 to 5 miles each day. When this stage was reached, the padutin was administered only twice each week. After a few weeks, both the padutin and the lacarnol were discontinued and the patient was instructed to continue walking for from 3 to 5 miles daily the remainder of his life.

Of the seventeen patients treated for angina pectoris of effort, thirteen have been completely relieved and are now able to walk any distance without anginal pain. Four patients have slight anginal pain after walking one or two blocks. This ceases immediately with rest, following which they can walk for any distance with no discomfort. Of the four patients presenting angina pectoris of decubitus, each has shown marked improvement. They do not have angina while they are at rest but they do experience angina on various degrees of exertion. I feel that by means of the correct use of the cardiac hormones combined with graduated, closely supervised physical exercise, the majority of patients with angina pectoris of effort can be completely relieved of pain, and the majority of patients with angina pectoris of decubitus can be greatly benefited.

#### Skin Testing in Allergic Conditions

DR HERBERT J. RINKEL, Kansas City. Skin testing has generally been accepted as the means of determining the substances to which the patient is sensitive. However, as the knowledge of allergy has increased it has become evident that this procedure is not adequate to discover the etiologic factors. The result has been that some workers have discarded skin testing, others have limited themselves to the use of a selected group of allergens or have sought aid in such measures as elimination diets. Skin reactions occur as the result of contact between a specific allergen (testing extract) and the cellular fixed antibodies in the skin. These antibodies have the ability to sensitize the skin of the nonatopic individual as well as the patient's skin and thus they make indirect testing possible. Skin sensitization is a variable factor, not only in different areas but in the same location over a period of time. It often precedes constitutional sensitivity and may persist after the clinical manifestations of allergy have ceased. Skin testing is further complicated by the number of shock organs that have sensitized the skin to one or more allergens. These allergens have a high degree of specificity for one or more of the various localizations of sensitization. Skin testing cannot be used to determine the presence, the degree or the localization of an allergy. If one will correlate the results of the clinical and laboratory examinations in a large series of cases it will be found that the value of skin testing lies in the average of accuracy, which varies with the different manifestations, being greatest in seasonal hay fever patients.

#### Acute Allergic Abdomen (a Preliminary Report)

DR L. P. GAY, St. Louis. Recent observations by Rowe, Reichet and Vaughn indicate that gastro-intestinal allergy may prove to be the most common manifestation of allergy. The symptoms may be mild or violently acute and may occur with other manifestations of allergy, but at times the abdominal symptoms occur alone. Acute abdominal pain simulating an acute surgical condition of the abdomen has been observed frequently with Henoch's purpura and numerous cases of this type have been treated surgically. The same type of pain has been described in association with other erythematous skin diseases in which urticaria and angioneurotic edema have been included. Abdominal pain has been produced by an overdose



of desensitizing pollen extract, absorption through skin abrasions and food ingestion. The paper deals with allergic episodes including abdominal pain, muscular spasm, elevation of temperature and an instance of leukocytosis. The diagnoses were made by the history and by extra-abdominal symptoms as well as by the physical examination of the abdomen, as ordinary methods of examination and laboratory procedures are of little help. The patients observed made complete recoveries without operation and their symptoms have been reproduced intentionally to make the proof of the condition certain.

#### Treatment of the Underprivileged Patient with Diabetes

DR T L HOWDEN, St Joseph. This group outranks in number any other suffering from the disease. Hospitalization and elaborate equipment are unnecessary in the treatment of diabetes, because the majority of patients with the disease may be managed satisfactorily by the general practitioner. Quantitative analysis of the twenty-four hour urine specimen tells the story and only occasionally is it necessary to determine more than one or two blood sugars.

The basal caloric requirement represents the number of calories used in the trial diet and is determined by the Boothly and Sandiford chart. In proportioning carbohydrates, proteins and fats, 1 Gm of protein per kilogram of body weight is used. The carbohydrates are placed at from 80 to 90 Gm and any number included between these two may be selected arbitrarily. The fats are then found by simple subtraction.

A quantitative order blank for diabetic menus may be secured from any standardized hospital, according to this blank the carbohydrates, proteins and fats are distributed for breakfast, dinner and supper. In writing the patient's menu it will be necessary to convert grams on the order blank to their equivalent measures on the menu. This is important, as these patients will not use scales properly.

The United States Department of Agriculture furnishes standard food tables with weights and their equivalent measurements. The patient's menu is simple and tells him what to eat for breakfast, dinner and supper in terms of standard portions such as cupfuls and tablespoonfuls. The patient is also given a food list of 3 per cent vegetables, 6 per cent vegetables, 10 per cent fruits and the various other groups. Each article of food in these different groups is accompanied by the portion that he may use. The amount of sugar present in the twenty-four hour specimens of urine serves as a guide to the patient's progress. For a quantitative test of the sugar in the urine 8 drops of urine is added to 1 drachm of Benedict's solution and heated for five minutes in a cup of boiling water. The formation of a green color means that less than 1 per cent of sugar is present. The formation of a yellow color indicates from 1 to 2 per cent, and a red color indicates 3 per cent or more of sugar. This test has proved of sufficient accuracy to be used as a substitute for the more technical methods.

#### Interpretation of Shadows in Urogram

DR OTTO J WILHELM, St Louis. The purpose of this presentation is to demonstrate that frequently perplexing conditions simulating calculi in the urinary tract are encountered and with meticulous examination they proved to be caused by other factors. Statistics show that but 5 per cent of renal calculi are demonstrable roentgenographically. It is not unusual to see shadows in the lower third of the ureter which are not caused by urinary calculi but by phleboliths or calcified extra-peritoneal lymph glands. In such cases the only means of accurate diagnosis is retrograde catheterization, the catheter coming in contact with the stone in its passage toward the pelvis or meeting with a complete block at the point where the calculus has lodged. Stones occurring in the pelvis or cortex of the kidney may remain there for years with no renal destruction or pain as long as sufficient drainage occurs to prevent backflow pressure. This "silent" type of stone is most frequently diagnosed by chance in roentgen examinations. Disease conditions of the gallbladder and appendix may simulate right-sided ureteral colic. Severe ureteral colic was formerly believed to be caused by traumatization of the ureteral wall by the descending calculus, but today urologists have proved that the pain is due to obstruction resulting in a dilated pelvis and

subsequent hydronephrosis. This fact is demonstrated by the relief afforded the patient when it is possible to manipulate a catheter past the blocked area and to drain the dilated pelvis.

An x-ray ureteral catheter is one's best ally in rendering a differential diagnosis between ureteral diseases of the stone, appendix and gallbladder, and phlebolith. One should always bear in mind that occasional intramural stones occur which will permit the catheter to pass without obstruction and for that reason are misleading. Shortly after the stone becomes lodged it traumatizes the ureteral mucosa and a stricture forms at this point with a dilatation of upper portion of the ureter. It is also possible for dilatation to occur below the point of stricture, apparently the result of an inflammatory loss of tone of the ureteral wall. The lower third of the ureter, especially the intramural portion, is an exception to the rule of dilatation. In these cases the ureter is more apt to become narrowed, owing to the increased amount of musculature and the edema of the surrounding tissues. On this type of case the cystoscope is a diagnostic aid and reveals a puffed, edematous ureteral orifice with marked ecchymosis of the vesical mucosa. Most ureteral calculi are found in the lower third of the ureter. They seldom remain long in the upper two thirds migrating rapidly toward the bladder.

#### The Blood Platelet Count in Post-operative Thrombosis

DRS R B H GRADWOHL and SAMUEL J HELLER, St Louis. In a series of thirty-one cases, including twelve herniotomies, two cholecystectomies, fourteen pregnancies, six miscellaneous operations, one hemorrhoidectomy, five hysterectomies and two normal individuals, we found that a rise in blood platelets occurred in many patients following operations, particularly herniotomies. We could not draw any conclusions regarding the relationship between postoperative thrombosis and the blood platelet count owing to the fact that none of our cases studied presented a thrombosis during the course of the daily serial blood platelet counts. It seems probable, however, that there is a rise in blood platelets after certain operations. Whether an increase in blood platelets is the sole factor in thrombosis or a contributing factor could not be established.

#### Carcinoma of the Prostate

DR GEORGE H EWELL, Madison, Wis. Carcinoma of the prostate accounts for a large percentage of the cases admitted to any active urologic service. In less than 5 per cent of the cases when first seen is the disease confined to the gland. The early tendency toward lymphatic and osseous metastasis makes early diagnosis very desirable. The fact that carcinoma may arise in any portion of the gland and not merely in the region beneath the posterior capsule only is of importance for early diagnosis. Carcinoma occurring in younger persons develops more rapidly and gives rise to earlier metastases than in older persons. Urinary symptoms usually lead the patient to consult his physician, pain in the pelvis and about the hips is the second most common symptom, the pain being due to lymphatic and perineural lymphatic metastases. Roentgen examination will reveal osseous metastases in a large percentage of the cases when they are first seen. Lymphatic and osseous metastases may exist without producing pain. Roentgen examination of the bones of the pelvis and the lower spine should be made as a routine in all suspected cases of carcinoma of the prostate. A careful examination of the prostate is the greatest resource in the diagnosis. However, the aspiration biopsy (technic of Ferguson) should be more widely employed. The results of treatment generally are still rather unsatisfactory. Interstitial irradiation, after the newly described method of Ferguson, and the radical operation of Young would probably be adequate for eradication of the lesion in many of the cases, provided they could be seen early. The public should be educated to annual physical examinations.

#### Chronic Prostatitis

DR DAVID B STUTSMAN, St Louis. In this clinical group I have considered only those cases which give definite subjective symptoms. These symptoms are more commonly pain and burning in the perineum or rectum, burning frequency or pain at intervals on urination, and various sex disorders. The latter symptom particularly has led this group frequently to

be classified as sexual neurasthenia. In such a patient the prostatic urethra from the verumontanum to the vesical orifice is intensely inflamed, usually with some fibrosis or contracture. It is largely from this source that the symptoms are derived, and while massage, dilation and instillation have proved beneficial, the relief in many instances has been unsatisfactory. Monopolar fulguration to the prostatic urethra, particularly around the verumontanum, has in many cases seemed to give more decided relief. In two cases showing this syndrome, the age of each being such that early hypertrophy might be present, resection of a moderate amount of tissue at the vesical orifice was done and some surface coagulation carried down into the prostatic urethra. The result was beneficial in each instance. Four other patients ranging in age from 32 to 40 were treated in the same manner. Two have shown complete relief and two relieved entirely except for some remaining sexual complaint. The comparative simplicity of the procedure with apparent results seems to warrant its trial in preference to the more radical drainage of prostate and vesicles.

#### Pararectal Fistula

DR W K MCINTIRE, St. Louis. The pararectal fistulas are of three types: (1) the blind internal pararectal, (2) complete pararectal, and (3) bilateral pararectal. The surgical treatment of a pararectal fistula differs from that of other fistulas, because of the anatomic relation of the main fistulous tract to the muscles controlling the anal outlet. If the surgical principle of laying open the tract from the external to the internal opening should be applied in this type of fistula in which the internal opening is above the level of the levator ani, not only would both sphincters and the muscular coats of the rectum be divided, but also the point of fusion of the levator ani with the external muscular coat of the rectum. This is of great importance, because incurable incontinence results. The incision should be through the tissues on the outer side of the main fistulous tract to the point where it passes through the wall of the rectum.

#### Management of Hyperthyroidism

DR E V MASTIN, St. Louis. The general term hyperthyroidism includes two separate and distinct diseases: exophthalmic goiter and toxic adenomas. The signs and symptoms of the two diseases may be so similar that a differential diagnosis is difficult. Hyperthyroidism plus dysthyroidism is present in the case of exophthalmic goiter, while uncomplicated hyperthyroidism, which can be reproduced experimentally by the administration of thyroid extract, accompanies the toxic adenoma. The cause of exophthalmic goiter is unknown.

Recurrence of hyperthyroidism is encountered in not more than 5 per cent and probably less than 3 per cent of all the patients on whom conservative double resection of the thyroid gland has been performed. Any assumption that inadequate surgery is the most frequent cause of recurrence disregards the fact that there may be recurrence of the stimulus that was the original cause of the disease. The nature of the latter is as yet a matter of speculation.

The cooperative management of patients with toxic goiter, whereby throughout the entire period of observation they are under the joint supervision of the internist and the surgeon, has greatly reduced the mortality.

The introduction of the use of compound solution of iodine in the preoperative preparation of patients with exophthalmic goiter has been the most momentous single advance in the surgical treatment of diseases of the thyroid since the advent of aseptic surgery. In cases of toxic adenoma, iodine seldom causes the marked improvement seen in cases of exophthalmic goiter. Compound solution of iodine will not cure exophthalmic goiter and its indiscriminate use is both dangerous and unscientific. It should be used only as a preoperative and postoperative adjunct and during hyperthyroid crises. These patients are put to bed as a routine procedure with an icebag over the precordium. They receive from 4,000 to 5,000 calories of food daily and from 3 to 4 quarts of fluid during twenty-four hours. It is advisable to administer a sedative and I prefer one of the barbituric preparations such as pentobarbital sodium or phenobarbital, given in doses of from  $\frac{1}{2}$  to  $1\frac{1}{2}$  grains (0.03 to 0.1 Gm) three times a day and at bedtime.

Usually 10 drops of compound solution of iodine is given in milk or cocoa three times a day between meals.

The glycogen reserve of patients with degenerative changes in the liver, as evidenced by the phenoltetrachlorophthalein retention test and those with diabetes mellitus, may be materially increased by preoperative preparations, in the first group, by the intravenous injection of 10 per cent dextrose in sodium chloride solution, in the second group by a diet high in calories and rich in carbohydrates, supplemented by adequate insulin to make possible the utilization of the food.

The essential technical features of the operation for goiter are (1) the removal of the excessive thyroid tissue with a minimal loss of blood and the least possible trauma to the contiguous structures, (2) the preservation of sufficient glandular tissue to maintain the basal metabolism within normal limits and (3) the maintenance of strict asepsis. Postoperatively, restlessness and pain are controlled by the rectal administration of  $1\frac{1}{2}$  grains (0.1 Gm) of pentobarbital sodium in 10 cc of saline solution every four hours and whenever it is necessary morphine from  $\frac{1}{8}$  to  $\frac{1}{4}$  grain (0.01 to 0.016 Gm) is given. The patients are kept very quiet for the first forty-eight hours, and a fluid intake of 3,000 cc is maintained by giving sufficient saline solution by hypodermoclysis and 10 per cent dextrose solution intravenously. Should a severe crisis develop, the patient is given increasing doses of compound solution of iodine in saline solution by hypodermoclysis or large doses of sodium iodide are given intravenously. A 10 to 20 per cent solution of dextrose is given by continuous venoclysis and nine or ten icebags are placed over the precordium and around the abdomen and the thighs. Blood transfusions are indicated at times. The oxygen tent is also a great aid.

#### Experimental Production of Fat Necrosis

DR M PINSON NEAL and MAX M ELLIS, PH D, Columbia. Langerhans in 1890 produced the first experimental necrosis of fat and expressed a belief that lipase was the causative factor. Since that time Opie, Wells and others have, as the result of experimentation, voiced the same assumption, but none of them have produced the proof. We were able to produce fat necrosis by the use of a concentrated lipase fraction obtained from the liver and pancreas of hogs and commercial pancreatin. In the literature there is an expression of general belief that lipase causes the splitting of fat after some other ingredient of the pancreas, possibly trypsin, has injured the cells. Since there was a question of trypsin being present in these animal tissue extractives, a source of material was sought that would be free of such substances. Extractives were prepared from the seeds of the common sunflower, unroasted Virginia peanuts, castor beans and Chinese soybeans. The lipase containing fractions obtained from these substances were potent in the production of fat necrosis and gave chemical and physical reactions for the enzyme lipase. These fractions were negative in the usual tests for trypsin and other proteolytic enzymes. The lipase-containing fractions have been used as intraperitoneal injections into 625 animals, including white rats, dogs, cats, turtles, fish, chickens, pigeons and water dogs. Fat necrosis has been produced in each of these except the water dog, only five animals of which type have been used. Experimental lesions of fat necrosis have been observed within six hours after injections of the substances. The condition is not fatal, though the factor which produces fat necrosis is often fatal.

#### Diagnosis of the Childhood Type of Tuberculosis

DR H L MANTZ, Kansas City. The childhood type of tuberculosis is that form of the disease characterized by primary single or multiple foci, with metastasis usually limited to the lymphatic system. The principal aids in the diagnosis are the history of exposure, the tuberculin reaction and the roentgen examination. Symptoms of infection may be present but they are not pathognomonic of tuberculosis and hence are of no diagnostic help. Physical signs are lacking except in a few cases. The Mantoux or intradermal test, with Koch's old tuberculin is the best method to use for the tuberculin test. If only one injection is used, 0.1 mg or 0.1 cc of 1:1,000 should be used. It is preferable to use graduated doses, beginning with 0.01 mg. It is unnecessary to use larger doses than the 1 mg. As a qualitative test the Mantoux

method is accurate. It can be used as a quantitative test in two ways. The doses may be varied from extremely small ones to those above a milligram, or the dose may be kept constant and the reactions measured. It is not yet safe to draw too definite a conclusion from the quantitative tests.

The chests of the patients in whom a positive reaction to tuberculin is noted should be subjected to roentgen examination. A large percentage will show no roentgenographic evidence of infection. Less than 5 per cent will show recent lesions. Interpretation of these films is not easy. Shadows cast by blood vessels are often diagnosed as calcium deposits. These are usually irregular in outline and density, while blood vessels are more homogeneous and have rounded borders. The classification of the patients has been done almost exclusively by roentgenograms. This practice sometimes leads to errors.

The laboratory has been neglected in the diagnosis of the childhood type of tuberculosis. Sputum may be recovered by gastric lavage and examined by the usual methods. Various blood examinations, such as erythrocyte sedimentation rates, leukocyte, lymphocyte and monocyte counts and ratios are used for diagnostic and prognostic purposes. Most of the tests are of value in the prognosis but are not to be relied on as diagnostic measures. Tuberculosis may simulate or be simulated by many diseases incident to childhood. Differential diagnosis is made by direct methods and by exclusion.

### The Treatment of Childhood Tuberculosis

DR HARRY CALVIN BERGER, Kansas City. For decades the treatment of tuberculosis has been rest, food, fresh air and sunshine. Isolation is the one factor that has been added. Great strides have been made, however, in the technic of applying these measures, especially in the domains of orthopedic and thoracic surgery. The greatest advance has been in education and the development in both the profession and the lay public of a sane comprehension of the problem. In the treatment of tuberculosis in children, physicians must have the proper conception on the following points:

1. We are dealing with the individual in the springtime of life when growth is rapid, changes are swift and reaction differ from those encountered in later life.

2. We must differentiate clearly between the childhood type and the adult type, which is rare early in life.

3. We must fully realize that reinfection of an infected child is far more dangerous than the infection of a child not previously infected.

4. Diagnosis must not wait for the development of physical signs; it can be made early only by the skin test and the roentgenographic examination.

5. The history is of utmost importance.

6. Isolation from contacts wherever possible is the ideal.

In applying treatment, rest is of first importance. It should be applied with common sense with the child's cooperation and must be mental as well as physical. It may cause damage if overdone. The child's psychology must be considered. The air should be fresh and free from dust, fumes or soot. It should be plentiful and acquired without undue exposure or exertion. Sunlight and other forms of ultraviolet radiation may prove disadvantageous through overindulgence. The diet should be wholesome, balanced and rich in vitamins and proteins; it should never be forced. I administer reinforced cold liver oil and calcium with phosphorus (preferably a phytin) to my patients. I am not using Calmette's immunization.

### Pneumothorax Treatment of Tuberculosis

DRS A. C. HENSKE and CHARLES W. EHLERS, St. Louis. In all unilateral cases the following are the indications for pneumothorax treatment: (1) if there are constant rales to be heard over an area corresponding to two or more ribs or intercostal spaces accompanied by positive results from the sputum and roentgenographic examinations, (2) if the disease is acute, (3) if in spite of rest in bed the activity of the process persists or improvement is not satisfactory, (4) if the patient for any reason is unable to undergo prolonged hospitalization, (5) if there is repeated or severe hemoptysis or hemorrhage, (6) if there are cavities with copious secretions, (7) if certain complications, such as tuberculous laryngitis, should be present, (8) if there is massive atelectasis or mas-

sive fibrosis. In bilateral cases the same indications are employed, influenced somewhat by the condition in the contralateral lung. The literature shows that highly favorable results are obtained in a majority of statistics quoted. Notably among these are Bonzoni's series of 3,680 cases treated during the period between 1916 and 1925. Of this total, 25 per cent were described as cured, 27.1 per cent as improved and 31.2 per cent as having ended fatally. Of Matson's 423 cases, 32 per cent were described as clinically cured, 20 per cent as arrested, 16 per cent as unimproved and 22 per cent as having ended fatally. Our experience with pneumothorax treatment at the Mount St. Rose Hospital from 1929 to 1933 is similar to the quoted statistics as regards favorable results. Of 1,156 patients admitted during the period of five years, 185 (16.01 per cent) received artificial pneumothorax. This low percentage can be attributed to the fact that practically 96 per cent of our patients are in the second and third stages of the disease when they are admitted to the hospital.

The best results are obtained in the group in which the involvement is unilateral, and there are no adhesions to interfere, and in bilateral cases in which less than a third of the contralateral lung is involved. The immediate effects are compression and rest of the diseased lung. Resulting from this, in many instances, are closures of cavities, stimulation of fibrosis and reduction in the extent of the involved area. This treatment also has a marked effect on the temperature and sputum, in ninety-eight, or 53 per cent, of the patients the sputum, which had been positive, became negative and 123 patients, or 66 per cent, became afebrile.

### Ocular Complications of Gonorrhea

DR CHARLES M. SWAB, Omaha. Gonococcal infection of the ocular tissues is ordinarily a complication of gonorrhea of the genito-urinary tract. The treatment that has been found most effective in cases of ophthalmia neonatorum consists of: (1) compresses of iced boric acid solution for three minutes every two hours, (2) warm boric acid solution irrigations every two hours, (3) instillation of fresh 15 per cent mild silver protein every two hours, (4) application of sterile petrolatum on the lid edges every two hours. These measures were usually supplemented by foreign protein therapy. Fresh whole milk, boiled for four minutes, was injected into the gluteal region in doses of 0.5, 1 and 1.5 cc, respectively, on three successive days. Fourteen cases were cured without corneal involvement. Gonorrheal ophthalmia in adults is likely to yield corneal complications, the hazards to vision are greater than in ophthalmia neonatorum. Metastatic gonorrheal iridocyclitis may develop from a focus in the posterior urethra; it is characterized by a plastic exudate and a tendency to recur.

### Nasal Allergy

DR ORVAL R. WITHERS, Kansas City. Nasal allergy is the most frequent manifestation of the atopic state. It is an important consideration in all chronic conditions of the nose and sinuses. In most cases the symptoms are definite enough so that they may be classified as the seasonal or perennial type. The perennial type may be further subdivided into the intermittent and the continuous forms. In addition there is a large and somewhat confusing group composed of patients with mild nasal symptoms, which may or may not be complicated with infection. Foods, inhalants or bacteria may become the etiologic factors. Too much emphasis has been given to infection as an allergen in many instances because of the absence of skin reactions and the benefit to be derived from vaccine therapy. The characteristic symptoms are nasal obstruction, rhinorrhea, sneezing and itching of the nose, roof of the mouth and eyes. These symptoms will vary with the degree of sensitivity, the number of active allergens and the period of the sensitizations and the presence of secondary factors. The primary complications or those due to the allergic reactions, are (a) edematous and hypertrophic turbinates, (b) polypoid degeneration, (c) polyposis, and if allergy occurs early in life and of severe grade, (d) facial deformity. The secondary complications are recurrent sinusitis, headaches and asthma. It is of extreme importance to recognize the presence of allergy in cases showing obvious infections.

# Current Medical Literature

## AMERICAN

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Titles marked with an asterisk (\*) are abstracted below.

### Alabama Medical Association Journal, Montgomery

3 393-432 (June) 1934

- Early Diagnosis of Brain Tumors C. Pilcher Nashville Tenn.—p. 393
- Diseases of the Thyroid Gland Which Are Commonly Called Goiter Myxedema Case Report E. D. Lineberry Birmingham—p. 397
- Urologic Progress During the Past Twenty Five Years J. U. Reaves Mobile—p. 402
- Treatment of Malaria with Atabrine R. O. Russell and B. F. Morton Birmingham—p. 406
- Résumé of the History and Present Application of Medical Licensure in the States J. N. Baker, Montgomery—p. 409

### American Journal of Diseases of Children, Chicago

47 1178-1400 (June) 1934

- Polio-myelitis I. Experimental and Theoretical Basis for Serum Therapy A. Review P. H. Harmon Chicago—p. 1179
- Id. II. Results of Treatment in the Acute Disease Analysis of Reports on Four Thousand Four Hundred Patients Treated with Serum, Observations on Two Thousand Six Hundred and Sixty Untreated Patients P. H. Harmon Chicago—p. 1216
- The Blood Proteins of Children: The Distribution of Total Nitrogen in Whole Blood, Red Blood Cells and Serum Proteins from the Same Specimen A. Bernhard, J. S. Leopold and I. J. Dreker New York—p. 1256
- \*Vitamin A and Colds Esther L. Gardner and F. W. Gardner Loma Linda Calif.—p. 1261
- Dimensions and Growth of the Palate in Infants with Gross Maldevelopment of the Upper Lip and Palate Further Investigations W. T. Peyton Minneapolis—p. 1265
- \*Chorea Treated with Phenylethylhydantoin and Typhoid Vaccine Comparative Study J. A. Monfort Brooklyn—p. 1269
- Bacterial Flora of First Specimens of Meconium Passed by Fifty New Born Infants I. C. Hall and Elizabeth O. Toole Denver—p. 1279
- So-Called Breast Milk Intoxication T. Tanaka Yamaguchi Japan—p. 1286

**Vitamin A and Colds**—The Gardners found that supplementing the diet of school children with haliver oil or definitely enhancing it with vitamin A as found in foods decreased the incidence and severity of colds. Increased resistance was accompanied by a higher degree of general health, as was shown by an increase in weight.

**Chorea Treated with Phenylethylhydantoin and Typhoid Vaccine**—Monfort states that an analysis of the twenty-four cases of chorea treated with phenylethylhydantoin and typhoid-paratyphoid vaccine revealed that there were marked benefits from phenylethylhydantoin in some cases but that the average duration of the disease was twenty-four days in the majority of cases. In eight cases the condition was unimproved. In one case the drug caused death. The results of treatment with typhoid-paratyphoid vaccine showed that this form of therapy is not dangerous but that it produces chills during the febrile period. However, the duration of treatment with this preparation was shorter by eight days than that with phenylethylhydantoin, the average duration being about sixteen days. There were no recurrences of chorea in the twenty-three patients treated with typhoid-paratyphoid vaccine who were followed for one year and it was noted that carditis, the most dangerous sequel of chorea, did not occur in those treated with this preparation during this period. When typhoid paratyphoid vaccine was introduced, a definite change was observed in the acid base equilibrium. Invariably there was a low carbon dioxide content of the blood during the prolonged fever, with a low level for chlorides, a moderate increase of the calcium level and a decrease of the phosphorus level. In three cases the  $pH$  of the blood was slightly increased coincidentally with the lowering of the carbon dioxide content. Although there is

a lowering of the carbon dioxide volume per cent and of the chloride level, there is an increase in  $pH$ . The bases are not lost but are bound to the proteins, owing to the increase in  $pH$ . There is probably a sudden shift to alkalinity. Diminution of the blood pressure was also noted during the febrile period. The pulse pressure fell disproportionately more than the systolic pressure. Seventeen patients of the entire series treated with phenylethylhydantoin and typhoid-paratyphoid vaccine showed evidence of carditis on admission. Twenty-three patients had had their tonsils removed. Eight showed roentgenographic evidence of sinus and atrial involvement. All the patients treated with typhoid-paratyphoid vaccine gave a positive Widal reaction in all dilutions during their stay in the hospital.

### American Journal of Pathology, Boston

10 321-442 (May) 1934

- Effect of Single and Multiple Doses of the Parathyroid Hormone on the Calcification of the Dentin of the Rat Incisor I. Schour W. R. Tweedy and F. A. McJunkin Chicago—p. 321
- Microglia Like Cells and Their Reaction Following Injury to the Liver Spleen and Kidney H. S. Dunning and L. Stevenson, New York—p. 343
- Polyarteritis Nodosa R. B. Haining and T. S. Kimball Los Angeles—p. 349
- Histologic Changes in the Central Nervous System Following Equine Encephalomyelitis O. Iarsell Portland Ore. C. M. Haring, Berkeley Calif. and K. F. Meyer San Francisco—p. 361
- Anomalies of the Interventricular Septum and Pulmonary Orifice Report of Two Cases B. Halpert and R. Tennant New Haven, Conn.—p. 375
- \*Thrombopenic Purpura Associated with Carcinoma of Stomach with Extensive Metastases J. S. Lawrence and E. B. Mahoney Rochester, N. Y.—p. 383
- Tracheo Esophageal Fistula of Syphilitic Origin Report of Case C. J. Bucher and J. Ono, Philadelphia—p. 391
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- Microscopic Metastases in the Thyroid Gland C. O. Rice Minneapolis—p. 407
- Sarcosporidia in Myocardium of Premature Infant Report of Case A. T. Hertig Boston—p. 413
- Occurrence of Amyloidosis in Rabbits Experimentally Infected with Tuberculosis R. H. Thomas New York—p. 419
- Study of the Action of a Filtrable Staphylococcal Toxin on the Kidneys of Normal Rabbits R. H. Rigon, A. L. Joyner and E. T. Ricketts, Durham, N. C.—p. 425
- Histologic Study of the Adrenal Cortex in Mongolism L. C. Hirning and S. Farber Boston—p. 435

**Polyarteritis Nodosa**—Haining and Kimball are of the opinion that a specific filtrable virus with a selective affinity for the small and medium sized muscular type arteries of the body is probably the cause of polyarteritis nodosa. Any organ or combination of organs may be affected at any time in the course of the disease and the resulting clinical manifestations may be bizarre in the extreme. The visceral arteries are involved more frequently than those of the extremities, and the organs most commonly affected are the kidneys, heart, gastrointestinal tract, pancreas, muscles, peripheral nerves, liver, spleen and cerebrum. Pathologically the inflammatory changes are not confined to the adventitia and periarterial connective tissue, as originally supposed. All the vascular coats are eventually involved and the primary changes take place in the media. Destruction of the media may give rise to aneurysmal formation. Involvement of the intima with rupture of the elastic membrane may produce thrombosis. The process as a rule is progressive and in practically all reported cases there has been evidence of acute inflammatory changes superimposed on the chronic reparative efforts. However, Arkin has described a case of histologic healing and he believes that in rare instances the process may come to a complete standstill. Polyarteritis nodosa is seldom diagnosed or even suspected before necropsy, and even at necropsy there may be no gross indications of its presence. The internist should be familiar with the cardinal symptoms of the disease and its behavior. Then, when the commoner possibilities have been carefully ruled out in a patient with septic manifestations and varied symptomatology, polyarteritis nodosa should be given consideration. Carling and Hicks, and recently Schottstaedt have reported cases in which remission of symptoms seemed to follow the intravenous administration of arsenicals.

**Thrombopenic Purpura with Carcinoma of Stomach**—Lawrence and Mahoney present a case of thrombopenia as a complication of carcinoma of the stomach, in which there were

extensive bone marrow metastases. So far as the blood picture was concerned there was one observation that was unusual—the marked diminution in the number of the platelets. It would seem that the presence of large numbers of tumor cells in the bone marrow was the probable cause of the thrombopenia. However, studies of the bone marrow sections reveal an approximately normal number of morphologically normal megakaryocytes. Nevertheless, the presence of these megakaryocytes does not prove that these cells were functionally normal. Increased peripheral destruction or loss of platelets cannot be excluded. The question arises as to the relation of the thrombopenia to the hemorrhagic diathesis. The authors believe that the connection is probably close, although it would be impossible to say that the bleeding phenomena were not dependent, in part, on changes that may have occurred in the permeability of the capillary walls. The presence of large numbers of early cells of the myeloid series and of numerous nucleated red blood cells is not unusual. It is unusual to find large numbers of nucleated red blood cells and many early myeloid cells in idiopathic thrombopenic purpura, although they may be found after recent massive hemorrhage. The value of studies of the sternal marrow in such persons cannot be emphasized too strongly. The authors believe that, had they been able to obtain a sternal marrow biopsy from this patient during life a positive diagnosis could have been made. This procedure was planned, but the sudden death of the patient prevented it.

**Sarcosporidia in Myocardium of Premature Infant**—Hertig observed a sarcosporidial infection in the myocardium of a premature infant in which the sarcosporidial cysts were in the early stage of development. Even in experimental studies it is uncommon to find sarcocysts with fewer than eight spores, although moderate numbers of the forms studied here were of this type. The method of infection is unknown. However, since the infant was 26 days of age at death, the infection could have been contracted shortly after birth, because the stage of development coincides with that seen in animals from twenty-six to twenty-nine days after ingestion of the infective spores. Theobald Smith and Scott state that intra-uterine infections do not occur in the lower animals, although this method cannot be ruled out in this case. Since mouse feces are known to be infective and since indigenous mouse infections may be common, this might have been a source of infection.

### American Journal of Psychiatry, New York

13 1157 1404 (May) 1934

- \*Hematoporphyrin as a Therapeutic Agent in the Psychoses. E A Strecker, H P Palmer and F J Braceland Philadelphia—p 1157
- Nutrition in Mental Hospitals. M A Bliss St Louis—p 1175
- Intensive Psychiatric Study of Prisoners Receiving Routine in the Classification Clinic Elmira Reformatory. J L McCartney Elmira N Y—p 1183
- Physiologic Observations During Intravenous Sodium Amytal Medications Preliminary Report. W F Lorenz, H H Reese and Annette C Washburne Madison Wis—p 1205
- Schizophrenic Traits in the Functional Psychoses and in Normal Individuals. J Page C Landis and S E Katz New York—p 1213
- A Study in Psychobiology. C T Prout Hartford Conn, and L H Ziegler Albany N Y—p 1227
- Clinical Studies of Mental Tests. S H Tulchin New York—p 1237
- Constitutional Factors in Homosexuality. G W Henry and H M Galbraith, White Plains N Y—p 1249
- Historical Survey of the Literature of Stupor. Report of Case of Twelve Years Duration with Complete Amnesia for Ten Years. Charlotte Munn Orangeburg N Y—p 1271
- The Genetic Relationship of Blood Groups and Schizophrenia. M Yorshis and J Gottlieb Worcester Mass—p 1285
- The Nosological Position of Panic Reactions. O Diethelm Baltimore—p 1295
- Age Incidence and Distribution of General Paresis in Eastern Illinois. E T Hoverson and G W Morrow Kankakee Ill—p 1317
- Delusions of Spiritism Psychiatric Reactions. N Gotten and C A Patten Philadelphia—p 1331
- Concomitance of Organic and Psychologic Changes During Marked Improvement in Schizophrenia. Case Analysis. M H Erickson Worcester Mass—p 1349

**Hematoporphyrin as Therapeutic Agent in the Psychoses**—Strecker and his co workers studied the responses of thirty-seven patients to the administration of hematoporphyrin. Twenty-three patients with manic-depressive reactions were treated during the depressed phase with intramuscular and oral administration of hematoporphyrin hydrochloride for an average period of from fifty to sixty days. Of this number five showed marked sustained improvement, six showed moderate sustained

improvement and six were generally benefited, but the course of the psychosis did not seem to be positively affected. Six gave no favorable response. Seventeen of the twenty-three patients may be said to have been definitely helped by the treatment. Four of eight patients suffering from involutional melancholia showed marked improvement, which has been maintained after the treatment was terminated. One was moderately improved and has maintained this gain. Two were generally better during and after treatment but have not made complete recoveries. Only one failed to respond favorably. Of six schizophrenic patients, one made substantial physical gains, has remained generally better and has adjusted his life at a considerably lower level but is working steadily. Definite stimulation and animation were evident in all the schizophrenic patients treated, but in five of these the reaction was not of constructive nature. These five subsided into passive states after the treatment was discontinued. The authors conclude that when hematoporphyrin is administered to psychotic patients the substance in some way increases the available energy of the person. Whatever the physiologic action, the actual somatic and psychic benefits seem to be derived from its administration. The intramuscular injections consisted of 1 cc of solution (2 mg of hematoporphyrin hydrochloride) every other day for twenty days and then after a rest period of from five to seven days a second course of 2 cc of solution (4 mg of hematoporphyrin hydrochloride) every other day for a period of twenty days. In a number of cases a third series of 2 cc injections was given. Oral doses were begun at 10 drops of solution (3 mg of hematoporphyrin hydrochloride) three times a day, before meals, during the first series of intramuscular injections, increasing to from 15 to 30 drops (5 to 10 mg of hematoporphyrin hydrochloride) three times a day, before meals, during the second and third series.

### Archives of Internal Medicine, Chicago

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- Residual Hepatic Damage in Catarrhal Jaundice as Determined by the Bilirubin Excretion Test. L J Soffer and M Paulson Baltimore—p 809
- Factors Involved in the Production of Skeletal Muscle Pain. S Perlow, P Markle and L N Katz Chicago—p 814
- Blood Cholesterol and Hypometabolism. Suprarenal and Pituitary Deficiency, Obesity and Miscellaneous Conditions. L M Hurxthal Boston—p 825
- \*Malignant Hypertension. The Histologic Changes in the Kidneys. E F Cain Rochester Minn—p 832
- Changes of the Digestive Tract in Uremia. Pathologic Anatomic Study. R H Jaffe and D R Laing Chicago—p 851
- \*Effect of Arteriosclerosis and Benign and Malignant Hypertension on the Area of Histamine Flares. A C Ernstene and M Snyder Cleveland—p 865
- True Nonparasitic Chyluria Associated with Menstruation. Report of Case. H A Cookson and T H Pullar Sunderland England—p 878
- Acid Base Balance in Pathologic Conditions. III. Serum Electrolyte Changes in Acute Mercuric Chloride Poisoning. E Muntwyler, C T Way and Elizabeth Pomerene Cleveland—p 885
- Congestive Heart Failure. XX. Cheyne Stokes Respiration as the Cause of Paroxysmal Dyspnea at the Onset of Sleep. T R Harrison, C E King, J A Calhoun and W G Harrison Jr, Nashville, Tenn—p 891
- Id. XXI. Observations Concerning the Mechanism of Cardiac Asthma. T R Harrison, J A Calhoun and W G Harrison Jr Nashville Tenn—p 911
- \*Periosteal Ossification in Myelogenous Leukemia. Report of Case Associated with Acute Rheumatic Fever. J C Ehrlich and S Forer New York—p 938

**Malignant Hypertension. Histologic Changes in Kidneys**—Cain found diffuse changes involving glomeruli, tubules, arterioles, arteries and interstitial tissue in a group of cases of malignant hypertension. The most prominent changes occurred in the arterioles, they consisted in extreme narrowing of the lumen, apparent increase in the numbers of endothelial cells, subendothelial fatty and hyaline degeneration, apparent thickening of the tunica media and an increased amount of connective tissue chiefly in the tunica adventitia. The ratios of the wall to the lumen of the renal arterioles were markedly reduced. The kidneys were not markedly or uniformly decreased in size.

**Effect of Arteriosclerosis on Area of Histamine Flares**—Ernstene and Snyder measured the area of the flare produced by injecting 0.02 cc of a 1:2,000 solution of histamine dihydrochloride into the skin of the midforearm in normal persons, in patients having arteriosclerosis and normal blood pressure and

in patients having benign essential hypertension, hypertension of the intermediate grade and malignant hypertension. The average area of the flare in thirty normal persons was 31 sq cm, and the smallest flare recorded had an area of 18 sq cm. A distinct tendency toward flares of diminished size was observed in the patients having arteriosclerosis and normal blood pressure. In eleven patients who had slight or moderate degrees of arteriosclerosis the average area of the flare was 22 sq cm, while the average area in fourteen patients having advanced arteriosclerosis was 18 sq cm. Three patients of the first group and nine of the second had flares of smaller size than the smallest obtained in a normal person. The area of the flare was within the limits of normal in twenty-one patients having benign essential hypertension and the average area for the group was 29 sq cm. The average area of the flare in eleven patients having hypertension of the intermediate grade was reduced to 20 sq cm. Four of these patients had smaller flares than the smallest observed in a normal person. In eleven of sixteen patients who had malignant hypertension the area of the flare was less than the smallest recorded in a normal person, while in only three did it exceed 24 sq cm. The average area for the group was 16 sq cm, approximately one half the average in normal persons. The results indicate that observations on the area of the histamine flare should prove a useful adjunct in distinguishing the intermediate and malignant types of hypertension from the benign form.

**Periosteal Ossification in Myelogenous Leukemia**—Ehrlich and Forer report a case of "acute" myeloid leukemia which presented the picture of acute rheumatic fever during an aleukemic phase and which at necropsy presented the anatomic evidence of both diseases. The occurrence of periosteal changes in the left humerus at the beginning of the clinical course was found at necropsy to have occurred on the basis of repeated subperiosteal leukemic infiltrations with secondary ossification in layers. The authors state that a review of the literature of the changes in the bone in leukemia and the study of their case result in the inclusion of leukemia in the differential diagnosis of periosteal elevation and ossification.

### Archives of Neurology and Psychiatry, Chicago

31 1129 1374 (June) 1934

- Origin of Motor Reactions Produced by Electrical Stimulation of Cerebral Cortex. J G D de Barenne. New Haven Conn.—p 1129
- Histopathology of Central Nervous System in Epidemic Encephalitis (St Louis Epidemic). A Weil. Chicago.—p 1139
- Encephalomalacia in Infants (Virchow's Interstitial Encephalitis). I B Diamond. Chicago.—p 1153
- \*Etiology of Epilepsy with Especial Reference to Its Occurrence in Twins. A J Rosanoff, Leva M Handy and Isabel Avis Rosanoff. Los Angeles.—p 1165
- \*Encephalographic Studies in Manic Depressive Psychosis. Report of Thirty Eight Cases. M T Moore, D Nathan. Philadelphia. Annie R Elliott and C Laubach. Norristown Pa.—p 1194
- \*Sclerotic Atrophy of Cerebellum. Report of Two Cases. G B Hassin. Chicago.—p 1205
- Contamination of Cerebrospinal Fluid by Blood. P Solomon, Mary Elizabeth Dailey and F Fremont Smith. Boston.—p 1222
- Acute Lymphocytic Meningitis. J L Abramson. Brooklyn.—p 1235
- Symptomatic Inflammation. Ch Eng Yu Lin. Munich. Germany.—p 1247

**Etiology of Epilepsy, Especially in Twins**—Rosanoff and his associates present 107 cases of twins in which at least one of the twins had epilepsy. The distribution of epilepsy and other neuropsychiatric conditions found among the other twins of the pairs is as follows: (1) in monozygotic twins, epilepsy, twelve deteriorating psychoses and tumor of the spinal cord, one each, normal, nine (39.1 per cent), (2) in dizygotic twins, epilepsy, nine mental deficiency, six mental deficiency with psychosis, mental deficiency with behavior difficulty, deteriorating psychosis, behavior difficulty and dementia paralytica, one each, normal, sixty-four (76.2 per cent). Hereditary factors undoubtedly exist in the etiology of epilepsy, as is indicated by the comparison of monozygotic and dizygotic twins. Epilepsy, especially that existing from birth or from an early age is closely related by both individual and familial association to certain cases of mental deficiency and Little's disease. The borderland of epilepsy is, moreover, replete with other conditions, particularly psychotic disease, behavior problems, jacksonian fits, left-handedness and possibly certain conditions often seen among school children, namely, stammering, other disorders of speech and cases of 'nonreaders

and constitutionally poor spellers. Evidence has accumulated in the past fifteen or twenty years to the effect that epilepsy, traditionally considered a neurosis, functional in nature and "idiopathic" in etiology, is rather a decerebration syndrome, definitely organic. Its relationship to other decerebration syndromes, such as mental deficiency, Little's disease and the other conditions, suggests a common factor of etiology, namely, trauma at birth. There seem to be two factors involved: trauma at birth and vulnerability. The severity of trauma at birth is determined by conditions causing dystocia, primiparity, premature rupture of the membranes, abnormal presentations and contracted pelvis. The degree of vulnerability also varies according to certain conditions: a hereditary factor, a sex factor, premature birth or an underweight condition at birth, and the handicapping conditions of multiple pregnancy. It has been shown statistically that epilepsy, mental deficiency and some other clinical types of decerebration occur with relatively greater frequency among the first-born—a fact that points to trauma at birth. In connection with postnatal trauma, age seems to be an important factor in the etiology of epilepsy. Whereas trauma to the head sustained in infancy, childhood or adolescence frequently causes epilepsy, in later life it does so in but a small proportion of cases. The epileptic syndrome in traumatic cases is determined not by the severity or extent of the original injury to the brain but by its localization or by the inflammatory reaction with progressive tissue change that follows it, or by both. Chronic and deteriorating psychotic disease is frequently associated with epilepsy both in individual cases and in familial groups. In individual cases there is not necessarily a correspondence in severity between the epileptic and the psychotic manifestations. These facts, together with evidence yielded by some cases among twins, indicate that some chronic and deteriorating psychoses which are usually counted as dementia praecox in the statistics of state hospitals are really but a special clinical type of decerebration, based on an etiology similar in many cases to that of epilepsy, mental deficiency and Little's disease. The occurrence of epileptic syndromes in connection with nontraumatic conditions is not inconsistent with the decerebration theory of epilepsy. Decerebrating effects can be produced by a tumor of the brain, neurosyphilis and cerebral arteriosclerosis or, even in the absence of brain lesion, by toxic, autotoxic, infectious or circulatory factors.

**Encephalographic Studies in Manic-Depressive Psychosis**—Moore and his associates made an encephalographic study of thirty eight cases of manic depressive psychosis in various stages of the manic depressive cycle. They found that the cerebrospinal fluid pressure, in terms of millimeters of mercury, have in the majority of cases been top normal or higher, indicating the presence of the factor of chronic increased intracranial pressure. The quantity of cerebrospinal fluid removed in the majority of cases has indicated varying degrees of cortical atrophy and enlargement of the ventricular system and cisterns. No definite cerebral pattern is obtained in a sufficient number of cases to be characteristic. The encephalographic pathologic condition is manifested in the following ways: (1) cortical atrophy of varying intensity, (2) enlargement of the ventricular system, (3) asymmetry of the lateral ventricles, (4) absence of cortical air markings, (5) enlargement of the cisterns, (6) island of Reil atrophy, (7) enlargement of the sulcus callosi and sulcus cinguli, (8) increased interhemispheric air and (9) cerebellar atrophy. None of the encephalograms showed a normal cerebral pattern.

**Sclerotic Atrophy of the Cerebellum**—Hassin reports two cases of sclerotic atrophy of the cerebellum from the study of which he concludes that atrophy of the cerebellum may be an acquired morbid condition and in cases of long standing may result in sclerosis of parts of the cerebellum. The lateral lobes especially the upper semilunar and the quadrilateral may alone be involved, or they may be affected together with the vermis. Histologically the condition somewhat resembles that occurring in any other terminal degenerative state when the nerve tissue is replaced by a glial tissue scar. The cerebellar atrophy resulting from sclerosis has its homologue in the cerebral atrophy and sclerosis known as Pick's disease and pos-



sesses no specific histologic features. The striking pathologic feature is calcification of the Purkinje cells in the areas that are undergoing atrophy. The clinical features cannot be considered specific, and, as they may be absent altogether, a pathologic condition of this sort remains undiagnosed.

### Archives of Surgery, Chicago

28 1001 1194 (June) 1934

- Relationship Between Cystic Disease of the Breast and Carcinoma O J Campbell Minneapolis—p 1001
- Peptic Ulcers Comparative Frequency After Deprivation of Bile and Pancreatic Juice B N Berg New York—p 1057
- \*Changes in the Bone in Hodgkin's Granuloma L F Craver New York and M M Copeland Baltimore—p 1062
- Clean Intestinal Anastomosis Experimental Study E J Poth San Francisco—p 1087
- Pathologic Fractures of the Spine Associated with Disorders of Calcium Metabolism B W Moffat New York—p 1095
- Toxemia in Acute Intestinal Obstruction Toxicity of Intestinal Contents with Especial Reference to the Pancreaticoduodenal Secretion W D Gatch H M Trusler and R E Lyons Jr Indianapolis—p 1102
- \*Diathermy and Regeneration of Bone E D Weinberg and G E Ward Baltimore—p 1121
- Iliopsoas Pseudomyxomatodes of the Upper Extremity M Thorek and P Thorek Chicago—p 1130
- Chromaffin Cell Tumor Causing Paroxysmal Hypertension Relieved by Operation F A Coller H Field Jr and T M Durant Ann Arbor Mich—p 1136
- Tuberculosis of the Appendix H Koster and L P Kasman Brooklyn—p 1149
- \*Hemorrhage and Shock as Causes of Death Following Acute Portal Obstruction R Elman and W H Cole St Louis—p 1166
- Fifty Third Report of Progress in Orthopedic Surgery J G Kuhns E F Cave, S M Roberts J S Barr Boston J A Freiberg Cincinnati J E Milgram New York R I Sterling Edinburgh Scotland and P D Wilson Boston—p 1176

**Changes in the Bone in Hodgkin's Granuloma**—Craver and Copeland studied histologically 172 patients having Hodgkin's granuloma. Twenty-seven patients were found to have involvement of the bone. The bones most frequently involved were those of the spine and the pelvis. Pathologic fracture was rare, but collapse of the vertebrae was frequent. The two types of osseous changes were osteoplastic and osteolytic. A combination of the two was seen in many cases. Osseous involvement may be assumed to arise from the marrow foci of Hodgkin's granuloma or from the contiguous diseased lymph nodes from which direct infiltration into bone occurs. The intervertebral disks were involved rarely. No relationship between the structure of the lymph nodes and the type of osseous change could be demonstrated. The authors found Heublen's method of prolonged continuous low intensity irradiation of the entire body to be a valuable part of the treatment in a number of cases. The gross lesions of the bones may be treated to good advantage either by single large suberythema doses or by fractional doses of high voltage roentgen rays. Relief from pain is often prompt and reparative processes may be demonstrated in some cases. In the terminal stages they do not attempt routine irradiation of all the bones, although it is well known that the marrow is usually diffusely involved, as in such cases a severe degree of anemia and sometimes leukopenia already exists and would only be aggravated by irradiation.

**Diathermy and Regeneration of Bone**—Weinberg and Ward endeavored to determine whether there is an actual rise in temperature in bone when an extremity of an experimental animal is submitted to treatments with diathermy, if there is a rise in the temperature of bone, whether this results in any demonstrable physiologic effect on bone in normal laboratory animals, and whether this physiologic effect, if present, hastens repair processes following injury to the bone. During post-operative treatment with diathermy, bleeding from the open wound was found to be due to the treatment. There was a free flow of blood shortly after the turning on of the current, but the bleeding stopped as soon as the heat was discontinued and the leg allowed to cool a little. As soon as hot electrodes touched the leg of the animal a rapid rise in temperature occurred in both the muscle and the bone, demonstrating that with such a small part of the body as the dog's forelegs external heat will also raise the temperature of the bone. This seems to indicate that in these animals, at least, therapeutic effects may be obtained by the external application of hot objects. The rise in temperature of the muscles and that of

the bones are nearly parallel. The temperature of the muscles rises a little faster at first, to be overtaken later by the temperature of the bones, which, near the end of the experiment, again falls. In one week microscopic changes in the treated leg, in which the hole was filled with vascularized connective tissue, a few degenerated red blood cells and a small amount of bone dust, showed formation of new bone arising from the cut edges of the endosteum. The endosteum in the neighborhood of the hole showed a marked proliferation of osteoid tissue extending down into the marrow cavity, and the marrow cavity near the hole was filled with young fibrous connective tissue, which was highly vascularized. In two weeks the treated leg showed marked formation of new bone arising from the periosteum, the endosteum and the cut edges of the compacta. In three weeks there was a decided advance in the periosteal and endosteal formation of new bone, and in four weeks the treated leg revealed marked new periosteal bone. In four weeks in the control leg there was little or no periosteal new bone, and the hole was filled with a lamellar type of bone, so that it was not yet healed.

### Causes of Death Following Acute Portal Obstruction

—In an effort to explain the cause of death following ligation of the portal vein, Elman and Cole resorted to many different types of experiments. It seems clear to them that the rapid death which so regularly follows total occlusion of the portal vein is due to circulatory failure, because of extensive loss of blood from the general circulation into the trapped splanchnic area. No evidence of the production or absorption of a toxic substance (by guinea pigs and white mice) was found. The evidence in favor of the purely physical factor was uniform and consistent. The increase in weight of the splanchnic area following occlusion of the portal vein was great enough, on the basis of the amount of entrapped blood it contained, to have caused death from shock alone. The fall in blood pressure was similar to that noted after an extensive hemorrhage except that the pressure was sustained at a low level until death. The behavior and appearance of the animal after ligation of the portal vein were similar to those seen after marked loss of blood from hemorrhage. Attempts to raise the blood pressure and prolong life by transfusions of blood were successful, and it was possible to postpone death for more than six hours. It was possible to prolong life and prevent the characteristic fall of blood pressure following occlusion of the portal vein by ligating the aorta above the celiac axis, which effectively stopped blood from entering the splanchnic area. These animals lived only a few hours, but they lived as long as animals with ligation of the aorta alone. The results of the experiment were the same if, in addition, several hundred cubic centimeters of blood was injected into the mesenteric arteries to produce the cyanosis and congestion ordinarily seen after ligation of the portal vein. Death following ligation of the portal vein is probably hastened by the fact that ligation at the same time prevents the gastrointestinal tract from aiding in the loss of fluid. When a low blood pressure is maintained too long it can never be corrected, no matter how much blood is transfused. The effect may be due to changes produced in the nerve cells. It is likely that too low a pressure slows the metabolic exchange and causes irreparable alteration in the central nervous system. On the other hand, the defect caused by a low pressure may be due to increased capillary permeability.

### Colorado Medicine, Denver

31 185 220 (June) 1934

- \*Early Recognition and Treatment of Malignancy of the Skin G P Lingenfelter and J V Ambler Denver—p 189
- Primary Carcinoma of the Lung Simulating Pulmonary Tuberculosis I D Bronfin Denver—p 193
- Cancer of the Esophagus C O Giese Colorado Springs—p 200
- Sarcoma of the Cervix Uteri E W Perrott Denver—p 202
- Cooperation of Medical and Dental Practitioners to Avoid Dangerous Systemic Complications in the Extraction of Teeth J W Seybold Denver—p 207

**Early Recognition and Treatment of Malignant Changes of the Skin**—Lingenfelter and Ambler state that there is no one method in the treatment of malignant conditions of the skin that can be used successfully to the exclusion of all others. They advise the use of the scalpel, the high fre-

quency cutting current, electrodesiccation, electrocoagulation, radium and x-rays, or a combination of two or more methods according to the case. The choice of therapy to be employed is dependent on various factors. Early basal cell and squamous cell carcinomas are often eliminated with comparative ease by the use of radium or x-rays. However they believe that in early lesions of both types a combination of some electrosurgical or surgical procedure combined with radiation is the safer method. To delay radical removal of such growths until radiation alone has been tried frequently changes the lesion from a minor one to one the complete removal of which may produce marked deformity. Except as a palliative measure, surface irradiation alone is rarely indicated for the more advanced or recurrent lesions; a combination with one or more of the surgical procedures is usually required. The authors give a brief description of the improved radium technic of Regand and Cade and its advantage over surgery in the treatment of intra oral carcinoma.

### Journal of Nervous and Mental Disease, New York

78 621 748 (June) 1934

- Relation of Premotor Cortex to Motor Activity P C Bucy Chicago —p 621  
Acroparesthesia and Quinidine A Query and a Quest with Report on American Literature on Acroparesthesia S E Jelliffe New York —p 631  
\*Ephedrine in Narcolepsy Gertrude Johnson Battle Creek Mich —p 652  
The Psychiatric Study of Hyperthyroid Patients Agnes Conrad New York —p 656

**Ephedrine in Narcolepsy**—Johnson reports a case of narcolepsy which confirms the results obtained by Doyle and Daniels in the treatment of narcolepsy with ephedrine. The patient, a nursing mother, was put on a blood building diet and given hydrochloric acid and pepsin, and also liver extract. Ephedrine hydrochloride was begun in a dosage of 0.0325 Gm at 8 a m, 12 m and 4 p m. The patient had immediate relief from the sleeping attacks. Five days later she reported complete relief. The medicine seemed to have no ill effects on either the mother or the baby. Seven months later the patient was still doing well, having no recurrence of symptoms as long as she keeps taking ephedrine. The patient has noticed that if she goes out in the evening the dosage is not quite sufficient; therefore she is given an additional half grain on these occasions.

### Journal of Urology, Baltimore

31 791 916 (June) 1934

- \*Aseptic Uretero-Intestinal Anastomosis C C Higgins Cleveland —p 791  
Lymphosarcoma of the Prostate F H Cole and L R Martin Detroit —p 803  
Economic Surgical Treatment of Acute Retention in Stricture G S Peterkin Seattle —p 813  
Primary Carcinoma of the Male Urethra Case Report J A Lazarus New York —p 823  
Repair of a Recto-Urethral Fistula Report of Case C R Davis Detroit —p 833  
Microscopic Carcinoma of the Testis Concealed in Chronic Granulation Tissue P J Breslich Chicago —p 835  
Comparative Studies of Hernia in Man and Animals E Andrews and A Bissell Chicago —p 839  
Smegolith Report of Case in a Female J W Visser Evansville Ind —p 867  
Conorheal Endocarditis E Stone Providence R I —p 869  
\*Subcutaneous Vasoligation Needle J T Short Fort Wayne Ind —p 897  
Hemorrhagic Infarction and Necrosis of the Testicle E McCormac New Orleans —p 901

**Aseptic Uretero-Intestinal Anastomosis**—Higgins presents a technic for simultaneous bilateral transplantation of the ureters into the rectum in which the normal course of the urine and the continuity of the ureter are preserved until after the formation of a new channel between the ureter and the rectosigmoid. The procedure is attended by no interruption of kidney function during the establishment of the new channel between the ureter and the intestine. The mortality in experimental animals has been practically negligible. The almost complete absence of peritonitis and acute renal infection has been remarkable. The immediate results in the author's eight clinical cases are gratifying but he believes that insufficient time has elapsed to warrant any statement as to the ultimate results. The technic is as follows. A low median incision is

made with the subject in a moderate Trendelenburg position. After the peritoneal cavity has been opened the intestine is displaced from the pelvis and held away from the operative field by moist tapes. The posterior parietal peritoneum is incised over the ureter at the usual site for transplantation and then freed from its bed by sharp dissection thus isolating the ureter for approximately 8 cm. The point of transplantation into the rectosigmoid is selected and an incision 6.5 cm in length is made along one of the longitudinal bands through the serous and muscular layers to the mucous membrane of the intestine. Lateral separation of the serous and muscular layers provides a trough, which is to be occupied by the transplanted ureter. The intestine is replaced in its normal position, the ureter is grasped at points adjacent to the trough in the intestine and placed in the trough in the intestine. A silk suture is passed about 1 cm from the lower angle of the incision in the intestine through the wall of the ureter, which is in contact with the intestinal mucous membrane. This suture, preferably of the mattress type passes into the lumen of the ureter itself and is passed through the mucous membrane of the intestine and tied tightly. The new channel should be produced near the distal end of the incision through the serous and muscular layers. To avoid contamination, the suture is always passed first through the ureteral wall and then through the mucous membrane of the intestine. The muscular and serous layers are reapproximated with interrupted silk sutures over the ureter. The ureter is thus incorporated in the intestinal wall for 3 to 4 cm and the valve principle is allowed to function. Following the reapproximation of the serous and muscular layers over the ureter the cut edge of the peritoneum (postparietal) is stitched over the site of the incision in the intestine. After the new channel has been formed and intravenous urography demonstrates that it is functioning, cystectomy is performed.

**Subcutaneous Vasoligation**—Short describes a method of subcutaneous vasoligation that can be carried out quickly without assistance and one that requires no after-care. Although the procedure can be performed with an ordinary three-eighths circle cutting needle, the operation is greatly facilitated by the use of a similarly curved cutting needle carrying the eye 0.5 cm from the proximal end which also has a cutting point. In addition to a needle ligature and needle holder, a narrow-bladed knife, scissors and a hypodermic syringe containing a local anesthetic are required. The scrotum and adjacent parts are prepared by shaving, cleansing and the application of an antiseptic, and the penis is held upward against the abdomen with adhesive tape. The spermatic cord is grasped at a convenient point in the upper part of the scrotum and pulled forward. This facilitates the invagination of the left index finger, palmar surface forward behind the entire cord at the same level. As the right hand releases the cord, allowing it to slip slowly backward, the vas is identified between the fingers by palpation and isolated over the left index finger below the middle of the distal phalanx, while the remainder of the cord is retracted outward by the left thumb and maintained in that position. A small area of skin 1 cm medial to the isolated vas is injected with procaine and a linear incision or nick from 3 to 4 mm in length is made through the skin. This is most readily accomplished by transfixion with a narrow blade, such as a cataract knife. Capillary oozing may be disregarded. The needle armed with silk is then introduced through this opening and guided beneath the vas by the tactile sensation of the left index finger supporting it, and pushed through the skin beyond the vas but medial to the bulk of the cord still reflected outward by the thumb. At this time the accuracy of the placement of the needle can be verified by palpation of the overlying vas against it. The needle is grasped at its point of emergence and advanced farther until the proximal end has cleared the vas. The needle is then reversed over the vas, pushed back into the original opening in the skin and drawn through. The ligature is tied tightly the ends are cut short and on its release the knot usually clears the skin which falls together over it. A dab of cotton is applied with collodion and no further attention is required. The wound heals by first intention leaving no perceptible scar while the vas tends in time to resume its usual position.

**Missouri State Medical Assn Journal, St Louis**

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 Use and Abuse of Digitalis E L Shrader St Louis—p 241  
 Management of Cardiac Edema O S Jones St Louis—p 245

**Perforations of the Labia Minora**—Stude cites three cases of perforation of the labia minora. The first case was considered to be of syphilitic origin in spite of a negative Wassermann reaction, since it presented a combination of both active and healed lesions. Other facts that pointed to syphilis as the etiologic factor were the patient's general physical status, the observations revealed by microscopic study of tissue sections and the extremely large number of perforations, which practically ruled out traumatism as a cause. In the second case the squamous cell carcinoma was evidently a secondary development, since the margins of the perforation were perfectly smooth and intact throughout the greater part of their extent. The evidence indicated the perforation to be the result of a chronic inflammatory ulceration either syphilitic or tuberculous in nature, most probably the former. In the third case either traumatism during labor or congenital malformation was to blame, although it is impossible to state which of these two causes was responsible. If the perforation is healed without ulceration, no local treatment is indicated. A Wassermann test, however, should be done and the patient examined for tuberculosis. In chronic ulceration, a specimen of tissue should be taken from the ulcerated area and studied microscopically. If this is not malignant, no special local treatment is necessary when the condition is proved to be of syphilitic origin. Tuberculous ulcers should be excised and chancroidal ulcers should be cauterized. Local cauterization combined with the intravenous injection of antimony and potassium tartrate has proved best in the treatment of inguinal granuloma. When cancer is present, complete vulvectomy and the removal of the inguinal and femoral lymph nodes are to be done if the patient's condition permits, otherwise resort may be had to the use of roentgen therapy.

**New England Journal of Medicine, Boston**

210 1145 1196 (May 31) 1934

- Diagnosis and Treatment of Subdural Hematomas Report of Sixty Two Cases D Munro Boston—p 1145  
 Adenocarcinoma of Stomach Case Occurring in a Man Twenty Seven Years of Age R L Paterson and R E Gross, Boston—p 1161  
 Metabolism of Levulose IV Hepatic Influence on Utilization of Galactose and Levulose A W Rowe, Mary A McManus and A J Plummer Boston—p 1163  
 Pathologic Dislocations of Shoulder Backward and Rotation Deformity F J Cotton and G M Morrison Boston—p 1169

210 1197 1242 (June 7) 1934

- The Objectives of Medical Progress L Davis Boston—p 1197  
 Postencephalitic Parkinson's Disease Treated by Total Thyroidectomy Case A Myerson and D D Berlin Boston—p 1205  
 \*Effect of Dinitrophenol on Metabolism as Seen in Schizophrenic Patients J M Looney and R G Hoskins Worcester Mass—p 1206  
 Hypertrophic Arthritis of the Hip Review of Seventy Nine Patients J G Kuhns Boston—p 1213  
 Multiple Congenital Anomalies of Mullerian and Genito Urinary System with Absence of the Coccyx Case J L Newell Boston—p 1217  
 Repair of Orbicular Ligament at Elbow F J Cotton and G M Morrison, Boston—p 1218

**Effect of Dinitrophenol on Metabolism in Schizophrenia**—In order to study the effect of raising the low basal metabolic rate, which is consistently found in schizophrenic patients, by the use of alpha-dinitrophenol, Looney and Hoskins administered the drug to ten patients in doses of from 3 to 4 mg per kilogram of weight for a period of forty-nine days. Each week analyses were made of the blood for complete nitrogen partitions, sugar, cholesterol, lactic acid, glutathione, carbon dioxide, oxygen and  $p_{H}$ . Nitrogen partitions

were made on urine as well as routine qualitative analyses. It was found that there was an increase in the basal metabolic rate of approximately 50 per cent without any concurrent change in blood pressure and pulse rate or temperature. At first there was a gradual increase in the nonprotein nitrogen, urea nitrogen and uric acid nitrogen, which again receded to normal as the treatment continued. Blood cholesterol and lactic acid showed considerable variation but no consistent trend. Patients lost from  $4\frac{1}{2}$  to  $6\frac{1}{2}$  pounds (2 to 3 Kg) in weight, but no deleterious effects were noted.

**New York State Journal of Medicine, New York**

34 475 518 (June 1) 1934

- Drainage of the Thoracic Spaces H Lilienthal New York—p 478  
 Physiology of the Brain Its Relation to Disorders of Speech G W Henry New York—p 489  
 Errors in the Practice of Physical Therapy L A Hadley Syracuse—p 493  
 The Function of a Cancer Committee of a Hospital Staff J M Swan Rochester—p 495  
 The Roentgen Diagnosis of Lesions of the Small Intestines S J Goldfarb New York—p 500  
 \*Pitressin Test in Epilepsy A W Jacobsen Buffalo—p 506

34 519 578 (June 15) 1934

- Qualified Medicolegal Experts Their Value to the Community and to the Medical and Legal Professions C Norris New York—p 520  
 Tumors of the Breast Their Origin and Course of Development S H Curtis Troy—p 526  
 Nonoperative Physical Measures in Gynecology Madge C L McGuinness New York—p 533

**Pitressin Test in Epilepsy**—Jacobsen believes that retention of fluid in the body tends to induce seizures and uses this fact as the basis of a test for epilepsy. By means of the pitressin test a child having seizures can be caused promptly to have a typical seizure, provided it is a case of epilepsy. The procedure is to give fluids to the point of establishing a positive water balance, and, when water has been retained to the extent of causing an increase of body weight of from 3 to 6 per cent or more, a convulsion will result. Under ordinary conditions, output will keep pace with intake and no retention will result. But by making use of the antidiuretic effect of pitressin a positive water balance is readily induced. In itself pitressin cannot produce a convulsion in the normal or in the epileptic subject. The application of the test consists in giving 300 cc of water every two hours and an injection of pitressin every four hours, until a positive water balance is established. The dose is 0.2, 0.3, 0.4 cc, and thereafter 0.5 cc doses until a seizure occurs or until about eight or ten doses have been given. If a seizure occurs, no nourishment or fluids are to be given except 1 cc of cream per pound of body weight every four hours. This seems to be the most effective way to eliminate further seizures. The author has used the test in about forty cases and thus far has found it reliable. The only cases in which it was of no help were those few in which no positive water balance could be established, even with pitressin, and therefore the negative results could not rule out epilepsy. Two children became nauseated so that the test had to be discontinued. In the large number of cases in which the type of seizure is indeterminate, this test proves a valuable aid to diagnosis.

**Ohio State Medical Journal, Columbus**

30 337 408 (June 1) 1934

- Diagnosis and Prognosis of Tuberculosis in Children A G Mitchell and W E Nelson Cincinnati—p 357  
 Treatment of Syphilis C S Wright Philadelphia—p 362  
 The Defective Delinquent Review of Five Hundred and Fourteen Cases C C Kirk and A T Hopwood Orient—p 367  
 Peptic Ulcer of Meckel's Diverticulum G Renner Jr Cincinnati—p 371  
 Spinal Anesthesia F R Kelly and R M Watkins Cleveland—p 373

**Oklahoma State Medical Assn Journal, McAlester**

27 195 238 (June) 1934

- Success and Usefulness in Medicine L Long Oklahoma City—p 195  
 The Doctor in Politics L H Ritzhaupt Guthrie—p 198  
 Relationship of the Urologist to the General Practitioner S D Neely Muskogee—p 201  
 Pediatrics of the Future C M Pounders Oklahoma City—p 207  
 Chairman's Address Section on General Surgery J F Kuhn Oklahoma City—p 210  
 Fusospirochetal Disease A S Piper Enid—p 211

# Public Health Reports, Washington, D C

49 649 676 (June 1) 1934

Frequency of Eye Refractions in Nine Thousand Families Based on  
Nation Wide Periodic Canvasses 1928 1931 S D Collins—p 649

49 677 696 (June 8) 1934

\*Silicosis Among Granite Quarriers J J Bloomfield and W C  
Dreessen—p 679

**Silicosis Among Granite Quarriers**—Bloomfield and Dreessen present a study of the effects of the inhalation of granite dust generated in granite quarrying. A clinico-roentgenographic study of sixty-three granite quarriers was made, in addition to determinations of the occupational dust exposure. The dust determinations showed that 38 per cent of the workers (drillers) were exposed to many times the amount of dust considered safe at the present time. The clinical observations disclosed that drillers were the only persons showing pathologic lung changes. Half of these workers with an exposure of from five to nineteen years had silicosis, and four of the five men with more than twenty years of such occupation showed this condition. The study suggests that quarry drillers may experience as high a death rate from pulmonary tuberculosis as do other pneumatic tool workers in granite cutting sheds. The authors cite methods for the elimination of dust in quarry operations.

## Rhode Island Medical Journal, Providence

17 89 106 (June) 1934

Pulmonary Carcinoma C E Schradieck Providence—p 89  
Gas Bacillus Infection Report of Two Cases J Fieldman, Providence—p 95

## Southern Medical Journal, Birmingham, Ala

27 473 568 (June) 1934

\*Referred Abdominal Symptoms in Pulmonary Tuberculosis L Brown  
Saranac Lake N Y—p 473  
Some Notes on Referred Digestive Symptoms T R Brown, Baltimore—p 481  
Abdominal Symptoms of Cardiovascular Disorders J T King Jr., Baltimore—p 486  
Emotional and Nervous Factors in Symptoms of Abdominal Disease W W Young Atlanta Ga—p 490  
Ulcerative Colitis I Relationship Between Bacillary Dysentery and Ulcerative Colitis T T Mackie with assistance of Mary S B Gaillard New York—p 492  
Mechanism of Production of Curling's Ulcer R Kapsinow Lafayette La—p 500  
Clinical Investigation of Incidence of Rheumatic Heart Disease in a Subtropical Climate E W Bitzer and G L Cook Tampa Fla—p 503  
Pneumococcal Peritonitis J H Lyons Washington D C—p 507  
Management of Fractures of Both Bones of the Leg R L Anderson Charleston, W Va—p 513  
Rural Health Organization in the United States Past Present and Future A W Freeman Baltimore—p 517  
The Stone Age of Surgery L Clendenen Kansas City Mo—p 521  
The Leukocytes in Skin Diseases H H Hazen Washington D C—p 527  
Principal Hay Fever Plants and Pollens of the South H M Davison M I Lowance, Atlanta Ga and O C Durham Chicago—p 529  
Swelling of the Orbit with Especial Reference to Cavernous Sinus Thrombosis C Tunstall Charlottesville Va—p 535  
Normal Associated Lateral and Also Dissociated Ocular Movements Case J W White Norfolk, Va—p 539  
Repeated Neonatal Deaths from Impetigo Neonatorum M P Rucker Richmond Va—p 540  
Intraligamentous Pregnancy at Term Report of Two Cases H H Ware Jr Richmond Va—p 540  
Satisfactory Treatment of Some Forms of Resistant Tinea Infection H R Cogburn Mobile Ala—p 543  
Unilateral Clubbing of the Fingers Case G Walsh and R H Aldredge Fairfield Ala—p 545  
Malaria Part II Results of Recent Research in the Treatment of Malaria C F Craig New Orleans—p 546  
Id Observations on Winter Infection Rates in Anopheles Maculipennis and A Superpictus in Bulgaria K Drensky and R K Collins New York—p 549  
Id Statistics of Malaria Prevalence S G Thompson Jacksonville Fla J G Dempsey New Orleans and B Toombs Atlanta Ga—p 552  
Id Results from Screening of Rural Homes in Lake County Tennessee H E Meloney and J A Crabtree Nashville Tenn—p 552  
Helping the Minnows M A Fort Bainbridge Ga—p 558

**Referred Abdominal Symptoms in Pulmonary Tuberculosis**—Brown presents a study of 400 patients having pulmonary tuberculosis in whom intestinal tuberculosis had been excluded. Failure to exclude the presence of intestinal tuberculosis renders previous studies of referred abdominal symptoms of little value. The chronicity of pulmonary tuberculosis

and the method of its treatment increase the likelihood of the occurrence of referred abdominal symptoms during its course. In the majority of patients in early stages under proper treatment the referred abdominal symptoms are of little moment. In the advanced stages of the disease the majority of the patients have intestinal tuberculosis and the symptoms are to be attributed in part to them. This complication can exist without any abdominal symptoms whatever. The abdominal symptoms referable to the surgical treatment of pulmonary tuberculosis (artificial pneumothorax, phrenic operation, thoracoplasty) are usually slight, though they may be pronounced and troublesome. Referred abdominal symptoms are more common during acute types or acute exacerbations of the pulmonary tuberculosis. The symptoms referable probably to the intestinal tuberculosis are often more pronounced and more persistent than the referred symptoms. The cause or causes of the referred abdominal symptoms in pulmonary tuberculosis have not yet been definitely determined. It is likely that a number of different causes act to bring about these symptoms. Cooperation between the gastro-enterologist, the roentgenographer and the tuberculosis specialist will eventually solve the problem.

## Virginia Medical Monthly, Richmond

61 127 188 (June) 1934

Pituitary Hormones Review R J Main Richmond—p 127  
\*Résumé of Five Hundred Consecutive Pituitary Cases Occurring in General Neurologic Practice B R Tucker Richmond—p 131  
Pellagra W H Seabell Washington D C—p 136  
Treatment of Pellagra Critical Review S D Blackford, University—p 140  
Lesions of the Cervix Uteri C W Doughtie, Norfolk—p 143  
Carcinoma of the Uterus E S Groseclose Lynchburg—p 148  
Phasicity of Function F C Pinkerton Pinehurst N C—p 153  
The Latest Development in the Treatment of Fractured Spines J T Tucker Richmond—p 154  
Nonoperative Treatment of Hemorrhoids D D Vance, Bristol, Tenn—p 160  
Division of Pleural Adhesions in the Pneumothorax Treatment of Pulmonary Tuberculosis E C Drash and O N Shelton University—p 163  
Typhus and Rocky Mountain Spotted Fever W F Draper Richmond—p 171  
Hospitalization by the Group Payment Plan R W Garnett Danville—p 175

**Pituitarism in Neurologic Practice**—Tucker states that the clinical signs and roentgen observations of his 500 cases of pituitary disorders concomitant with neurologic disorders coincided in the majority of instances. The basal metabolic rate showed a decided tendency to be decreased in hypopituitarism. There were an equal number on each side of the zero point in hyperpituitarism. The influence of the other endocrine glands and the difference in the function of the two lobes of the hypophysis must be considered, as the oversecretion of the anterior lobe is more frequent than that of the posterior lobe and is believed to have little or nothing to do with metabolism. Blood sugar estimations in the hypopituitary cases did not conform in percentage to the "low sugar, high tolerance" ratio that is generally accepted. The sugar level in hyperpituitarism showed a definite tendency to be increased above the normal. No reduction can be drawn from the blood calcium estimation. Attention, however, is called toward decreased calcium content in hypopituitarism and hyperpituitarism. Twenty-one per cent of hypopituitary cases, 12 per cent of conduct disturbance and 23 per cent of bitemporal headaches originated in adolescence. Evidence of disorder in other endocrine glands is noticeably present in more than 25 per cent of the cases analyzed. Closer observation of clinical evidence and research in the biochemical field as an aid in differential diagnosis of endocrine disorders is desired.

## West Virginia Medical Journal, Charleston

30 241 288 (June) 1934

Some Personal Experiences in Gallbladder Surgery Report of Six Hundred and Seventy Four Operative Gallbladder Cases J E Cannaday Charleston—p 248  
Acute Cerebral Complications of Nephritis G M Lyon Huntington—p 255  
Hypertensive Heart Disease G H Barksdale Charleston—p 256  
Crossroads in Medicine R Wolfe Ellins—p 260  
Ultraviolet in Postoperative Treatment of Radical Mastoidectomies A P Hudgins Hinton—p 265  
Diagnosis and Office Treatment of the More Common Gynecologic Problems J H Steenbergen Huntington—p 267  
Considerations of Heart Pathology I H Smith, Parkersburg—p 272

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

**Annals of Pickett-Thomson Research Lab, London**

10 641 1558 (May) 1934

\*Influenza with Especial Reference to the Complications and Sequelae. Bacteriology of Influenzal Pneumonia. Pathology. Epidemiologic Data. Prevention and Treatment. Part II. D. Thomson and R. Thomson.—p. 641

**Review of Literature on Influenza**—The monograph (two volumes) of the Thomsons on influenza consists of forty-six chapters, with an addendum references to the literature and a subject and author index. In their summary under treatment of influenza they state that good results have been claimed by methods which directly stimulate a leukopoiesis. Willmore and Gardner-Medwin found that injection of sodium nuclemate and the giving of large doses of alkali at the same time to neutralize the toxins in the system were beneficial. Other observers claim good results by inducing fixation abscesses. Petranyi claims successful results in the treatment of babies and young children with large doses of amidopyrine. It must be concluded, however, that there is no definite specific remedy for influenza. In consequence treatment has to be directed to the clinical symptoms and condition of the patient and to the relief of any prominent symptoms and complications. The most important measures in the authors' opinion in the treatment of influenza are as follows: 1. The patient should go to bed at once, however mild the case, and remain in bed until the temperature has been normal for two days. 2. The intestine should be cleared out daily or twice daily as an attack tends to induce constipation. 3. The patient should be kept warm and encouraged to perspire by means of hot bottles and hot drinks. A powder of ipecac and opium at night is excellent. 4. Stimulants should be given, not at the beginning but toward the end of the attack, and more especially during convalescence.

**British Journal of Physical Medicine, London**

9 120 (May) 1934

The Chart. Nature and Production of Electromagnetic Radiation. Scientific Review of the Chart. B. D. H. Watters.—p. 3

Id. Gamma Rays in Radium Therapy. H. S. Souttar.—p. 5

Id. Medical Uses of X Rays. J. F. Carter Braine.—p. 6

Id. Action of Ultraviolet Rays. L. Hill.—p. 7

Id. Value of Visible Light Rays. C. E. Iredell.—p. 8

Id. Medical Uses of Infra Red Rays. W. A. Troup.—p. 8

Id. Electromagnetic Currents in Diathermy on the Action of Currents Which Oscillate with the Periodicity of Those Employed in Diathermy therapy viz. 500 000 to 1 500 000 per second. E. P. Cumberbatch.—p. 9

Id. Short Hertzian Waves in Medicine. T. Reiter.—p. 10

Ultraviolet Radiation in Dental Surgery. J. E. Curnock.—p. 12

The Influence of Radiation on Metabolism. L. Pincussen.—p. 14

Physical Methods in the Treatment of Disease. C. Nicory.—p. 16

**British Medical Journal, London**

1 931 972 (May 26) 1934

Principles of Psychotherapy as Applied to General Practice. C. S. Read.—p. 931

\*Inadequate Immobilization and Nonunion of Fractures. R. W. Jones.—p. 936

Hyoscine Amnesia in Labor. Analysis of Fifty Cases. T. Barnett.—p. 940

Some Observations on Sympathetic Nervous System. E. R. Flint.—p. 942

Influence of Emulsions of Oils and Fats on the Action of Bacterial Toxins. G. N. Myers.—p. 945

**Nonunion of Fractures**—Jones states that nonunion of fractures is almost always avoidable and is a complication entirely within the control of the surgeon. Many physiologic and biochemical factors may be concerned in the rate of union of fractures, but the only factor that is of practical importance in determining nonunion is inadequate immobilization. Immobilization may be inadequate in that the fracture is allowed movement within the splints or plaster rotatory movement is especially inimical to union and immobilization is not continued for a sufficiently long period. There can be no fixed period of immobilization for any fracture; the average duration of immobility may be exceeded in occasional cases by many months. Hyperemic decalcification and ischemic recalcification of bone must be accepted as pathologic facts. The initial traumatic hyperemia mobilizes calcium salts from the bone ends but rapidly subsides and allows recalcification of the young

connective tissue to form callus. With final repair and fibrosis the callus consolidates by increased calcification. If the hyperemia is perpetuated by the trauma of movement there is excessive decalcification—a crack fracture becomes a gap fracture. This is the first stage of nonunion. In the final phase of ischemic fibrosis the surfaces of the fragments undergo sclerosis, this is the second stage of nonunion. The two stages of nonunion are distinguishable roentgenographically. The first is cured by immobilization. In the second, preliminary revascularization is necessary by a drilling or grafting operation. The infected compound fracture is pathologically similar to the simple fracture, except that the initial stage of decalcification is prolonged. If it is immobilized the fracture will usually unite. An old infected fracture that has not been immobilized is in the first stage of nonunion so long as the infection is active but passes into the second stage of nonunion after quiescence of the infection. In the first stage, sequestrectomy without "scraping" followed by immobilization, determines union. In the second stage a revascularizing operation is necessary. Even if the operation is followed by a flare of infection, the fracture still unites if it is immobilized.

**Clinical Journal, London**

63 177 220 (May) 1934

Acute Thoracic Empyema. C. P. Thomas.—p. 177

\*Diagnosis and Prevention of Infections of the Urinary Tract. T. E. Hammond.—p. 184

Pyrexia of Doubtful Origin in Children. B. Schlesinger.—p. 191

The Examination of the Chest. E. Ward.—p. 196

Obstetric Errors. E. F. Murray.—p. 202

Starvation Hypoglycemia. Case. S. W. Smith and H. Blair.—p. 206

**Infections of the Urinary Tract**—Hammond states that it is only when a ureter is completely obstructed or when an abscess is developing in the substance of the kidney that an infection can exist without its presence being revealed by pus or bacteria in the urine. When pus is present the urine may be turbid but turbidity may be due to phosphates. When bacteria are present in large numbers the urine may present an opalescent appearance and a shimmering appearance when held up to the light. Having proved that some infection is present, one must find from what part of the urinary tract it comes and what is the pathologic lesion giving rise to it. When an inflammation is limited to the anterior urethra, the pus and bacteria are swept out by the first portion of urine. This is the basis of the two glass test. The author believes this to be somewhat crude and proposes the following method. The meatus is first examined to see whether it is inflamed; the finger is then pressed along the floor of the urethra, and any discharge is collected on a slide. The anterior urethra is then washed out with physiologic solution of sodium chloride flowing from a container placed two feet above the level of the patient. The wash-out contains the secretion of the anterior urethra and is collected in the first glass. About 2 ounces of urine is then passed into the second glass; this holds the contents of the posterior urethra. About 2 ounces of urine is passed into the third glass; this shows the condition present in the bladder. A finger is then inserted into the rectum, the prostate is massaged and 2 ounces of urine is passed into a fourth glass. The turbidity of the contents of the glasses is noted and each is examined for pus. If the second, third and fourth glasses contain pus, there is some cystitis, but if the second contains more there is a posterior urethritis. If the fourth contains more, there is associated prostatitis. In the prevention of infection methenamine should be given both before and after operations and during the last few months of pregnancy and during the puerperium. In the large pyonephrosis in women in whom nephrectomy has to be performed, the history of lumbar pain often dates back to a previous pregnancy. It is probable that the dilatation of the pelvis persists and the kidney may be gradually converted into a pyonephrosis. Consequently when a pyelitis has arisen during pregnancy three months after its termination an excretion urograph should be carried out to make certain that the kidney is functioning properly. If not a catheter should be passed up the ureter and retained for four hours. When urinary symptoms persist after pregnancy one should find whether there is any residual urine. If so, a catheter should be passed each day and the bladder irrigated with silver nitrate. This should be continued for five days after the residual urine disappears.

# Edinburgh Medical Journal

41 341 400 (June) 1934

- Perspectives in Physiology I deB Daly—p 341  
Relation of the Peripheral Lymphatic System to Spinal Cord Eliza beth Gilchrist—p 359  
Some Problems in the Growth and Developmental Mechanics of Bone J C Brash—p 363

## Relation of Lymphatic System to Spinal Cord—

Gilchrist exposed the sciatic nerves of a series of rabbits and injected suspensions of various pigments in sterile distilled water into and round the nerve. After periods varying from a few hours to fifteen days during which the animals were allowed free movement, they were killed. The sciatic nerve, from the site of injection to its entrance between the vertebral columns, and the lower part of the vertebral column together with the spinal theca and cord were removed. After decalcification in Perennys solution for the requisite time, the bone was cut away and microscopic preparations were made of the nerve trunk, theca and spinal cord. The experiments indicate that particulate matter as distinct from fluids gaining entrance to the tissue spaces round the peripheral nerve or gaining entrance to the nerve bundle itself does not pass centrally in the endoneurium or between the individual nerve fibers for any appreciable distance. Bacteria of such size as to be within the range of microscopic vision do not commonly reach the spinal cord or its meninges by the lymphatic channels associated with the peripheral nerve trunks.

# Indian Medical Gazette, Calcutta

69 241 300 (May) 1934

- Study of Vitamin A Deficiency in Ceylon with Especial Reference to the Statistical Incidence of Phrynodema and Sore Mouth L Nicholls—p 241  
\*Dysentery Produced by *Bacterium Pseudocarcinosis* R N Chopra and R N Chaudhuri—p 251  
Thyroid Extract in Prostatic Enlargement H Smith—p 254  
Acute Bacillary Dysentery in Children Advantages of Its Treatment by Petroleum and Allied Preparations T H Gunewardene—p 256  
Cilia in the Anterior Chamber and Traumatic Cyst in the Iris M D Anklesaria—p 259  
Antitoxic Immunity to Diphtheria Among a Group of Indians in Nainital District U P India as Evidenced by the Schick Tests A N Das—p 261

## Dysentery Produced by *Bacillus Pseudocarcinosis*—

Chopra and Chaudhuri isolated *Bacillus pseudocarcinosis* from the stools of forty patients twenty eight of whom had definite gastro intestinal symptoms. Nine showed the signs and symptoms of subacute dysentery of the bacillary type eleven suffered from diarrhea only two had constipation alternating with diarrhea, and six had pain in the abdomen. Another group of four patients were admitted with skin conditions pointing to intestinal allergic manifestations viz one had psoriasis, two had pityriasis rubra and one had urticaria. The remaining eight patients were admitted for other causes i e three had fever one diabetes one chyluria one myocarditis one anasarca and one an infection with *Tinea violaceum*. The last twelve patients although they were admitted to the hospital for other causes also suffered from definite symptoms pointing to gastro intestinal disturbance. Most of the patients complained of flatulence distention and vague abdominal pains. Some had tenderness in the epigastrium others showed symptoms of typical bacillary dysentery of a subacute type while still others suffered from chronic intestinal stasis with symptoms of constipation alternating with diarrhea. Roentgenograms showed stasis of the large intestine. Most of the patients were anemic. Microscopic examination of the stools revealed associated protozoal and helminthic infections. In the stools of nine patients *Endamoeba histolytica* was found in one a large number of spirochetes in six hookworm eggs and in seven *Giardia intestinalis*. In a certain number of these patients there were multiple infections but in none was a combined infection with *Bacillus pseudocarcinosis* and Flexner or Shiga dysentery organisms found. *Bacillus pseudocarcinosis* was isolated from all the cases. Agglutination was positive in eight cases five giving the reaction in a dilution of 1:160 one in 1:80 and one in 1:10. Negative results were obtained in twenty-one cases. The strains isolated were tested with stock dysentery bacteriophage in sixteen cases but only in eight were the bacilli lysable in vitro by the bacteriophage used. Even after treatment with bacteriophage the infection could not be eradicated in most cases and *Bacillus pseudocarcinosis* was isolated from the stools.

# Journal of Pathology and Bacteriology, Edinburgh

38 253 512 (May) 1934

- Further Observations on the Influence of Testicular Extract on the Rate of Absorption of Diphtheria Antitoxin and on the Response to Immunization with Toxoid D McClean W T J Morgan and G Favilli—p 253  
\*Constitutional Abnormality of the Polymorphonuclear Leukocytes with a Record of the Leukocytes for a Period of One Year A F B Shaw—p 259  
Further Observations on Fat Mobilization in Starvation J H Dible and J Libman—p 269  
The Phage Inactivating Agent of Bacterial Extracts F M Burnet—p 285  
Chemical Nature of the Phage Inactivating Agent in Bacterial Extracts G A C Gough and F M Burnet—p 301  
The Genus *Monilia* J F D Shrewsbury—p 313  
Bacterial Fluorescence with Ultraviolet Light R J V Pulvertaft—p 355  
In Vitro Study of the Action of Immune Bodies Called Forth in the Blood of Rabbits by the Injection of the Flagellate Protozoan *Bodo Caudatus* Muriel Robertson—p 363  
Xerophthalmia Trigeminal Degeneration and Vitamin A Deficiency E Mellanby—p 391  
Virulence of *Bacillus Typhosus* and Resistance to O Antibody A Felix and R M Pitt—p 409  
\*Edema in Experimental Nephritis J S Dunn E G Oastler and S L Tompsett—p 421  
Inflammation in the Caterpillars of Lepidoptera G R Cameron—p 441  
Study of Twelve Strains of *Bacillus Necrophorus* with Observations on the Oxygen Intolerance of the Organism W I B Beveridge—p 467  
Bactericidal Properties of Adrenal Extracts J Gordon and J C Knox—p 493

## Constitutional Abnormality of Polymorphonuclear Leukocytes—

Shaw describes a case of persistent left handed deflection of the polymorphonuclear count associated with an abnormally complex nuclear configuration of all the class I cells. There was no nuclear change in the other leukocytes and the total and differential counts were normal. It is claimed that the condition is a constitutional abnormality of the polymorphonuclear leukocytes. Hereditary transmission was not found, but the evidence is incomplete. No record of a similar case has been found in the literature and the condition differs in certain important respects from "Pelger's familial anomaly of nuclei". The annual curve of the total leukocytes is recorded. All the high peaks fall within normal limits but the polymorphonuclear count shows that some of them are physiologic and others are due to infection. There is no seasonal variation in the total leukocytes and the range of variation in the year is the same as in one person in twenty-four hours but less than in a population. The number of leukocytes is therefore a character of the patient. Oscillations of the annual total leukocyte curve were determined exclusively by the total polymorphonuclear cells. The variation in the proportion of the different types of leukocytes in the year is the same as in one person in twenty-four hours or in a population examined once and so the variation in the relative numbers is the same as in healthy persons. There is no seasonal variation and in this respect man resembles the pigeon. The total lymphocytes remained constant during the year. Solar radiation appeared to be the only factor that produced a seasonal variation. The relation of the annual curves of the total leukocytes, the percentage of polymorphonuclears and the percentage of lymphocytes was associated with the stability of the total lymphocytes. The total monocytes eosinophils and basophils showed no seasonal change. There was no seasonal variation in the polymorphonuclear count, which remained steady throughout the year unless disturbed by infection. The series of changes produced in the count by certain infections is recorded.

**Edema in Experimental Nephritis—**Dunn and his associates produced extensive subcutaneous edema and serous transudates in nephritis by corrosive mercuric chloride, potassium bichromate and uranium acetate when the renal lesions were severe enough and the animals ingested a sufficient amount of fluid. The greater liability to edema in uranium nephritis is probably due to the severe damage to renal structure and function which it causes, combined with low general toxicity and noninterference with nutrition. The essential cause of the edema in experimental tubular nephritis is failure of the kidney to excrete sufficient fluid. Oliguria is due to failure of the damaged renal tubules as conducting channels.



**Lancet, London**

1 1101 1154 (May 26) 1934

- Childhood Type of Tuberculosis L G Parsons—p 1101  
 Oliguria and Albuminuria in Bright's Disease J S Dunn—p 1107  
 Spinal Anesthesia H K Ashworth—p 1112  
 Calcification and Ossification in the Semilunar Cartilages H A Harris—p 1114

**Medical Journal of Australia, Sydney**

1 549 578 (April 28) 1934

- Medical Names in Australian Geographic Nomenclature J B Cleland—p 549  
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- Report of a Series of Cases of Cancer of the Cervix Uteri Treated Between 1922 and 1929 with Surgery Radium and X Rays F A Maguire—p 647  
 Malignant Tumors of the Ovary Constance E D Arcey and Leila K Keatinge—p 652  
 Review of a Series of Thirty Cases of Malignant Disease of the Ovary F A Maguire—p 660

**Phosphate Excretion in Pregnancy**—Krieger investigated the value of the glycerophosphate test by the method of Bram and Key in a series of normal women, normal pregnant women and toxemic pregnant women. The test was compared with the blood urea and urea concentration tests. An analysis of the results showed no correlation between these renal function tests and the phosphate excretion. In several cases high blood urea, low urea concentration and low phosphate excretion seemed to confirm the agreement of the test with tests already in common use. On the other hand, many cases showing normal blood urea, normal urea concentration and a normal clinical history gave low values for the excess phosphate excretion. Again, many cases showing low figures for the urea concentration test and a normal blood urea showed much higher excess phosphate excretion than other cases in which the renal function, as assessed by the urea concentration test, was much more satisfactory. These results therefore show that this test seems to have no value whatever as a test for kidney efficiency in pregnancy. Even in normal pregnancy only 18 per cent of the patients examined showed an excretion of excess phosphate as high as 150 mg per hour, which is the value quoted as the minimal excess excretion for normal kidneys. In a small group of normal nonpregnant women the average excess phosphate excretion was 169 mg per hour, only one figure falling below the minimal figure of 150 mg per hour. In the toxemic group, only 5 per cent of the cases gave values above the minimum. There was only a 62 per cent agreement between the urea concentration test and the excess phosphate excretion, when 90 mg per hour excess phosphate excretion was arbitrarily used as the minimal value.

**Practitioner, London**

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**South African Medical Journal, Cape Town**

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 Recovery of Sight and Health in Gigantism E A Seale—p 371  
 South African Official Mental Hygiene Scale of Intelligence Tests and Its Clinical Application Alice Cox—p 373

**Chinese Medical Journal, Peiping**

48 323 414 (April) 1934

- Some Notes on the Anti Schistosomiasis Japonica Campaign in Chih Huai Pan Kaihua Chekiang H C Kan and Y T Yao—p 373  
 De Rivas Treatment in Dysentery Cases Ruth V Hemenway—p 337  
 Obstetrics in Hainan Statistical Study of Two Hundred and Fifty Maternity Cases N Bercovitz and Y L Tang—p 342  
 Obstetric Service of the American Presbyterian Hospital Hainan N Bercovitz—p 347  
 Action of Viosterol and Parathormone as Studied in Thyroparathyroidectomized Dogs Fed an Artificial Diet Rich in Calcium and Phosphorus J W Spies R H Wilson and J A Stringham—p 352  
 Repair of Harelip Under Bilateral Infra Orbital Nerve Block at the Infra Orbital Foramina P C Nyi—p 373  
 Amebic Liver Abscess in Manchuria with Especial Reference to Intra peritoneal Rupture C Chang and D S Robertson—p 375  
 Mycosis Fungoides Report of Case L T Heimbürger—p 381

**Results of the De Rivas Treatment in Dysentery Cases**—Hemenway has used the De Rivas treatment in twenty cases of dysentery, amebic and bacillary, of which nineteen were cured and one was unimproved. The red cell counts of the group varied from 1,584,000 to 3,280,000, while the white cell counts ranged from 3,100 to 8,700, and the hemoglobins ran from 30 to 80. All stools contained blood and mucus. The treatment for the eradication of parasites of the large intestine is recommended for amebic and balantidic dysentery, trichomonas, oxyuris and other protozoa and metazoic disturbances of the large intestine. The patient lies on the right side with the hips elevated. An ordinary stomach tube is used for insertion in the rectum. This is connected with a glass Y tube, one end of which leads to an enema vessel and the other to a pail. There are stopcocks on both ends. The rectal tube is inserted slowly, and sufficient fluid is admitted to balloon out the intestine so the tube may be pushed up into the ascending and transverse colon, then a rectal thermometer is inserted. The enema vessel contains 5,000 cc of a 1:5,000 solution of copper sulphate at a temperature of from 52 to 55 C, which flows into the colon at the rate of from 100 to 150 cc a minute. A patient may be given 1 or 2 liters. When the patient complains of pain the enema tube is closed off, that to the pail is opened and some of the solution is drained off from the intestine. After this the treatment may be continued and at its close the patient holds it as long as he can. The treatment is given three times a week for two months and then once a week for a month.

**Action of Viosterol and Parathyroid Extract**—Spies and his associates studied the effects of vitamin D and the parathyroid principle on calcium and phosphorus interchanges in thyroparathyroidectomized dogs, with particular reference to any mutually related action which the two agents might have. They found that suitable doses of either viosterol or parathyroid extract elevate the serum calcium level, the curve of which approximately parallels those for the intensity of muscular responses to electrical stimuli and the urinary excretion of calcium. Within certain limits the serum phosphorus is inversely proportional to urinary phosphorus, serum calcium and urinary calcium. In general, the tendency of the parathyroid extract is to create a negative balance of calcium and phosphorus through increased elimination in the urine, while the tendency of viosterol is to produce a positive balance of calcium and phosphorus by the fecal excretion being diminished more than the urinary output is augmented.

## Journal of Oriental Medicine, South Manchuria

20 41 60 (April) 1934

- Fluctuation of Glycogen in the Nerve Cells of the Central Nervous System of Animals in Morphism A Hayashi—p 41
- Standardization of Vermicides (Carbon Tetrachloride Coefficient) T Kodama and S Suzuki—p 43
- Comparative Study of Vermicides M Kono and K Shimizu—p 47
- \*Lymphogranulomatosis Inguinalis Report of Thirty Seven Cases Especially Clinical Findings of Cerebrospinal Liquid and Eyeground K Kitagawa—p 48
- Dermatomycoses in the New Independent State of Manchoukuo and Their Mycologic Studies T Terai—p 50
- Biliary Cirrhosis of the Liver in Atresia of Choledochus Duct Contribution to Mode of Origin of Biliary Cirrhosis of the Liver in Man Case Y Morikawa—p 51
- Nourishment of Anchylostoma Caninum and the Histologic Changes of Intestine Thereby Produced A Yamada and K Inouye—p 52
- Outline of Whorls of the Feet of Chinese S Takeya—p 54
- Paratyphoid C Case S Nagata and N Hayashi—p 58
- Banti's Disease Case Y Matsuura—p 59
- Comparative Study of Disinfectants S Nagata and K Shimizu—p 60

**Cerebrospinal Liquid and Eyeground in Inguinal Lymphogranulomatosis**—Kitagawa observed the cerebrospinal liquid in thirty-seven cases of inguinal lymphogranulomatosis. In almost every case the pressure of the cerebrospinal liquid was abnormally high, but in the sitting posture it became variable and uncertain. The pressure in the prone position in seven cases was found to be from 200 to 420 mm of water and in two cases from 140 to 150 mm of water. Positive spinal fluid reaction for syphilis was indicated in nine cases: a positive Wassermann reaction in three and a positive Meinicke reaction in six. The colloidal gold reaction was negative in almost every case. The eye-ground was examined in thirty cases and edema in the fiber layer of the optic nerve surrounding the papilla, winding of blood vessels and increase of the capillaries were found in twenty-one cases. The causes of abnormality of the cerebrospinal liquid and of the eyeground are not clear, but the author believes that inguinal lymphogranulomatosis is a general disease affecting the central nervous system. Frei's skin test was carried out on 160 persons with the thought that the skin test was specific for inguinal lymphogranulomatosis, but Frei's antigen taken from the mixed inguinal lymphogranulomatosis was not an absolute specific, so that Frei's antigen should be made from the pus of pure inguinal lymphogranulomatosis.

## Presse Medicale, Paris

42 721 744 (May 5) 1934

- \*Plateau Form of Oscillometric Curves H Vaquez M Mouquin and P Glez—p 721
- Cancer of Penis C Lenormant—p 723
- Gastroduodenal Ulcer Treatment L de Beco—p 726
- Suprarenalctomy Arterial Hypertension and Renal Insufficiency H R Olivier and J Meillere—p 729

**Plateau Form of Oscillometric Curves**—Vaquez and his collaborators discuss the oscillometric curves produced by the passage of blood through arteries. If an extremity is surrounded by an armet containing air under pressure, the intravascular waves connected with the progression of blood produce oscillations in the gaseous medium which are easy to record. The normal state of the oscillometric waves thus obtained is expressed by a progressive rise followed by a progressive fall. Sometimes however the waves for a certain distance will be of the same height, and this phenomenon is called "plateau form." Abnormally narrow caliber of the artery or excessive volume of the blood wave are the only conditions that produce this type of wave. The authors were able to demonstrate this fact experimentally by the use of an apparatus described by Fabre. From the clinical standpoint the plateau form must be considered abnormal. It may usually be observed in patients with aortic insufficiency pulse retardation (Adams-Stokes' syndrome) or arterial hypertension. In the case of aortic insufficiency the plateau form if not constant is at least frequent. By itself it is not a bad prognostic sign especially if it can be reduced by the usual methods or by immersion of the hands in hot water but complicated or of arterial origin the irreducible plateau form is an element of serious prognosis. The absence of the plateau form in arterial hypertension is a good sign. In general the authors believe that the existence of the plateau form of the oscillometric curve has a diagnostic, prognostic and therapeutic importance in patients having cardiovascular disease. It reveals unsuspected alterations of the arterial system with the hazards that they imply.

42 745 760 (May 9) 1934

- Spitters of Koch's Bacillus Without Apparent Lesion F Bezançon, P Braun and A Meyer—p 745
- \*Late Renewal of Functions of Diaphragm After Phrenicectomy R Jeanneret M Ribet and F Fame—p 748
- Immediate Massive Gastrectomy in Pyloric Stenoses J Duval—p 750

**Renewal of Function of Diaphragm After Phrenicectomy**—Jeanneret and his collaborators feel that the renewal of diaphragmatic function following phrenicectomy, usually performed for collapse therapy in tuberculosis recently reported by numerous observers, markedly increases the interest in the anatomic relations of the phrenic nerve. Frequently the tuberculous process simultaneously continues its evolution. Hence in some cases it is necessary to pass to another method of therapeutics and in others it is necessary to maintain the diaphragmatic paralysis as the best or sole method of therapeutic assistance. By reviewing the supply, course and anastomoses of the phrenic nerve, the authors conclude that this nerve and its accessories constitute the only route of motor and trophic innervation of the diaphragm. Consequently the removal of diaphragmatic functions necessarily indicates the reconstitution of a "circuit" uniting the cervical plexus to the diaphragm. Just how this occurs is difficult to determine with certainty. The available evidence favors regeneration of the phrenic nerve itself. If this is admitted, a second intervention on the phrenic nerve is legitimate to maintain the diaphragmatic immobilization. This would involve search for the principal regenerated trunk at the level of the old scar. If the search should fail, Goetze's operation should be performed. The latter would be based on the hypothesis that the nerve regeneration had involved a phrenic accessory rather than the main phrenic trunk.

42 761 784 (May 12) 1934

- Tuberculous Contagion Answer to Questions of M Gismondi A Lumiere—p 761
- \*Clinical Study of Blood Urea Urine Urea Relation J Cottet—p 762
- Rate of Glycemia in Negroes in French Equatorial Africa and Its Variations in Pathologic Conditions Pales and Monglond—p 765

**Blood Urea-Urine Urea Relation**—Cottet measures the urea in an exact twenty-four hour specimen of urine. The urea is also measured in a sample of blood taken at the end or soon after the end of collection of the urine specimen. The figures which express in centigrams the amount of blood urea are divided by those which express in grams the quantity of urea contained in the urine of twenty-four hours. The quotient of this division, multiplied by 100, gives the relation of amount of blood urea to the urinary urea. The value of this procedure depends on three factors: (1) the secretory power of the kidneys, (2) the quantity of urinary urea in twenty-four hours, which, in states of nitrogen equilibrium, is related to the quantity of absorbed albuminoids, and (3) the quantity of urinary fluid in twenty-four hours. The author concludes, as a result of more than 1,000 observations, that the value of the relation varies between 1 and 2 in subjects having a normal renal secretory power with the urea and aqueous twenty-four hour excretion at least equal to 15 Gm and 1,500 cc, respectively. Under these conditions the value is raised proportionately as the renal secretory power is diminished. The author concludes that this relation furnishes a simple means of evaluating the functional activity of the kidneys. It also shows the important part played by aqueous diuresis in the activity of renal functioning. The influence of aqueous diuresis on renal function and on urea secretion is well illustrated by the syndrome of azotemia of nonrenal origin with oliguria, the pathogenesis of which is thus explained.

## Clinica Chirurgica, Milan

37 329 436 (April) 1934

- Teratoma of Anterior Mediastinum Complicated by Left Pulmonary Abscess Operation Cure A Slaviero—p 329
- Congenital Inguinosuperficial Hernia (Kuester's Hernia) V Consiglio—p 342
- \*Studies in Pus Reaction A De Blasi—p 397
- \*Actinomycosis of Gallbladder G Lino—p 418

**Studies in Pus Reaction**—On the basis of a colorimetric determination of the pus reaction of seventy-three patients with various pulmonary diseases, De Blasi found a hydrogen ion concentration of 7.29, a weak alkaline reaction in pus from chronic abscesses, and a hydrogen ion concentration of 6.22.

a definite acid reaction, in pus from acute abscesses. Pus from chronic abscesses with mixed infection shows an analogous reaction to pus from acute abscesses. This difference in reaction may be helpful in the diagnosis of the nature of an abscess in doubtful cases. The author states that determination of the hydrogen ion will become simple and exact in the future. A high acidity rate in pus from chronic abscesses indicates a serious course and prognosis. Acidosis from pus of acute abscesses does not seem to be related to the micro-organism but is constantly in relation with diverse bacterial species. The acidosis is more intense in young patients. The author refers particularly to inflammatory acidosis and to the biologic significance of the abscess.

**Actinomycosis of Gallbladder**—Lino states that the great resistance of the epithelium of the gallbladder to Actinomyces at the lumen of the gallbladder explains why actinomycosis rarely occurs in that site. Actinomyces in the liver is sometimes eliminated with the bile and arrives in the gallbladder. But actinomycosis of the liver is a rare condition and thus is seldom transmitted to the gallbladder. Conditions capable of facilitating the implantation of the micro-organisms and diminishing the resistance of the cholecystic epithelium to the actinomycotic infection are infrequently found. There is little possibility of a rapid spontaneous cure of the actinomycotic granuloma.

### Minerva Medica, Turin

1 721 752 (May 26) 1934

Burger's Syndrome. A. Gasbarrini—p. 721

Case of Indigenous Kala Azar in Adult and Anemic Form of Visceral Leishmaniasis. G. Oliva—p. 727

\*Importance of Calcium Oxalate Crystals in Urinary Sediment. S. Maugeri and F. Nico—p. 735

Glycerophosphatase in Serum of Patients Presenting Osseous Tuberculosis. E. Egidi and P. Rowinski—p. 737

New Trends in Medical Treatment of Hepatic Colic. P. Alessandrini—p. 739

### Calcium Oxalate Crystals in Urinary Sediment—

Maugeri and Nico examined the urine of 100 subjects to determine the ratio of calcium and oxalate acid to calcium oxalate crystals. They found the crystals present in both alkaline and acid urine, but in larger amounts in the latter. The crystals were generally observed in urine with a high proportion of calcium. They usually occur in urine containing more than 30 mg of calcium per hundred cubic centimeters and seldom in urine containing less than 20 mg of calcium per hundred cubic centimeters. The rate of oxalic acid in the urine rarely amounted to more than 7 mg per hundred cubic centimeters. The authors consider the presence of calcium oxalate crystals in the urine an indication of altered oxalic acid metabolism. The crystals were not observed in urine which despite a high rate of oxalic acid, only presented a small amount of calcium. They define the presence of the crystals in the urine as calciuria and not as oxaluria.

### Archiv für Verdauungs-Krankheiten, Berlin

55 249 372 (May) 1934

Observations on Banti's Disease and Similar Conditions. M. Einhorn—p. 249

\*Late Gastrointestinal Sequels After Bacillary Dysentery. A. Ohly—p. 254

Investigations on Utilizability of Sodium Chloride Substitutes in Cookery. W. Recke—p. 274

Clinical Aspects of Early Forms of Liver Diseases. Hepatitides and Precirrhotoses. P. A. Barchasch—p. 282

Incidence of Diabetes Mellitus Among Poorer Groups of Population. S. Drucker—p. 297

\*Changes of Tongue in Gastrointestinal Ulcer. M. Dobreff—p. 306

### Late Sequels After Bacillary Dysentery—

Ohly mentions the various infectious gastro-intestinal disturbances that occurred during the war and points out that among them bacillary dysentery is of especial significance because of its late sequels. When the history of a patient reveals that at one time he has had mucosanguineous diarrheas with tenesmus and fever, it is likely that he has suffered from a dysentery-like disorder. The anamnesis of many of these patients with postdysenteric disorders reveals that ever since the attack of dysentery the gastro-intestinal tract has not functioned properly. These persons complain of gastro-intestinal disorders particu-

larly after dietary mistakes and after exposure to cold. Bacteriologic examination of the stools generally gives negative results, but, since the agglutinins of dysentery are characterized by great stability, the serologic detection of a former dysentery may eventually become possible, but the author admits that fourteen or eighteen years after the attack of dysentery a positive serologic test is rare. However, even if both bacteriologic and serologic tests give negative results, a dysenteric sequel is nevertheless likely if the anamnesis discloses dysentery in the past history of the patient. Irritation of the mucous membrane of the colon is noteworthy in the symptomatology of the post-dysenteric sequels. The roentgenogram occasionally reveals changes, particularly in the spastic-hyperalgesic forms, but a mild catarrh of the mucous membrane is not detectable by roentgenoscopy. After describing the pathologic aspects and the examination of the feces and the conditions of acidity of the stomach, the author discusses the fever and the incidence of gastroduodenal ulcers in postdysenteric disturbances. Foods containing large amounts of cellulose, or fatty and bloating foods, particularly when taken together with cold drinks, cause relapses. If the relapses are accompanied by fermentation dyspepsia, the author advises a day of fasting on which the patients take only black tea with some wine. Then follow three or four days during which all carbohydrates are excluded and a protein diet is given consisting of boiled meat, cottage cheese and eventually protein milk. If milk is given, it should be thinned with lime water. Then rice, toast and butter may be added and, after this diet has continued for eight days, cooked, strained fruits and vegetables are permissible, and later also mashed potatoes. Fresh fruits and bloating vegetables have to be excluded for several weeks.

**Changes in the Tongue in Gastrointestinal Ulcer**—Dobreff observed 147 cases of gastroduodenal ulcer for the epithelial defects of the tongue which Glaessner stated that he had seen in patients with gastroduodenal ulcer. The author found it in only one patient and concludes from this that the so-called ulcer tongue cannot have great symptomatic significance.

### Deutsche medizinische Wochenschrift, Leipzig

60 811 848 (June 1) 1934

Somatic Manifestation of Psychic Depression. I. H. Schultz—p. 811

Nematodes in Brain in Pellagra. G. Toppich—p. 814

\*Increase in Rest Nitrogen and Loss of Sodium Chloride. E. Kohl-schütter—p. 817

Treatment of Talipes Cavus. M. Schotte—p. 820

Diagnosis of Pregnancy from Urine. W. Hoffmann—p. 822

Treatment of Hay Fever. Kehr—p. 824

**Increase in Rest Nitrogen and Loss of Sodium Chloride**—Kohlschütter points out that it has become possible to differentiate a special form of uremia characterized not by distinct anatomic changes in the kidney but by a deficiency in its sodium chloride content. The shortage of sodium chloride may be produced by frequent vomiting, severe diarrhea or other conditions that lead to a loss of fluid. The question has been asked whether therapeutic measures, particularly salyrgan injections, which lead to a considerable decrease in the water and sodium chloride content also produce an increase in the rest nitrogen. The author's investigations revealed that there is no such danger. However in order to be sure in every case he recommends that whenever a high rest nitrogen value is found in the blood the sodium chloride content should likewise be determined, and he thinks that thus it will be possible to avert the danger of a chloroprivic azotemia.

### Jahrbuch für Kinderheilkunde, Berlin

142 319 378 (June) 1934

Diastase in Urine of Nurslings and Children. F. Eckardt—p. 319

Blood Sugar Curve in Sugar Tolerance Tests During Childhood. S. A. Siwe—p. 344

\*Demonstration of Virus of Encephalitis by Means of Vaccination of Cornea. K. Rupilius and J. Szekely—p. 351

\*Cerebrospinal Fluid Reaction. J. V. Ambrus—p. 359

Symptomatology of Cerebral Disturbances in Whooping Cough. V. Mikulowska—p. 364

**Demonstration of Encephalitis Virus by Vaccination of Cornea**—Rupilius and Szekely observed the corneas of rabbits that had been vaccinated with specimens of cerebro-

spinal fluid from twenty eight children with various forms of encephalitis. The aspects of punctate superficial keratitis were produced in only a few cases. The authors admit that the cerebrospinal fluid of encephalitis may produce on the cornea of rabbits a punctate superficial keratitis, but, since the inoculation of nonspecific solutions may elicit changes that do not differ from punctate superficial keratitis, the method can have no diagnostic value. In view of this, other conclusions drawn from this test likewise become untenable, for instance, it can no longer be maintained that acute aseptic meningitis is caused by the same virus as encephalitis.

**Cerebrospinal Fluid Reaction**—Ambrus discusses the cerebrospinal fluid reaction, which he described in the *Jahrbuch für Kinderheilkunde* (140 311 [Sept.] 1933, abstr. THE JOURNAL, Nov. 18, 1933, p. 1684). To 1 cc of fluid is added 0.1 cc of a 2 per cent distilled aqueous potash soap colloid as well as 0.1 cc of a 20 per cent solution of sulphosalicylic acid. In the cerebrospinal fluids of healthy persons and in those from patients with acute cerebral and meningeal symptoms but without impairment of the meninges, a white turbidity develops which after a certain period gathers on the surface of the fluid in the form of a white ring from 2 to 4 mm in thickness, and the lower portion of the fluid gradually becomes as clear as water. In the meningitic cerebrospinal fluid however, the coarsely flocculated precipitate rapidly sinks to the bottom. Recently the author studied the turbidity and flocculation conditions of the cerebrospinal fluids of patients in whom the meningeal and cerebral tissues are histologically impaired. He observed that the slightest changes in the protein content are revealed by his test. In cases of meningism the extremely fine granular turbidity floats in the fluid for several days. There is neither sedimentation on the bottom nor adsorption on the surface. Different variations occur that are related to the severity of the disease process. Some turbidities rise to the border of the lower third or the middle of the tube and remain there. Occasionally there are coarser turbidities that float like a net. In the cerebrospinal fluids of patients with poliomyelitis or encephalitis, a characteristic micella-like precipitate appears. The more pronounced the inflammatory character, the closer the cerebrospinal fluid resembles that of meningitis. Variations are numerous, there are cases in which the micella net floats for several days in the fluid, while in others it settles on the bottom within several hours. However some micellas always remain in the fluid or adhere to the walls of the test tube. In the cerebrospinal fluid of basilar meningitis, a coarsely flocculated sediment quickly settles on the bottom. After fifteen minutes the precipitate has settled and after forty-five minutes the upper fluid is as clear as water. The author stresses the advantage of his method over other cerebrospinal fluid tests and expresses the opinion that the turbidity and flocculation are determined by the amount and type of protein. The rapidity of sedimentation is likewise important and increases with the quantity of protein.

### Klinische Wochenschrift, Berlin

13 793 824 (June 2) 1934 Partial Index

- Investigations on Melanophore Hormone IV Isolation of Melanophore Hormone F G Dietel—p. 796  
Argyrosis Particularly Those of the Eye W Cerlach—p. 797  
Antibody Content of Animal Tissues Following Treatment with Thymus Extract Alexandra Wasitzky Strobl and A Wasitzky—p. 797  
• Blood Group Ferment and Blood Group Substance in Saliva T Satoh—p. 798  
Ultraviolet Rays and Iodine Content of Blood and Thyroid C Bennholdt Thomsen and M Wellmann—p. 800  
Polyallelomorphism as Foundation of Hereditary Transmission of Spastic Paralysis V Hammerschlag—p. 803  
Special Form of Ventricular Arrhythmia in Total Block K Lubr—p. 807  
Action of Quinoline Derivatives on Gametocytes of *Plasmodium Praecox* I L Krutshchevskii and A I Pines—p. 807  
Experiments on Anaerobic Surface Culture W Bachmann—p. 810

**'Blood Group Ferment' and Blood Group Substance in Saliva**—Satoh calls attention to the fact that in the feces and in the saliva processes take place that become manifest in a destruction of the blood group substance. These processes have been ascribed to the presence of the so-called blood group ferment. The author made further studies on the saliva first on that of the A group, and found that irrigation of the mouth

results in only a slight reduction of the blood group A substance and in an almost complete disappearance of the ferment action. Tests were made also on the saliva of the O group and it was observed that the group ferment directed against substance A is again largely removed by irrigation of the oral cavity, even though its disappearance is not quite as pronounced as in the saliva of the A group. These and other experiments seem to prove that the blood group substance rapidly reappears in the saliva or hardly disappears. The blood group ferment, however, is subject to great fluctuations and can be removed almost completely by simple irrigation of the oral cavity. The author thinks that these observations indicate that the blood group ferment in contradistinction to the blood group substance develops or increases autochthonously in the oral cavity.

**Ultraviolet Rays and Iodine Content of Blood**—To determine whether a seasonal factor, the ultraviolet rays, or the administration of ergosterol influences the iodine content of the thyroid and of the blood, Bennholdt-Thomsen and Wellmann made experiments on rats. They found that rats that have been exposed to the quartz lamp or had been fed with viosterol had a high iodine content of the blood (40.5 and 31.05 micrograms, respectively, per hundred cubic centimeters) and a low iodine content in the dry thyroid substance (112 and 167 micrograms, respectively, per hundred cubic centimeters). The control rats that had not received this treatment but had been kept in dark cages had a low iodine content of the blood (25.25 micrograms per hundred cubic centimeters), but large quantities of iodine in the dry thyroid substance (211 micrograms per hundred cubic centimeters). The histologic examination of the thyroids revealed that the ultraviolet rays as well as the administration of viosterol resulted in a flat, resting epithelium without increase in the follicles, but a considerable accumulation of colloid, while in the absence of these factors the opposite was the result, that is, an increase in follicles, restless and increased epithelium and decreased quantities of colloid.

13 825 864 (June 9) 1934

- Infections by Anaerobic Bacilli J Zeissler—p. 825  
• Observations on Gas Gangrene with Especial Consideration of Sero-therapy G E Konjetzny—p. 831  
• New Seroreaction for Tuberculosis E Meinicke—p. 833  
Serology of Tuberculosis F Ernst—p. 838  
Renal Point of Attack of Pressor Principle of Posterior Lobe of Hypophysis R Hauptfeld—p. 839  
Vitamin C and Protein Bodies of Plasma A Boger and H Schroder—p. 842  
Capillary Reaction Following Sojourn on the Adriatic R Heller—p. 843

**Gas Gangrene and Serotherapy**—Konjetzny points out that the value of the seroprophylaxis of tetanus is no longer disputed but that this is still the case in regard to gas gangrene. Some authorities have rejected it as entirely useless, while others have taken a stand against this depreciation of the seroprophylaxis of gas gangrene. The author reports nine cases of gas gangrene seven developed following a street accident and two following surgical interventions. These cases show that the administration of the anaerobic serum in its present form does not prevent gas gangrene, because it developed in four cases in spite of the prophylactic administration of the serum. The author does not consider it entirely useless. The cases described took a comparatively mild course as the result of the serum prophylaxis. In three of the cases Fraenkel's bacillus was the cause of the gas gangrene, and in two others Fraenkel's bacillus and Novy's bacillus were found. The author assumes that the German anaerobic serums do not contain a sufficiently large protective dose against Fraenkel's bacillus. Serotherapy following the development of gas gangrene comes usually too late, but in spite of this it should not be left untried. None of the seven cases of gas gangrene that developed following a street accident were fatal. In five cases the extremity was saved, while amputation became necessary in two. The author recommends the prophylactic as well as the therapeutic use of anaerobic serum in street accidents.

**New Seroreaction for Tuberculosis**—Meinicke reports that he has succeeded in preparing much better antigens than he employed for his first experiments with his clarification reaction for the serodiagnosis of tuberculosis. Moreover, in his first tests he employed only the centrifugation method, but these

improved antigens permit also a micromethod and a vault reaction. Four different antigens are used for the tuberculosis reaction: (1) a strong alcoholic tuberculosis antigen, (2) a weak alcoholic tuberculosis antigen, (3) an aqueous tuberculosis antigen and (4) an alcoholic control antigen, which is identical with the original standard extract for the Meimcke clarification reaction II. He discusses the significance of the seroreaction for tuberculosis. He maintains that it cannot be doubted that his tuberculosis reaction is a specific antibody reaction. The positive outcome of the test indicates either an active tuberculosis or that an active stage has existed until recently. The reaction may be helpful in the differential diagnosis, in the detection of cases of tuberculosis among larger groups and in determining the etiology of diseases of the eye, such as choroiditis and iritis, and of certain diseases of the bones and skin. In the prognosis the reaction may likewise become helpful, but it must be considered together with the clinical picture, for a reduction in the titer of the reaction may be a favorable as well as an unfavorable sign. Although the reaction has limitations, the author considers it a valuable addition to the diagnostic and prognostic methods.

### Medizinische Klinik, Berlin

30 757 788 (June 8) 1934

\*Painting with Chloroform in Dermatoses. V. Klingmüller—p. 761

\*Chemical Exclusion of Surgically Exposed Peripheral Vascular Sympathetic (Sympathicodiaphtheresis) and Its Indications. K. Doppler—p. 762

Treatment of Postoperative Tetany with A. T. 10. H. Wendt and L. Altenburger—p. 765

Aortic Gymnastics. L. Roemheld—p. 767

Newer Studies on Radiation of Organisms. W. Stempel—p. 769

**Painting with Chloroform in Dermatoses**—Klingmüller noticed that painting with chloroform has a drying effect on the skin. In this respect it far surpasses benzine or ether. Moreover, it also has a certain bactericidal and fungicidal action. The author decided to try chloroform in various cutaneous disorders. In order to render the chloroform more stable he added 1 per cent of dehydrated alcohol, and, as the excretions of the skin generally have an alkaline reaction, he added a weak acid in the form of from 0.5 to 1 per cent of cinnamic acid. Hoping that the drying effect of the remedy would inhibit the growth of cutaneous fungi, the author decided to try it in the various forms of mycosis of the skin. He obtained good results in pityriasis versicolor, in erythrasma and in the interdigital mycoses. Many cases of suppurating cutaneous inflammations, such as acne and folliculitis and many eczematous dermatitides likewise responded to this treatment. Surprisingly favorable results were obtained in refractory cases of acne conglobata and in papular forms of acne rosacea. Later, the author tried the chloroform treatment even in chronic inflammatory changes of the skin, such as lupus erythematosus, and he obtained some favorable effects. He thinks that the treatment may be recommended in seborrhea of the face and of the head. The juvenile hard warts also frequently disappeared following painting with the chloroform preparation. An especial advantage of the preparation is that it does not cause discoloration. The chloroform evaporates shortly after the application, while the cinnamic acid remains in the form of crystals. The applications should be made from three to six times daily. The patient should be told to avoid inhalation of the chloroform. In case of open cracks of the skin the chloroform may come in contact with the exposed terminations of the nerves and thereby cause burning pains. However, many patients do not object to this if they will be relieved of the continuous itching.

**Chemical Exclusion of Surgically Exposed Sympathetic**—Doppler states that sympathicodiaphtheresis counteracts arterial nutritional disturbances in organs that have been impaired by vascular spasms. He finds that every lesion, induced on any portion of the peripheral sympathetic, reduces the tonus of the sympathetic locally and in the form of a reflex action becomes manifest as a depression in the tonus in other regions. The arterial dilatation is not limited to the comparatively short section of the vessels which has been treated but involves the entire vessel in the central direction and also peripherally. It involves neighboring vessels. Somatic

changes set in, which can be interpreted only as the results of a pluriglandular stimulation and which were produced by a reflex transmission of the arterial hyperemia to the vessels of the endocrine glands. In a discussion of the technic, the author employs a 4 per cent aqueous solution of phenol. Whereas formerly he only massaged the vessels with the solution, he has in the last four years combined with it the injection and infiltration of the periarterial tissues. He has discontinued the careful exposure and isolation of the arteries, for the solution penetrates the coats surrounding the arteries. He advises against a detachment of the adventitia as it is performed in Leriche's sympathectomy, for the removal of the adventitia predisposes to the formation of aneurysms and impairs the nutrition of the vascular wall. The attempt to reach superficial arteries by percutaneous injection, however, is inadvisable. The author performed sympathicodiaphtheresis on the common carotid, thyroid, left gastric, renal and pancreaticoduodenal arteries, also on the vessels of the hepatoduodenal ligament, on the arteries of the meso-ileum and the mesocolon, on the ovarian, uterine, spermatic, external iliac and femoral arteries and on the hypogastric plexus. He describes the technic of these interventions and discusses the indications for sympathicodiaphtheresis. He stresses its value in endocrine disturbances and mentions various other conditions in which the procedure proved helpful.

### Monatsschrift f. Geburtshilfe u. Gynäkologie, Berlin

97 65 128 (May) 1934

Congenital Skin and Bone Defects of Vault of Cranium. H. E. Scheyer—p. 65

Schloffer's Tumor. Luise Lotte Horn—p. 71

Influence of Process of Birth and of Obstetric Operations on the New Born. K. Burger—p. 75

\*Potassium and Calcium Content of Blood in Course of Menstrual Cycle. A. Schepetinsky—p. 83

Rare Gynatresia. K. Holzapfel—p. 89

Closure of Vulva by Burns. K. Holzapfel—p. 92

**Potassium and Calcium Content of Blood in Women**—Since certain symptoms of menstruation have been explained by an increased irritability of the parasympathetic nervous system, Schepetinsky decided to determine the action of the various phases of the menstrual cycle on the calcium and potassium content of the blood serum. He concludes that every laboratory has to develop its own potassium and calcium standard. He was unable to detect a menstrual vagotonia. He maintains that the fluctuations that occur during menstruation in the calcium content are negligible and remain within normal limits. The increase in the calcium content to the limit of normality during the premenstrual period and the decrease in the potassium are individual and have no relation to the constitution.

97 129 188 (June) 1934 Partial Index

\*Weltmann's Coagulation Band in Inflammations of Adnexa. F. G. Purper—p. 138

Action of Hormone of Anterior Lobe of Hypophysis on Nonfunctioning Ovaries of Women. R. A. Tschertok and G. W. Penkow—p. 146

Almost Full Term Interstitial Pregnancy. H. Tietze—p. 153

**Weltmann's Coagulation Band in Inflammations of Adnexa**—By means of Weltmann's coagulation test, Purper tested the serum of fifty-three women having adnexitis. The total number of tests was 173. They were made after weekly intervals, and their results were compared with the other signs of inflammation. In severe cases of adnexitis the author observed a considerably narrower coagulation band, while in mild cases the reduction was less. Changes in the inflammatory condition were accompanied by changes in the coagulation band. Moreover, there is parallelism between the coagulation band and the blood sedimentation and the number of leukocytes. Occasional divergences between the three reactions are due to the nature of these reactions. The author thinks that Weltmann's coagulation test is a valuable addition to the methods for exact diagnosis and prognosis of adnexitis. He considers it especially valuable in determining the advisability of an operation in case of inflammatory tumors of the adnexa, and he advises its use before curettage, in order to guard against flaring up of an adnexitis. In patients having menorrhagia the test should likewise be made before curettage.

**Monatsschrift für Kinderheilkunde, Berlin**

60 1 80 (May 18) 1934

- \*Changes in Size of Liver in Nursing Toxicoses Anna von S Szasz —p 1
- Epidemiology of Scarlet Fever in Bratislava (Pressburg) A J Chura and S Limbacherova —p 9
- Chloride Analysis of Organs in Young Dogs G Torok and L Neufeld —p 20

**Size of Liver in Nursing Toxicoses**—Szasz shows that in mild and medium severe toxicoses a protective "hepatic blockage," a swelling of the liver, sets in. The liver becomes enlarged and soft. Following administration of hypotonic solutions of sodium chloride the blood becomes thinner, the organism becomes detoxicated and the liver again attains normal size and consistency. Cases of toxicosis, in which the hepatic blockage is absent and the liver is small and thin, are rather severe. The erythrocytosis resulting from inspissation of the blood may precede the toxicosis by several hours or even days. In cases of severe nutritional changes, the number of erythrocytes is important and can serve as an early guide in the selection of the diet and the therapeutic measures. The secondary parenteral disturbances resulting from metabolic disorders are characterized by a high number of erythrocytes, and, if fasting is instituted early and large amounts of fluids are administered, a rapid cure may be obtained.

**Munchener medizinische Wochenschrift, Munich**

81 853 890 (June 8) 1934 Partial Index

- Reform of Medical Studies F von Müller —p 853
- Defects and Mistakes in Education of German Physician H Kritzer Kosch —p 861
- Presence of Corpus Luteum Hormone in Placenta K Ehrhardt —p 869
- \*Epicondylitis Humeri (Tennis Elbow) and Other Periostalgias K Boshamer —p 870
- Suppurating Meningitis Caused by Influenza Bacilli M Kasper —p 871
- \*"Secondary Vibration" a New Percussion Symptom in New and Old Disturbances of Vertebral Column A Stalman —p 873

**Tennis Elbow**—According to Boshamer, tennis elbow is due to an irritation of the periosteum of the lateral epicondyle of the humerus and is often limited to the lower edge of the epicondyle. If it exists for longer periods, periosteal deposits may become roentgenologically demonstrable. The median epicondyle is rarely involved. The cause is either a single direct trauma of the epicondyle or a continuous overexertion of the group of muscles attached to the epicondyle. The condition is frequent in persons who overexert these muscles, such as tennis players, cobblers, glass blowers, cabinetmakers, riveters, tinsmiths and washerwomen. Observations on forty cases convinced the author that the direct single trauma is more often the eliciting factor than the chronic irritation. The epicondylitis is characterized by a sensitivity to pressure of the region of the epicondyle, by a piercing and burning pain in the same region when the arm is stretched at the elbow joint to more than 160 degrees, and by radiation of the pains into the upper and lower arm and even into the fingers. Myalgia frequently coexists with the epicondylitis, and it is surprising that it frequently involves the antagonistic group of muscles, that is, the flexors. A circumscribed edema is present rarely. The main object of treatment should be to eliminate irritation of the periosteum, that is, every exertion of the extensor muscles attached to the epicondyle. A splint is applied to the upper arm and forearm while the elbow is bent at a right angle. Care must be taken that the wrist joint and the fingers are completely extended, but, if the median epicondyle is involved hand and fingers should be bandaged in the flexed position. To be able to influence the periosteal irritation with diathermy or with ointments that induce hyperemia, the author prefers the use of plaster-of-paris splints that are fenestrated in the region of the epicondyle. Immobilization should be continued for three or four weeks. Hohmann's operation may be resorted to because it produces results in a comparatively short time. Under local anesthesia an incision 3 cm in length is made over the epicondyle. The musculature on the anterior and lower rim of the epicondyle is notched. Then the cutaneous wound is closed. The after-treatment consists of a splint bandage left on for only about ten days. This operation was resorted to (1) in case of long duration of the disorder (2) when the disorder was caused by the occupation of the person, and (3) when the

conservative treatment failed. In the majority of cases the conservative treatment will bring the desired results. Similar conditions mentioned by the author are epicondylitis of the femur and tibia, periostalgia of the spinous processes of certain vertebrae, radial styloiditis and pressure periostalgias.

**"Secondary Vibration" in Disturbances of Vertebral Column**—Roentgenoscopy occasionally fails in the diagnosis of disorders of the vertebral column, particularly in anterior spondylitis. To find a more objective clinical method, Stalman employs the percussion of the spinous processes. Percussion of the vertebral spinous processes of a healthy person results in the "secondary vibration" of the subsequent and previous vertebrae. This secondary vibration is determined best by laying the tips of the index and middle fingers on the apices of the preceding and subsequent vertebrae while the other hand strikes the vertebra in between with a rubber hammer. The sound is not considered, but the touch detects the vibration. The vibration is more clearly perceived if the patient is lying face down, preferably over a bolster, or if he is in the knee-elbow position. When the examiner reaches a vertebra with spondylitic changes, the secondary vibration becomes considerably reduced or entirely abolished. However, if the spondylitic process has ceased and ankylosis has developed, the secondary vibration is again elicitable and, when the ankylosis has resulted in block formation, the secondary vibration becomes even more pronounced than it is in the healthy portions of the vertebral column. Thus "blocking" can likewise be detected with this method. Great intensity of the secondary vibration is found in spondylitis deformans and also in congenital blocking of several vertebrae.

**Wiener klinische Wochenschrift, Vienna**

47 705 736 (June 8) 1934

- Which are the Most Important Requirements of Race Hygiene? H Reichel —p 705
- \*Specific Vaccine Therapy and Allergic Reactions of Actinomycosis E Neuber —p 708
- Apparent Spontaneous Cures of Renal Tuberculosis N Moro —p 710
- Dye-stuff Resorption from Digestive Tract and Gastric Ulcer J Goldstein and S Erber —p 712
- \*Rapid Culture of Diphtheria Bacilli A Sole —p 713
- \*Admissibility of Blood Transfusion in Panagglutination O Lewin —p 714
- Condition of Sympathetic Nervous System in Chronic Polyarthritis L von Buday and J von Fernbach —p 717
- Surgical Treatment of Diseases of Biliary Passages E Ranzi —p 719
- \*Early Diagnosis of Carcinoma of Female Genitalia L Adler —p 723

**Specific Vaccine Therapy of Actinomycosis**—Neuber reports the case of a man, aged 27, who had abdominal actinomycosis. The intracutaneous vaccinations with specific vaccine resulted in specific allergic local, focal and general reactions, while the control vaccinations with physiologic solution of sodium chloride were negative as were also the specific vaccine injections of control persons. The specific vaccine therapy was effective. The patient recovered after ten injections. The vaccine was administered in doses beginning with 0.1 cc and gradually increasing to 0.9 cc. The intervals between injections were four or five days. In the course of this treatment the infiltrates became resorbed, the fistulas closed and the patient gained weight, so that he could be discharged as cured. Autovaccines or at least polyvalences should be used. The vaccine is prepared from maltose agar cultures. When they are from three to four weeks old they are washed off with 5 cc of a sterile solution of sodium chloride. This suspension is subjected to trituration for about fifteen minutes and is filtered and 0.5 per cent phenol is added. It is stored in the icebox. The polyvalent vaccines are prepared from four or five different strains.

**Rapid Culture of Diphtheria Bacilli**—According to Sole, it was Folger who perfected a rapid culture method of diphtheria bacilli more than thirty years ago, but the method did not become known to the general medical public. The procedure is as follows. A sterile swab on a holder, as is used for taking smears from the pharynx or nose, is dipped into sterile horse serum (free from disinfectant) until saturated. The swab is pressed out against the side of the bottle and then it is turned over a flame until vapors develop and the serum-saturated surface appears slightly coagulated. The author employs horse serum while Folger employed beef serum. The swab thus prepared is passed over the fauces or into the nose of the patient. Then the swab is put into a sterile glass tube and placed in the incubator. The author emphasizes that the



swab should be prepared immediately before the smear is taken. Folger originally took the culture swab from the incubator after four hours, scraped the micro organisms that had grown on the swab onto a slide and examined them with the microscope. Later he reduced the incubation to three hours, and the author found that in 80 per cent of the cultures a two hour incubation was sufficient, but, after taking some of the culture after two hours, he puts the swab back into the incubator and after another two hours examines the rest of the culture. Simultaneously with the preparation of the culture swab, another smear is taken and, after staining, is immediately examined. The usual Löffler culture was made in all cases as a control and was examined after eight and after thirty-six hours. These control tests corroborated the results of Folger's rapid method in all cases. As stated, a diagnosis was possible in most cases after two hours.

**Admissibility of Blood Transfusion in Panagglutination.**—The case reported by Lewin raised the question whether it is permissible to give a blood transfusion to a patient with panagglutination. This case came to necropsy. A patient with a hepatolienal syndrome and splenomegaly was to be prepared for an operation by a blood transfusion. The determination of the blood group revealed autohemagglutination. The blood group O could not be determined until after elimination of the erythrocytes. The patient was given an infusion of 500 cc of blood of the same group and he tolerated it well, for there were no complications of any kind. On the following day in connection with the splenectomy, there was a hemorrhage from the hilus vessels, which resulted in death five hours after the operation. The postmortem examination revealed the same manifestations of hemagglutination of the blood in the vessels and of the blood that had accumulated in the abdominal cavity as those noted in the determination of the blood group. The clinical course as well as the histologic examination disclosed no symptoms that could have been ascribed only to panagglutination. The author concludes that the status of the blood found on necropsy proves that the panagglutination is a cold agglutination and that, when the body becomes cold after death, the same processes take place as in vitro in the group determination. He maintains that the transfusion of blood of the same group is permissible in cases of panagglutination.

**Diagnosis of Carcinoma of Female Genitalia.**—Adler discusses the symptoms of carcinoma of the vulva, vagina, uterine cervix, uterus, uterine tubes and ovaries and reaches the conclusion that early diagnosis is difficult in nearly all carcinomas of the female genitalia, because (1) pains set in comparatively late, and patients as a rule do not consult a physician until pains are felt, (2) hemorrhages are not given sufficient attention or the women hesitate to consult a physician during the time of bleeding, (3) it always requires a certain lapse of time until a genital carcinoma shows any symptoms at all (latent period). Thus it is not entirely the fault of the physician or of the patient that so small a percentage of genital carcinomas is recognized during the beginning stages. The author thinks that a gynecologic examination after regular intervals would probably be a solution of this problem. In younger women such an examination should be made once a year or at least once in two years. In women near the menopause, the examination should be made every six months.

### Acta Chirurgica Scandinavica, Stockholm

75 1 184 (June 8) 1934

- \*Contribution to Study of Bone Transplant. H. Camitz, H. Holmgren and H. Johansson.—p. 1
- Operation in Case of Splenic Torsion in a Male Patient. O. Linden.—p. 68
- Late Result of Antethoracic Plastic Operation on Esophagus. O. Lundblad.—p. 73
- Longitudinal Growth of Bones and Transplantation of Epiphyseal Cartilages. N. Silfverskiöld.—p. 77
- \*Cholecystography. J. Foged.—p. 105
- Results of Experiments with Extra Articular Arthrodesis in Hip Joint. Tuberculosis. R. Euren.—p. 129
- Experimental Study of Pyleovenous Reflux. C. G. Ahlstrom.—p. 162
- Chondromatosis of Metacarpophalangeal Joint. Case. O. Linden.—p. 180

**Study of Bone Transplant.**—Camitz and his associates transplanted homologous fragments of the radius in seventeen dogs. The bony fragment with its periosteal covering was

transplanted from the right radius to the left and vice versa. The animals were killed after periods of from forty-eight hours to 196 days. The histologic sections were stained with Hansen's iron trioxymethalin-fuchsin S or with hematoxylin-eosin. It was found that a reaction in the periosteum of the graft is observable after seventy-one hours. After five days the proliferating connective tissue surrounding the graft assumes the character of a connective tissue callus and unites with the collagenous trabecular structure (myelogenous callous tissue) simultaneously developing from the endosteum of the host's bone. Periosteal callous tissue begins to form after another five days. While the connective tissue callus assumes more and more the character of a bony callus, the myelogenous callous tissue undergoes a powerful development within the marrow cavity and a periosteal callus develops close to the defect in the host's bone and opposite this area. The myelogenous callus disappears after forty-two days, but the periosteal callus persists. Definite degenerative alterations are present in the periphery of the graft after sixty days. At the same time the callous tissue inside the bony defect assumes more and more a definite lamellated bony structure and the periosteal callous tissue begins to break down. The authors believe that some parts of the graft are reformed during the process of union in this manner, while other parts retain their original structure. As the process of union of the graft progresses, the latter gradually assumes a definite lamellar bony structure. After 196 days there is little left of the original periosteal bony deposits. The osteoclasts appearing as the result of breaking down of the bone tissue can be seen on the surface of the graft after seven days. They may be observed 196 days later below the periosteum in areas in which the periosteal deposits are still present. Haggqvist's view of osteoclasts as secondary elements constituting the end result of osseous protoplasm deprived of calcium salts and collagen seems to be verified by the authors' observations. The periosteum and endosteum of the graft do not play a prominent part in the regeneration of the bone, though their presence and their vascular supply appear to be of great importance for an ideal union. A compact bone portion of the graft is retained for the most part. It will ultimately stimulate the surrounding tissues to new bone formation.

**Cholecystography.**—Foged reports 401 cholecystographic examinations made on 388 patients to whom 3 Gm of tetiothaleim sodium (iodotetragnost) was given either orally or intravenously, according to the method of Sandstrom. In ninety-seven normal persons without symptoms referable to the liver or the biliary tract, a normal cholecystogram was obtained in ninety-one, while in six there was absence of the shadow of the gallbladder. In 214 cases of cholelithiasis and cholecystitis pathologic cholecystograms were obtained in 191 and normal shadows of the gallbladder in twenty-three. Cholecystography in this group established a clear diagnosis in 30 per cent of the cases and was helpful in arriving at a diagnosis in 90 per cent. The author states that more than 80 per cent of normal cholecystograms are obtainable from persons without liver or biliary tract disease. A normal cholecystogram does not definitely exclude the existence of pathologic alterations in the biliary tract. A pathologic cholecystogram indicates a disease of the liver or the biliary tract in 90 per cent of the cases but a pathologic cholecystogram may be obtained from a person not suffering from any disease of the liver or the gallbladder.

### Hygiea, Stockholm

96 305 336 (May 15) 1934

- \*Observations Concerning Poisoning from Food in Office Building. Nov. 10 1933. R. Huss and B. Lindstrom.—p. 305

**Poisoning from Food.**—Serologic examinations made by Huss and Lindstrom showed that the intoxication which affected about fifty persons who had eaten in the lunchroom of a railway office building on the date in question was probably an acute intestinal disorder due to dysentery bacilli of the Kruse-Sonne type, the source of infection being sliced boiled ham that had been contaminated by an infected food handler.

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## OBSTETRICS VERSUS MIDWIFERY

CHAIRMAN'S ADDRESS

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CHICAGO

The dictionaries say that the terms obstetrics and midwifery are synonymous but I would draw a distinction between them. The term midwifery should apply to the practice of caring for women during childbirth by the old blind, empirical methods, while the term obstetrics should connote the fact that to the wisdom gained by experience has been added all the knowledge supplied by recent scientific investigation. In short, midwifery is the practice of midwives, male and female, and obstetrics is the practice of the scientifically trained physician.

For many centuries the midwife reigned supreme in her field, and only on rare occasions did the surgeon-physician intrude—and then his accomplishments were not praiseworthy—for which not himself but the customs of the times and the degradation of women were to blame.

Hippocrates, whose mother was a midwife, and he the son of a line of physicians, knew very little about childbirth. He thought the child somersaulted into a vertex presentation, at about the seventh month of pregnancy, and every month braced his feet against the fundus uteri and tried to leap into the world. Though his knowledge of the mechanism of labor was little and faulty, he organized midwife teaching and gave a classic description of the death from puerperal peritonitis of the daughter of his friend Telebulos.

For many centuries men were forbidden access to the birthroom and had to get their knowledge of birth from animals. Therefore when called to a complicated labor all that they could do was to destroy the fetus and extract it piecemeal—and the instruments they possessed were crudely destructive. True the Jews, about 200 years before Christ, had done cesarean sections and some of the women and children had survived, but the operation had a terrific mortality.

For 1,500 years after Christ, midwives and slave doctors had almost complete sway in the delivery chamber. The midwives pursued every device to retain their control, and the doctors could learn nothing of normal delivery. The fact that they were helpless in obstructed labors, except for their destructive instruments, made their situation worse, because, as Smellie said, the women took great alarm when a man midwife was to be called, since they knew that then either the mother or the baby or both were lost.

In 1509, Pare reinvented podalic version and midwifery practice by men began to improve. About 1664, Louis XIV insisted that his friend Dr. Clement be allowed to deliver his mistresses and at the court the influence of the midwife began to wane. In the seventeenth century, Dr. Werth of Hamburg was burned alive for having attended a normal labor in disguise, the midwives enjoying a "racket," and in several lands the contest between doctors and midwives for the control of the lying-in room still persists.

The invention of the obstetric forceps, about the beginning of the eighteenth century, gave the greatest impetus to the movement to have men attend women in labor, but until very recently the practice of normal obstetrics by physicians has been looked down on by the profession and by the public as well as by the midwives.

Labor was considered a normal harmless function not requiring the attendance of anybody but one capable of cleaning up the soil afterward, and therefore it was beneath the dignity of a real physician.

In Germany, in 1751, Roederer publicly demanded that the same dignity be accorded the accoucheur as the physician and surgeon but he received little acclaim.

This disesteem in which obstetrics has always been held adverted to the doctors who felt the desire to be helpful to the distressed woman in labor. In England they were dubbed men-midwives, and some of the men who have left illustrious names in Britain's medical history were held in contempt during their lives.

Astonishingly, as late as 1825, a man-midwife was denied admission to the Royal College of Surgeons, and his friends would not be seen shaking hands with him on the street, indeed, thus complains Ramsbotham, one of the British obstetric luminaries of the nineteenth century. Queen Victoria had midwives for her earlier labors. In 1850, when Dr. White of Buffalo delivered a woman before a class, he was denounced by the press and his own profession, and tracts were circulated declaring that "the employment of men to attend women in childbirth is unnecessary, unnatural and injurious."

As with the practice, the science of obstetrics and its teaching lagged behind medicine and surgery. Semmelweis, Pasteur and Lister showed how to prevent puerperal infection and Simpson gave woman anesthesia. Now, armed with the obstetric forceps and these two, which were soon followed by cesarean section, the obstetrician felt that he was master of the birthroom.

But some of the old opprobrium still clings to the obstetrician and his work. The public in many places still believes that his accomplishments are less than those of the medical man and the surgeon. The medical schools, in many universities, still rate obstetrics as a minor specialty, and even today students leave their

campuses with a debased opinion of the science and art of obstetrics, which opinion is bound to result in an inferiority of the work they will do

Hospitals do not provide facilities for obstetrics that are the equal of those for surgery. Let any one compare the surgical operating room with the delivery room in his own hospital, and let him think over which one receives the most service

All my medical life I have striven to eradicate this low opinion of obstetrics and to place on equally high pedestals the three primary branches of medicine, obstetrics, medicine and surgery, all equally important, all equally dignified. Of course I have not been alone in this endeavor. Jaggard, my predecessor at Northwestern, Hirst in Philadelphia, Williams in Baltimore and many others have been waging the same fight and a great deal has been accomplished

It is therefore with great pain and some alarm that I notice a trend in Britain and in spots of our Eastern seaboard, a reactionary trend, toward the state of midwifery. Perhaps I had better make known the grounds for the claims, which some might call extravagant, that I make for obstetrics as opposed to midwifery. In other words, let a scientific examination be made of this function which the medical profession is asked to turn over for safe conduct to persons taken from the ignorant classes, without college educations, without cultural development, unschooled in the fundamental sciences of medicine, untrained in the practice of medical and surgical and obstetric arts, blind watchmen at the bedside of birth and death. Indeed the mere hint of such a reversion offers an insult to one's intelligence, than which there is no greater affront

#### DISTURBANCES OF PREGNANCY

When a woman becomes pregnant she at once begins to undergo changes that affect every organ and every fiber of her being, and since these changes readily pass over into the pathologic, it is vital to her health that her physician know what is going on

Making only mention of emesis gravidarum, which in its varying degree is quite common, I would call attention to tuberculosis, heart disease, latent kidney disease and mild toxemias, of which hypochromic anemia is one. The term hydremia which older writers applied to the blood in pregnancy, has been learned to be known as toxic anemia, and it is responsible for not a few disturbances in pregnancy and labor. It seems to become worse with multiparity. In some cases it is the sequence of a focal infection, and a search for its cause may lead to the discovery of an endometritis, a pyelitis, a nephritis, appendicitis, gallbladder infection, abscessed tonsils or indeed an endocarditis

In these obscure often hidden, conditions may be found the causes of some cases of abruptio placentae and autogenous sepsis during and after labor. In women suffering anemias during pregnancy, one should look out for postpartum hemorrhage, thrombosis, embolism and puerperal infection. There is also good ground for suspecting that infectious foci may upset the endocrine balance and thus cause eclampsia and allied toxemias or disturb the water balance by the changes effected in the kidneys and liver, leading to metabolic complications. How it happens is not known, but there seems to be a relation between toxemias and latent sepsis

The fetus requires careful attention during pregnancy. Syphilis needs only a single word. What to do for that is well proved, but the nutrition of the baby

must be thought of and it must be protected from infection. Infectious foci in the mother can cause abortion, monstrosities, abruptio placentae and placenta praevia. It is necessary to learn how to protect the fetus from hemorrhagic diathesis, fragility of the blood vessels, which invites cerebral hemorrhage even during easy delivery, imperfect dentition, rickets, and an effort is being made even to find out how to develop its immunities against all the infections that beset it during and after birth. Truly this is a large order, indeed a reaching for the sun, but this is only one of the hopes of prophylactic obstetrics

#### LABOR

As far as the mother is concerned, the most important question the scientific obstetrician must answer is: How does the patient stand on the threshold of her labor?

1 Has she been cured of all the major and minor diseases that threaten her and her baby? I have just mentioned a few

2 Has her mind been prepared for the mental ordeal through which she is about to pass? The element of fear must always be taken into account in prenatal care and cannot be tossed aside with deliberate neglect or a casual slighting remark

Fear is a real menace to the well being of every pregnant woman, fear of death and fear of pain. Fear of death has caused many cases of postpartum shock and actual dissolution and fear of pain, which throws off the equilibrium of the sympathetic and autonomic innervation of the uterus, has caused many cases of physical dystocia, which have eventuated in forceps, lacerations, postpartum hemorrhage and maternal and fetal deaths from injury and sepsis

Fear of pain and pain itself can cause hypopneuphemia, and thus some postpartum cases of shock are explained. It would be silly to deny that labor is attended by pain, but the amount of actual suffering varies in different women

A large part of the pain in labor is subjective and is due to the changes, cultural changes, which are mostly mental, in the human female resulting from civilization, and a part is undoubtedly due to suggestion by the friends of the parturient and by the magazine publicity, which is so profuse at the present time. A small part is due to local anatomic changes produced by the mode of life, racial mixtures and disease

There is much reason for believing that if women could return to a more natural, primitive state, mentally and physically, their labors would reassume the known qualities of the function among primitive peoples, and the element of pain would show a corresponding decrease in intensity. I agree with Devees and Grantly Read that the pain of labor is pathologic

In addition to the element of fear there are variable limits which nature sets in women as to their ability to endure pain, wakefulness, and mental and nervous strain. A proper evaluation of this ability and the institution of treatment resulting from it will prevent most cases of neurasthenia and the exhaustion psychoses, which at the present time are not uncommon

3 Has the parturient been brought into the best possible physical condition for the mechanical and metabolic strain of labor? How about her heart, lungs, abdominal muscles, pelvic floor and the connective tissue framework of the pelvis? How much work and stress can be expected of them? Has the woman "trained" for her athletic contest?

How about her liver, kidneys, hematopoietic system and hormonopoietic system?

4 How about the mechanism of labor? What kind of a motor is the patient's uterus? How is the cervix going to act? Only lately has it begun to be realized that the cervix causes much more dystocia than the pelvis. What kind of a pelvis does the patient have? It is easy to tell whether it is big enough, both at the inlet and at the outlet, but what is its shape?

Will it cause an occiput posterior position? Is it one that calls for a version, or if forceps becomes necessary should the occiput be brought out over the perineum instead of the orthodox way from under the pubis? Or is it one in which one of the later styles of forceps should be used, or indeed the forceps operation be never even attempted? Or is the pelvis such that, if the breech presents, the obstetrician should flex the head in leading it into the inlet, or deflex, or lateriflex it, or perhaps deliver with the chin toward the sacrum or to the pubis?

5 And the baby. Is it too large, too small? Does it lie well for engagement? Is the head flexed, deflexed, synclitic, asynclitic? If it is a breech is the spine curved, straight, are the legs extended, is the head flexed, deflexed?

Many of these conditions can be learned by roentgen study of the woman in labor and it will not be long before every up-to-date maternity will use radiography in the birthrooms.

All these and many more things the intelligent obstetrician must know at the time when labor declares itself, in order to plan the conduct of labor scientifically. And on his knowledge or ignorance of them will depend the life and health of the mother and of the baby, and it is this knowledge or ignorance that makes one of the distinctions between obstetrics and midwifery.

Another difference between the two modes of practice becomes evident during the conduct of labor, and here is the place to call attention to the abuse of the "test of labor." Jaggard introduced the term "watchful expectancy" as a principle of the conduct of labor. He distinguished sharply between a masterly inactivity and a supine waiting policy, but unfortunately the test of labor has often become, as one of my residents described it, "hopeful procrastination."

I should like to modify Jaggard's phrase to "intelligent expectancy," and by this I mean that all the conditions set down in the five numbered preceding paragraphs have been intelligently studied and then after a careful sifting of the factual observations a definite course of expectancy has been decided on.

What is seen most often is that when the patient goes into labor, she is allowed to suffer until irremediable damage has been done to her and her baby. Then the test of labor is said to have failed and cesarean section or some other inappropriate measure is employed. The time to decide on cesarean section is at the beginning of labor and if a preliminary test is to be given it should be short. A well qualified obstetrician does not need a very long time to prove to himself that a natural termination of labor is not to be expected and also whether such a long process can end with a healthy mother and a healthy baby.

Prolonged labor affects the mother in many ways. First it wears down the nervous system favoring in predisposed subjects, neurasthenia, exhaustion, psychoses, even puerperal insanity. It is also a psychic shock which influences the woman's whole life and may

prevent further childbearing and marital unhappiness, even divorce.

Prolonged labor, especially after the bag of waters is ruptured, is one of the most fertile causes of pelvic infection. Owing possibly to hormone changes in the cervix and vagina, which, according to Miura, Loeser, Cruikshank, Sharman and others, affects the glycogen content of the vaginal epithelium, or to the variation in the hydrogen balance, altering the acidity, or to the wandering of bacteria through the rectovaginal septum, or to all three of these, the bacterial flora in the vagina acquire invasive qualities. I shall speak of infection again.

Protracted labor has undeniable effects on the endocrine and metabolic systems, and this is true even in the first stage in which only the uterus is engaged in muscular work. Worry, prolonged moderate physical exertion, sudden overwork unbalance the suprarenals, the thyroid and the pancreas. The cerebral congestion that is so visibly marked in the second stage of labor must have some effect on the pituitary gland.

A "solar plexus" blow can lay out a fighter. During labor the organs in the upper part of the abdomen receive many blows. Theobald has shown that the function of the liver is much affected by increased intra-abdominal pressure, and this influence the pancreas also feels. Hyperinsulinism and hypoglycemia must always be thought of during labor and particularly in cases of shock post partum. The weakness, nervousness, "gone" feeling in the epigastrium, the state bordering on collapse, the tremor, the pallor, the sweating may be cured by the giving of dextrose.

The effects of muscular effort must be remembered. Any medical director of athletics knows that ketosis, dehydration, increased viscosity of the blood, dechlorination and finally acidosis will result from prolonged muscular exertion, especially in hot weather when sweating is profuse. These conditions exist during labor and unless relieved by food and water and salt may have serious consequences, indeed, such are much more likely if the acidosis of anesthesia is superadded.

To allow a labor to become unduly prolonged is midwifery, and how often does one see it!

Another familiar example of midwifery practice is the neglected high occiput posterior. Usually the gravida has been allowed to go over term and the baby is overgrown and hard. The bag of waters ruptures, the head remains high, with the occiput behind the transverse diameter, in moderate deflexion, and occasional asynclitism, the cervix remains long and often hard, the vagina is tight, the pelvic floor rigid, the pains are erratic in time, strength and regularity. I confess that these are among the most perplexing cases for which to pick out a line of conduct, but one must decide early exactly what one is going to do and, if abdominal delivery is rejected, one must not let intelligent expectancy become hopeful procrastination. If one does the result is, after several days, arrest of labor with a thick undilated cervix, the head near the midplane, the mother exhausted, probably infected. Then, too late for section, the case is terminated by Dührssen's incisions, high forceps, episiotomy, postpartum hemorrhage and an injured or dead baby.

#### A NATURAL DELIVERY

In a natural delivery, under strong pains the head is forced through the bony pelvis. Putschar, on the examination of eleven women dead shortly after delivery, found that the pelvic joints always showed signs

of damage, hemorrhages and tears of the binding tissues and clefts showing in the pubis. Later come backache and arthritis.

The state of the cervix after labor is notorious. Its evils are well understood. One of the consequences of cervical injury and the infection that almost invariably accompanies it is parametritis postica, an inflammation of the uterosacral ligaments, to which in America, too little importance is attached. Another sequel of cervical infection is paraproctitis, which may advance even to mesosigmoiditis or colitis. All these conditions may be the cause of backache, constipation, hemorrhoids and invalidism.

I can only mention the damage labor makes on the pelvic connective tissue framework, and the frequent rectocele, cystocele, descent of the uterus, patulous vulva and low grade infection with the long and wretched trail of symptoms, which, while they do not incapacitate them, destroy the pleasure of life in so many women and which add to those conditions that make for domestic and marital unhappiness. Women are used up in bearing children and many husbands don't like an ailing, unresponsive wife.

Now how about the baby? From the very beginning of labor its troubles begin. Every uterine contraction forces blood into its vascular system and gives its heart a slight overload. This is augmented after the rupture of the bag of waters. Thus perhaps may be explained some of the cases of atelectasis following delivery, and the peculiar metabolic disturbances of early life.

Guttner made experiments on guinea-pigs placed in a pressure chamber. They are crude but they have some value. He found that intracranial pressure is increased with each pain, owing to overfilling of the cerebral vessels. Slowing of the heart is due to cerebral pressure, increase of carbon dioxide, which irritates the vagus, and increased arterial tension. The brain therefore suffers the effects of a vicious circle, which are local acidosis, edema, cyanosis, increased fibrinogen in the blood, chemical changes in the brain, and minute and larger hemorrhages. All these effects reach the highest point after rupture of the membranes and at the end of the expulsive stage, which really is often an explosive stage.

The attention of those who recommend the routine rupture of the membranes at term might, with much fitness, be called to the foregoing observations.

During delivery the child suffers somewhat as do caisson workers, and the compression during its passage and decompression on emerging may be attended by shock and coma and hemorrhages in the brain and other vital organs. The liberation of nitrogen in the fetal tissues, to complete the picture of caisson disease, has not been proved.

These hemorrhages occur often enough in regions that make it possible to locate them clinically, but since the mind, the reason and the will develop later in life, one cannot say how often destruction of portions of the brain governing these functions has occurred during birth. I believe it happens very often, and one of the grounds on which I base this belief is my own observations of the better health of children delivered by cesarean section compared with those entering the world through the natural passages and from analogy. Men after suffering asphyxia, as from drowning, automobile exhaust gas, carbon monoxide and concussion of the brain, often suffer weakness of memory, acalculia, headaches, aberration of the will and even grave mental disorders.

I am afraid I may be accused of having drawn too dark a picture of the dangers attending and the disabilities following childbirth, and that my notice may be called to the great numbers of women who have had large families and apparently are none the worse for it. I agree to a considerable extent, but I wish to call attention to the immense army of women suffering, if I may coin the phrase, subinvalidism and who say they have never felt well since their first baby was born. I wish to signalize the not inconsiderable number who date permanent kidney disease from a mild toxemia in pregnancy, or permanent liver damage or suffer the sequelae of dislocation of the pelvic organs, to which I have made brief reference.

I painted a true picture of pregnancy and parturition, using the colors supplied by modern science, to prove that obstetrics is a richly scientific member of the triumvirate of medicine, that it has become an art of great technical beauty and that its proper practice is far beyond the capabilities of the midwife, male as well as female. I have shown only a part of the knowledge a man must have to qualify as an obstetrician, and it is this knowledge and the application of it that make the difference between obstetrics and midwifery.

I desire to emphasize with all my might that these remarks do not mean that every labor must be terminated by mechanical art. With present knowledge and present means there is only one place where operative intervention can improve on nature in normal delivery, and that is in preventing damage to the pelvic floor. In all else it is safer to guide the labor along natural channels until dystocia becomes threatening or immediate.

Letting a woman pound the head on the pelvic floor for hour after hour is midwifery by omission.

Doing routine version and extraction is meddlesome midwifery, unscientific and pernicious.

Blasting the baby through the birth canal with solution of pituitary is meddlesome midwifery, unscientific and pernicious.

Cesarean section selected properly may be the finest kind of obstetrics, comparable to a scientifically conducted normal labor, but as it is performed today it is often an exhibition of the lowest obstetric intelligence, of which even a midwife would be ashamed. In the fifteenth century, midwives did cesarean sections.

The present is an era of prophylaxis. As Fairbairn has said of prenatal care, the aim must be a constructive regulation of physiologic function as much as the prevention of pathologic conditions. The conduct of labor must meet the requirements of modern womanhood. The woman nowadays demands a safe labor, freedom from unnecessary pain, a reasonable length of labor and, when she arises from her confinement, a complete *restitutio ad integrum*.

She also demands a healthy baby, undamaged by conditions affecting it during pregnancy, and free from the effects of traumatism during labor. Modern obstetrics can give the woman nearly all these things, and the people are willing to pay for them. They should not be given a midwife's services and be asked to pay an obstetrician's fee. Hospitals must turn out enough highly trained men to establish and maintain the ideals I have described, and here is where I must come down to earth.

#### ATTAINMENT THROUGH EDUCATION

There are not enough schools, teachers, material or public and professional support to supply real obstetricians for 2 000 000 births each year.

Fortunately the principles of the conduct of labor are not difficult to master. Nature is still on her job and, though perhaps somewhat destructive, she can do it better than unskilled human beings. Let doctors be taught the beauties of normal obstetrics, the principles of asepsis and the principles of intelligent expectancy, trusting much to nature. There will soon be a reduction of the national maternal mortality and morbidity.

In the meantime the medical profession can hold the vision of its ideals and struggle to attain them, and it will attain them only through education—education of the medical schools, of the universities, of the doctors and of the public.

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## SARCOMA OF THE UVEAL TRACT FOLLOWING TRAUMA

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The adoption of workman's compensation legislation in this country and abroad has brought to the fore an ever increasing number of petitions for compensation, the claim being made that a local injury is responsible for the subsequent development of a malignant growth in the part affected.

During the past decade, surgeons and pathologists in general have altered their views in regard to trauma and malignancy, now accepting the causal relationship. Many judicial opinions have been rendered in favor of the issue and the causal relationship is accepted by courts and compensation bureaus everywhere.

That there are dissenters from this view is attested by the opinion of Dandy,<sup>1</sup> who stated that, since sarcoma had never been produced experimentally by trauma, he did not think that injury had any bearing on either its cause or increased propagation.

It is significant to observe that in this instance the commissioner ruled for the plaintiff and against the testimony of Dandy.

In a study by Herbert Fox,<sup>2</sup> based on an analysis of 6,500 autopsies on animals and birds in the Philadelphia zoo, is the statement "Slye and Wells report facial neoplasms in mice arising at points of old injuries."

Coley and Higinbotham<sup>3</sup> make the following observation:

In France the whole question took on importance from a medicolegal standpoint as early as 1897. Then the first law was passed. This outlined certain conditions the fulfillment of which meant the establishment of a causal relationship between an antecedent local trauma and a subsequently developing tumor. In 1907, at the French congress of surgeons, Segond read his classical paper on the subject, in which he presented six conditions, which conditions or rules have been accepted not only by the courts and compensation bureaus of Europe but of America as well. They have been accepted by Ewing in his book on "Neoplastic Diseases."

These conditions imply the following: (a) The authenticity of the trauma. (b) Sufficient importance or severity of the trauma. (c) Reasonable evidence of the integrity of the part prior to the injury. (d) Correspondence of the tumor to the

site of the injury. (e) A date of appearance of the tumor not too remote from the time of the accident to be reasonably associated with it. (f) A diagnosis established by clinical and roentgenological evidence, supported when possible by microscopical examination.

In the field of ophthalmology, no definite stand has been taken on the question, although the earlier writers seem to attach little importance to it. Thus Parsons<sup>4</sup> states: "There was a history of injury in twenty-nine of Fuchs' cases (11 per cent) and in five of Lawford and Collins', there is no sufficient evidence that it is of etiological moment. There is rather more evidence in favor of prolonged inflammation, but analysis of the cases in which the conditions are combined tends to minimize its importance."

The infrequency with which trauma is mentioned in the literature on malignancy of the eye during the past thirty years is impressive, and causes the making of such observations to appear remiss. Of the few cases that I have been able to find in which trauma is mentioned as a causal factor, the earliest is by Coleman<sup>5</sup> in 1901. The patient, a man, aged 23, was struck in the eye by an exploding gun cap. Eight months later an elevation on the iris was excised by an iridectomy and microscopic examination by Dr. Brown Pusey showed it to be sarcoma. There was no recurrence.

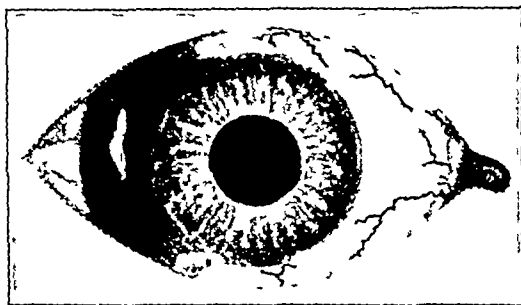


Fig. 1—Original single injury laceration of conjunctiva by the head of a nail.

Kipp<sup>6</sup> reported before the American Ophthalmological Society in 1905 a case in which, after enucleation, a melanosis extending from the ciliary body to the disk was found. The patient was a man, aged 40, and the eye had been injured at the limbus by being struck with a fragment of wood three months before.

Ball and Lamb<sup>7</sup> report a case of epibulbar tumor occurring sixteen years after the patient was struck in the eye by a snowball. After the injury a brown spot remained on the temporal side of the sclera. It gave him no trouble until six months before admission, when it began to grow rapidly. It was excised six weeks before and had recurred rapidly, now measuring from 9 to 12 mm vertically and from 13 to 16 mm horizontally, reaching a height of 6 mm. The eye was enucleated and a microscopic diagnosis of melanosis was made. The rapid recurrence of the sarcoma after excision emphasizes the importance of thorough removal with wide inclusion of healthy tissue in epibulbar and adnexal growths of this type. Following excision, roentgen or radium therapy within the limits of skin tolerance should be repeatedly applied to the operative site.

Read before the Section on Ophthalmology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.

<sup>1</sup> Dandy, W. E. *Pennsylvania Workmen's Compensation Bureau* March 14, 1932. *Ida V. Ellis v. Jones & Laughlin Steel Co.*

<sup>2</sup> Fox, Herbert. *Diseases in Captive Wild Mammals and Birds*. Philadelphia: J. B. Lippincott Company, 1924. p. 471.

<sup>3</sup> Coley, W. B. and Higinbotham, N. L. *Injury as a Causative Factor in the Development of Malignant Tumors*. *Ann. Surg.* 98: 991 (Dec.) 1933.

<sup>4</sup> Parsons, J. H. *The Pathology of the Eye* 2: 498, 1905.

<sup>5</sup> Coleman, W. F. *Ophthalm. Rec.* 9: 611, 1901.

<sup>6</sup> Kipp, C. J. *Ophthalm. Rec.* 14: 271, 1905.

<sup>7</sup> Ball, J. M. and Lamb, H. D. *Arch. Ophthalm.* 52: 80 (Jan.) 1923.



Nitsch's<sup>8</sup> patient was a girl, aged 15, who was struck on the temporal side of the eye by the shaft of a rake. No subjective or objective symptoms appeared at the time, but after a week it was noticed that the vision was failing. A year later the eye became inflamed for the first time. A diagnosis of intra-ocular tumor was made and the eye was enucleated. The laboratory diagnosis was melanotic sarcoma of the choroid arising on the lower temporal side.

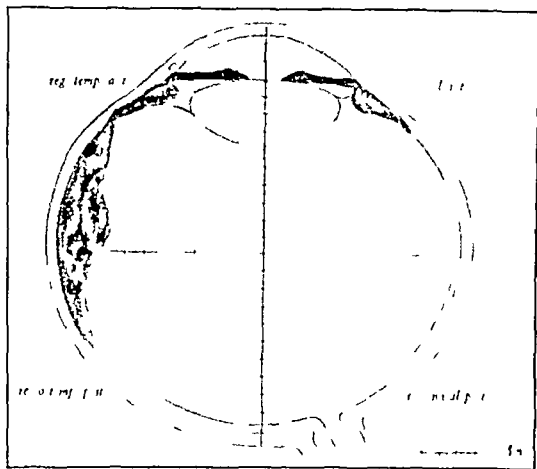


Fig 2—Intra-ocular neoplasm arising immediately beneath the site of the injury

Chance<sup>9</sup> reports the case of a woman who consulted him in 1925 because of pain in a long-diseased eye, which had become a much shrunken globe. The eye suffered a trauma three years before and was never free from inflammation afterward. The eye was enucleated and a microscopic diagnosis of sarcoma was established. The patient died of a cancer of the stomach four years later.

Holloway's<sup>10</sup> patient was a man, aged 23, whose eye had been struck by a hammer three years before. No change was noted in the eye for a year, then the vision became impaired and steadily grew worse. With the ophthalmoscope a large, round and circumscribed detachment of the retina was seen extending over the macular region and far forward. The eye was enucleated and subsequent microscopic examination showed a mixed type of melanotic sarcoma of the choroid.

In a personal communication, Dr Holloway writes, "In regard to trauma, I believe I would probably agree with you. It may be with this case as with others on record that it had a definite etiologic connection. I think any of us see too few of these cases with trauma as a basis to form a definite opinion, but I am quite convinced that the analysis of the cases on record would show a definite incidence for trauma as a factor."

In a recent paper Dr Leila Charlton Knox<sup>11</sup> has furnished a critical study of the relationship of trauma and tumors. According to Knox, Segond,<sup>12</sup> discussing the statistical collections of case reports of tumors of alleged traumatic origin, doubts that they have any value and that they represent only "empiricism under a mathematical disguise, for the most extensive statistics when they are derived from a variety of sources

often have less value than fifteen minutes of good observation."

Ribbert<sup>13</sup> thought that the statistical collections were without value and stated that well studied single cases of this type might be more convincing than previously published statistics. With this sagacious observation in mind, I desire to report the following case.

#### REPORT OF CASE

G. L. H., a man, aged 58, was injured in the left eye by the head of a flying nail, March 6, 1923. There was a profuse subconjunctival hemorrhage with a vertical laceration of the conjunctiva and the subconjunctival tissue in the temporal region. Healing of the conjunctival tear and absorption of the hemorrhage took place in about two weeks and he was discharged with the eye in a comfortable condition and a visual acuity of 6/6.

He was not seen again until Jan 14, 1932, almost nine years later, when he appeared with the statement that the vision had been failing in his left eye for the past six months. On examination, the left pupil reacted sluggishly to the direct light stimulus, there was a moderate conjunctivitis and the tension was reduced to 12 McLean (right eye, 20 McLean). The iris reacted feebly to atropine. A detachment of the retina extending well forward on the temporal side was readily seen with the ophthalmoscope and by reflected illumination. This area did not transilluminate from the limbus to well beyond the equator.

A diagnosis of intra-ocular neoplasm was made and the eye was enucleated February 1. The globe was sent to Dr Ramon Castroviejo Jr, who submitted the following report.

The eye was received with the diagnosis of intra-ocular tumor. By transillumination there was a shadow, which was located toward the temporal side in the upper quadrant, extending from the ora serrata toward the equator of the eye. The dimensions were 12 mm in the anteroposterior axis and 9 mm. vertically.

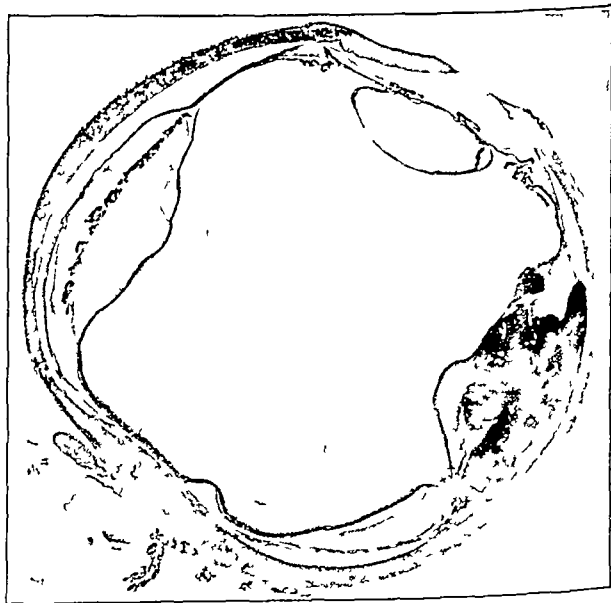


Fig 3—Melanotic sarcoma of the choroid (melano epithelioma)

Two segments were cut in the sclera above and below the equator of the eye. The eye was fixed in a mixture of equal parts of formaldehyde and Muller's fluid, and sections were made horizontally.

Macroscopic examination revealed a growth at the temporal side of the choroid extending from the ora serrata toward the equator of the eye. The retina was detached in this location, owing partly to the tumor and partly to an albuminous exudate. The detachment was circular extending from the ora serrata

8 Nitsch Maximilian Zur Frage des ursachlichen Zusammenhanges zwischen Trauma und Choroidalsarcom, Ztschr f Augenh 1925 festschrift fur Friedrich Dimmer

9 Chance Burton Am J Ophth 17 48 (Jan) 1934

10 Holloway T B Am J Ophth 15 961 (Oct) 1932

11 Knox Leila C Trauma and Tumors Arch Path 7 274 (Feb) 1929

12 Segond P Assn franç d chir 1907 p 745 (quoted by Knox)

13 Ribbert M W H Deutsche Ztschr f Chir 1898 p 574

toward the equator of the eye The rest of the structures of the eye appeared to be normal

Microscopic examination showed the following facts The cornea was normal Schlemm's Canal was filled with red blood corpuscles and a number of leukocytes In the angle of the anterior chamber there were a few deposits of pigment and toward the temporal side there was a slight adherence of the iris to the posterior surface of the cornea, closing the angle at this point The ciliary body and the choroid were edematous, and the blood vessels were dilated Toward the temporal side starting at the ora serrata there was a tumor, which extended to about 3 mm beyond the equator of the eye The tumor was flat and was located entirely in the choroid It was composed of round cells, rich in chromatin, with little cytoplasm and large round or oval nuclei, with large nucleoli The cytoplasm of some of the cells contained granules of brown pigment In certain places the accumulation of pigment was so heavy that the structure of the cell could be distinguished and the appearance of a mass of isolated pigment was given The tumor had blood lacunae lined with endothelium There were also a few blood vessels The retina was attached to the central portion of the tumor and its different layers were degenerated There was an albuminous exudate on both sides of the tumor, detach-

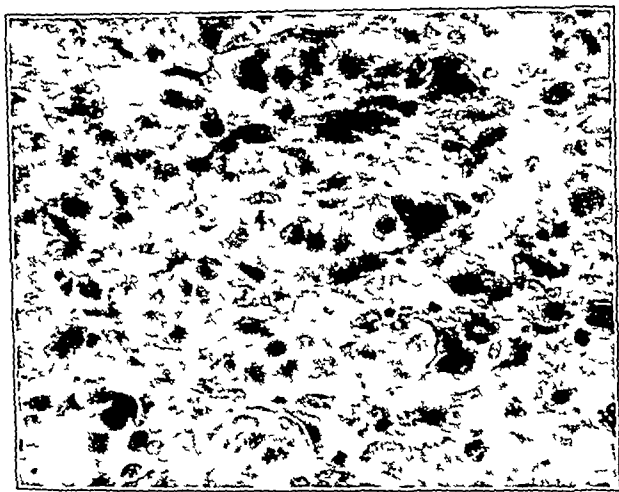


Fig 4—Melanotic sarcoma of the choroid (melano epithelioma) reduced from a photomicrograph with a magnification of 600 diameters

ing the retina circularly around the ora serrata The other structures of the eye were normal

The diagnosis was melanotic tumor of the eye

In making the diagnosis, Dr Castroviejo commented that melanotic tumors of the eyes are classified as melanosarcoma by certain writers, but modern authors have a tendency to consider that all these melanotic tumors have their origin in wandering cells detached from the neural epithelium, therefore they should be called melano-epitheliomas instead of melanosarcomas

The six conditions stipulated by Segond are present in this case and I have no hesitancy in ascribing the malignant growth in the choroid to the external injury to the eye nine years before

There has been no recurrence of the growth in the orbit and no evidence of metastasis in two years

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#### ABSTRACT OF DISCUSSION

DR LAURA A LANE, Minneapolis I have failed to find any experimental evidence in the literature that a single trauma has caused cancer On the other hand, there is extensive evidence that severe traumatized areas have not been followed by tumors Furthermore, some observers have seen the size of a tumor diminish where trauma was applied to the tumors of animals If trauma is a cause of sarcoma or carcinoma

the war injuries should have furnished proof by this time Evidence here is lacking Von Hauseman has shown that not only has an increase not appeared following war injuries but new types have not appeared The French Association for the Study of Cancer reported on the relationship of trauma and tumors in the light of experience gained since the war All except Berard thought that trauma had nothing to do with the appearance of tumors Research workers are finding, more frequently than ever before, definite metabolic changes in cancer patients, such as an increased  $pH$  or alkalinity of the blood Carrel and others found that cancer cells proliferate much faster in culture mediums with high degrees of alkalinity Many observers have found a high blood sugar, about 18 per cent above normal subjects I have found only one point that might give weight to the trauma theory in this regard, namely, Ely found the blood sugar level high also in fracture cases It is well to remember that the uveal tract often contains areas of nevi These are known to develop malignant tendencies I wish that Dr Stieren had given some of the metabolic determinations and also what the blood grouping was in his patient Malignant cases group largely in the AB or 4 group In my study of 507 cases of sarcoma of the uveal tract, I found but sixty-six cases in which trauma was mentioned as an etiologic factor The traumas, before diagnosis of a tumor, occurred from two weeks to one year in twenty-four cases, the remainder ranged from one to thirty years

DR FREDERICK H VERHOEFF, Boston Dr Stieren has rightly pointed out that it is chiefly a legal question that he has brought up If the case that he reports had come to trial and I was asked to testify, I should have testified only on the defense, I should have refused to testify as an expert witness on the other side I rely on my own observations In this case I should have instructed the lawyers for the defense to develop my testimony as follows I should point out that although it was claimed that the sarcoma occurred at the site of the lesion, the pictures did not indicate this, they indicated that the sarcoma started at about the equator and that the wound was much farther forward I should ask why sections were not made through the exact site of the injury to show just what had happened there I should point out that every time one winks one injures the eyes and that in the morning the eyes are rubbed quite severely, yet sarcoma of the choroid is relatively very rare I should hesitate to attach any importance to an injury that left no signs The question is, What is reasonable or probable? Simply because it is possible that this sarcoma might have been due to trauma would be of no legal significance The judge would not allow testimony based on possibilities only I have made pathologic studies of many sarcomatous eyes, certainly over 300, and I don't recall a single one that showed any evidence of definite trauma I have examined many eyes that have been severely injured, but I don't recall any one in which a sarcoma had developed On this evidence alone it seems to be unreasonable to assume that a sarcoma of the choroid results from an injury I can't deny that it is possible, but the question is, Is the evidence in the present case reasonable? I think it is entirely unreasonable and that the verdict should be for the defense

DR ADOLPH PFINGST, Louisville, Ky While serving as assistant in the Schweigger clinic in Berlin in 1894 I had occasion to study a case of epibulbar neoplasm in which the development from the point of the lesion was quite evident, and which greatly resembled clinically the case just reported by Dr Stieren Virchow recognized the important part played by traumatism in the etiology of tumors He found in the literature more than 800 cases of neoplasms in which there was a history of injury at the site of the growth Since then an endless number of such cases have appeared in medical literature The greater frequency of malignant growths in parts of the body most exposed to injury, such as the female breast, the mouth and the extremities, and the greater frequency of tumor development in individuals most exposed to trauma is further evidence of the influence of traumatism in the production of tumors Yet when one takes into consideration the relatively infrequent development of new growths as compared to the great frequency with which the body is subjected to injuries, one cannot readily subscribe to the belief that trauma is the sole cause of their development The rather

frequent occurrence of malignant growths of the uveal tract of the eye, which is surely not a very vulnerable structure, would also indicate that some contributory or predisposing factors must play a part in the development of neoplasms. Virchow maintained that the trauma serves only as the exciting cause and that a local predisposing anatomic anomaly, the result of congenital malformation or of a constitutional influence, plays the more important part, in fact, that such predisposing conditions are essential to their development. However, this theory as well as Billroth's theory of a hereditary predisposition and Cohnheim's hypothesis of the displacement of cells or groups of cells during fetal life and their later development, and also the more modern theories that living organisms or allergic processes are predisposing factors in the development of neoplasms, all fail of conclusive proof.

DR WILLIAM BENEDICT, Rochester, Minn. If one is concerned with the relationship between trauma and the development of malignant conditions about the eye, one must bear in mind that a careful history will inquire into the probability of an injury of such significance that it would be attributed as a cause of malignancy, particularly in compensation cases. Sometimes there is good evidence that the injury is of importance in the development of a malignant condition, probably not exactly at the site. I am not so sure that I would agree that the injury to an eye must occur at the exact spot where the malignant growth develops. There are by-effects of injury that must be taken into consideration. It is also of interest to consider the type of malignant growth that develops in connection with injury, at least an ascribed injury so far as the subject is concerned. I have gone over my statistics and have looked up that relationship between the various types of tumors and the claim made by the patient that was considered to be significant of injury. The incidence of injury in 1,439 cases of tumors of the eye and orbit at the Mayo Clinic was as follows:

Type of Tumor	History of		
	Cases	Injury	Per Cent
Epithelioma primary cases	510	58	11.37
Epithelioma secondary cases	182	20	10.98
Melano epithelioma	126	9	7.14
Intra ocular	87		
*Orbital	20.4		
Lid and caruncle	13.0		
Conjunctiva and limbus	10.0		
Sarcoma	75	13	17.33
Carcinoma	33	1	3.03
Intra ocular	2.0		
Extra ocular	31.1		
Glioma	55	2	3.63
Angioma	109	5	4.58
Cysts	1.2	1	0.6
Osteoma	22	4	18.18
Endothelioma	16	1	6.25
Fibroma and fibro-neuroma	15	1	6.66
Granuloma	15	2	13.33
Tuberculoma	4	1	25.00
Papilloma	38	0	
Miscellaneous tumors	87	1	1.14
Total	1,439	119	Av 8.26

\* In fifteen cases or 75 per cent of this group previous enucleation had been done for primary intra ocular melano-epithelioma elsewhere also three out of the four with injury.

These statistics mean only this: that injury is claimed in certain types of tumor more often than in others. Neuroblastomas occur in children when one would not expect to find as much history of injury as one would in older persons in whom epitheliomas develop. The types of tumors that develop in later years have the largest percentage of history of injury, so, after all, the relationship may be purely incidental and have little significance as far as cause and effect are concerned.

DR EDWARD STIEREN, Pittsburgh. In Pennsylvania the compensation law provides that in a general injury the case can be opened within fifty weeks, but in eye injuries the case can be opened 500 weeks (almost ten years) later. As my patient might have gone to court nine years after the injury, he was entitled to compensation and would no doubt have received it for the loss of an eye. I admire Dr Verhoeff's stand. I think that personal experience when giving expert testimony, means more than statistics but unfortunately, juries

and compensation referees do not reason that way. If I were to appear against Dr Verhoeff in this case and he should take the negative stand, I would need merely to quote statistics, not only of ophthalmologists but of general surgeons, and I am sure that the jury or the compensation referee would give more weight to that than to the opinion of a single man. As Segond says, all statistics are merely empiricisms under mathematical disguise, and these well studied out cases will increase one's opinion on the matter more than all the statistics. I want to apologize to Dr Pfingst for not including his case in the report, but I went back only thirty years, reading hundred of reports, and only in these seven cases was trauma mentioned as a factor. Dr Lane and Dr Verhoeff both mentioned the fact that probably this man had reached a cancerous age and was going to have cancer anyway. Holloway's patient was a youth, aged 21, and Nitsch's a child, aged 7 years, so one would think that the trauma had a causal relation in these instances.

UNDESCENDED TESTES IN MAN AND RHESUS MONKEYS

TREATED WITH THE ANTERIOR PITUITARY-LIKE PRINCIPLE FROM THE URINE OF PREGNANCY

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AND  
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Cases of cryptorchidism present a difficult clinical problem. There have been two methods of relief. One is to wait for the testes to descend spontaneously. The other is to place the testes in the scrotum surgically. Recently a third possibility has presented itself, namely, the administration of the anterior pituitary-like principle from the urine of pregnancy.

The practice of waiting to see whether the testes will descend naturally has obvious disadvantages. A recent article by Drake<sup>1</sup> reported thirty-five cases of undescended testes in boys between the ages of 9 and 19 years. Twenty-three of the thirty-five boys showed a spontaneous descent between the ages of 10 and 16 years. The greatest number descended at the time of puberty. In twelve boys the testes did not descend. Besides the possibility of complications to the undescended gland, such as trauma, pain, hernia, torsion of the cord, hydrocele and neurologic manifestations, there is the possibility of abnormal development.

Moore<sup>2</sup> has established the fact that testes in most mammals cannot develop normally except in the scrotum. He has shown that the germinal epithelium of testes placed in the abdomen undergoes degeneration. The interstitial cells seem to be unaffected. For man the case seems to be similar.

Wangensteen's<sup>3</sup> studies in dogs and man show that the undescended testis owes its imperfection to its abdominal position. He summarizes the literature regarding the approximate age at which the undescended gland in man shows degenerative changes. He did not find many cases of prepubescent undescended

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1 Drake, C. B. Spontaneous Late Descent of the Testis. J. A. M. A. 102: 759 (March 10) 1934.  
2 Moore, C. R. Cryptorchidism Experimentally Produced. Anat. Rec. 24: 383, 1923. Moore, C. R. and Oslund, R. Experiments on the Sheep Testis: Cryptorchidism, Vasectomy and Scrotal Insulation. Am. J. Physiol. 67: 595 (Feb.) 1924. Moore, C. R. The Biology of the Testis: Sex and Internal Secretions. Baltimore: Williams and Wilkins, 1932, p. 281.  
3 Wangenstein, O. H. The Undescended Testis. Arch. Surg. 14: 663 (March) 1927.

testes which have been studied histologically. From the evidence available he concludes that undescended testes in man remain normal until puberty. On the other hand, Cooper<sup>4</sup> has found in his large series that undescended testes in boys over 2½ or 3 years of age almost always show anatomic defects. He found a reduction in the number and size of the tubules and an increase in the intervening stroma. The tubular cells, he says, were normal in appearance although less in number. The further the preadolescent testis had descended in its normal route, the more closely did it correspond histologically to the scrotal gland of the same age. The anatomic changes also increased with age. These investigators agree that, in the adult, retained testes are usually aspermatic. Thus the available evidence seems to indicate that the sooner the undescended gland can be placed in the scrotum, the better are its chances of being a normal functioning organ.

The results of surgery have not been as gratifying as might be hoped. A summary of recent literature shows that operations do not always result in bringing the testes to the normal low scrotal position. In a series of more than 500 operations reported by Burdeck and Coley,<sup>6</sup> satisfactory results were obtained in about 50 per cent of the cases. By satisfactory results is meant

is extracted from the urine of pregnant women. Engle<sup>10</sup> and Moore<sup>11</sup> have shown that in the male rat injections of anterior pituitary-like principle from the urine of pregnancy cause an increase in the weight of the genital tract. In 1932 Engle reported that the testes of the immature rhesus monkey can be made to descend into the scrotum by injections of this gonadotropic factor. In the prepubescent rhesus monkey the testes are normally situated above the scrotum. At about 6 years of age they descend into the scrotum. Schapiro<sup>12</sup> reported thirteen cases of cryptorchidism in man in which the injection of anterior pituitary-like principle caused greater motility of the testes in all cases. Goldman and Stern<sup>13</sup> reported that two boys with undescended testes were treated successfully by injections of this principle. Details are not given in either paper as to the total dosage of the hormone and other endocrine substances given, or as to the final position of the testes in the scrotum.

#### EXPERIMENTAL DATA

Six monkeys were used in this experiment. One was killed as a control. The left testis in the five remaining animals could be moved to a position outside of the external inguinal ring. An incision was made over the gland at this point and the testis removed.

TABLE 1—The Effect of Anterior Pituitary-Like Substance on the Undescended Testes of Rhesus Monkeys

Monkey	Body Weight Gm	Total Dosage Rat Units*	Position of Undescended Testes	Size of Gland				Results
				Before Injections		After Injections		
				Measurement Left Cm †	Weight Left Gm	Measurement Right, Cm †	Weight Right Gm	
200	1 675	2 575	Inguinal canal	0 60 by 0 90	0 201	0 89 by 1 10	0 321	Testis above scrotum
201	1 020	1 220	Inguinal canal	0 50 by 0 90	0 139		0 235	Testis in middle of scrotum
202	1 720	Control	Inguinal canal	0 54 by 0 98	0 123			
203	1 710	2 575	Inguinal canal	0 60 by 0 90	0 169	0 85 by 1 10	0 326	Testis at base of external inguinal ring
204	2 200	2 575	Inguinal canal	0 60 by 1 10	0 254	1 00 by 1 40	0 648	Testis in middle of scrotum
205	1 730	2 575	Inguinal canal	0 60 by 1 00	0 198	0 90 by 1 20	0 543	Testis in lower part of scrotum

\* Each cubic centimeter of the fluid was standardized to contain 200 rat units of the gonadotropic factor. The animals received their injections five times a week. 0.3 cc was given for eleven days. 0.4 cc for four days. At this time monkey 201 was killed. The other animals received one more injection of 0.4 cc then injections were stopped for a week. They commenced again at 0.4 cc a day for five days. 1.0 cc for three days.

† The measurements are width by length.

the presence of operated testes in the lower or upper part of the scrotum. Eisenstaedt<sup>5</sup> reported the results of operations in ten patients, of these four had the testes in the midscrotal position and six had the testes low in the scrotum. Goetsch<sup>7</sup> reported thirty-two cases. In seven the testis was in the lower part of the scrotum, in two in the middle of the scrotum, in five high in the scrotum, and in one the testis was missing. For the remainder, data are wanting. Cabot<sup>8</sup> reported seventeen cases that he was able to follow. Among these the testes were found in the normal scrotal position in ten instances and in the upper part of the scrotum in seven instances, in none were they found higher up.

The third method of treating undescended testes is by the injection of a hormone, and this method forms the basis for the present report.<sup>9</sup> The hormone used

The size and weight of the gland before and after injections, the amount of anterior pituitary-like principle administered, and the result of the injections on the remaining testis are tabulated in table 1. The first noticeable effect of the anterior pituitary-like factor was an increase in the size and fullness of the scrotum. It can be seen from table 1 that after the administration of this substance the right testis approximately doubled in weight and increased noticeably in size. In only one instance (monkey 205), however, did the testis descend to the lower part of the scrotum.

When the animals were killed a careful dissection was made to determine in the remaining four animals the reason that the testis did not descend. In all these

4 Cooper E R A. Histology of Retained Testes in Human Subjects at Different Ages and Its Comparison with the Scrotal Testis. *J Amst* 6:4 5 (Oct.) 1929.

5 Burdeck C G and Coley B L. Abnormal Descent of the Testicle. *Ann Surg* 84: 867 (Dec.) 1926.

6 Eisenstaedt J S. Results of Operation for Undescended Testes. *J N A* 88: 1389 (April 30) 1927.

7 Goetsch Arthur. Undescended Testis. *Am J Surg* 12: 63 (April) 1931.

8 Cabot Hugh and Ne bit R M. Undescended Testis. *Arch Surg* 2: 820 (May) 1931.

9 The commercial preparation of anterior pituitary like principle from the urine of pregnancy that was used in this experiment is made by Squibb and Company and is sold under the name of Follutein. It was supplied to us through the courtesy of Dr Durrett.

10 (a) Engle E T. The Response of the Male Genital System to Treatment with Urine from Pregnant Women and from Men. *Anat Rec* 43: 187 (July 25) 1929. (b) The Action of Extracts of Anterior Pituitary and of Pregnancy Urine on the Testes of Immature Rats and Monkeys. *Endocrinology* 16: 506 (Sept Oct.) 1932. (c) Experimentally Induced Descent of the Testis in the Macacus Monkey by Hormones from the Anterior Pituitary and Pregnancy Urine. *ibid* 16: 513 (Sept Oct.) 1932.

11 Moore C R and Price Dorothy. Some Effects of Fresh Pituitary Homo Implants and of the Gonad Stimulating Substance from Human Pregnancy Urine on the Reproductive Tract of the Male Rat. *Am J Physiol* 99: 197 (Dec.) 1931.

12 Schapiro B. Kann man mit Hypophysen-oder Lappen den unter entwickelten männlichen Genitalapparat beim Menschen zum Wachstum anregen? *Deutsche med Wchn chr* 56: 1605 (Sept 19) 1930.

13 Goldman A and Stern A. Treatment of Undescended Testes by Injection of Prolan. *New York State J Med* 33: 1095 (Sept 15) 1933.

instances the fascia surrounding the vas deferens and spermatic vessels was short. When the fascia was removed the vas deferens and vessels were long enough in three instances to allow the testis to be placed in the lower part of the scrotum. In monkey 200 the vas deferens was short, it had to be cut to allow the testis to be placed in the normal position.

Slight hypertrophy of the seminal vesicles was found in two instances and a marked hypertrophy in animal 205. In this animal the seminal vesicles measured 3.2 cm in length as compared to 1.8 cm in the control. The prostate was correspondingly increased in size, measuring 2.0 cm in length as compared to 0.9 cm in the control. The penis in this animal was also hypertrophied. Histologically all the testes showed an increase in the diameter of the tubules and a corresponding increase in the interstitial tissue.

Identical dosages of anterior pituitary-like substance caused different reactions. All the animals were about the same weight, were kept in the same room and were fed similar food, yet in only one did the seminal vesicle, penis and prostate hypertrophy to a marked degree.

enlargement, the penis was not increased in size, and no change in secondary sex characteristics was observed.

Case 3 showed a marked reaction after the first injection of 0.4 cc of the gonadotropic principle. A few hours after the injection the patient's foster mother reported a rise in temperature, fretfulness and gastro-intestinal upset. The injection was reduced to 0.2 cc for the next dose, and then increased 0.1 cc each succeeding dose until 0.4 cc had again been reached. The patient was given injections three times a week for a period of three weeks. The treatment was then discontinued for nineteen days because of chickenpox. It was started again with 0.2 cc and increased to 0.4 cc for five injections. Then 0.5 cc was given two times, 0.6 cc two times, 0.7 cc two times and 0.8 cc three times. The boy had a total of 2,750 rat units, a much larger total dose than patient 5 of the same age.

In case 3 the left testis, which, being in the normal position, could be measured, increased markedly in size, and the scrotum increased in size and fulness (fig 1). The penis was normal in size for the patient's age at the beginning of the experiment and was noticeably

TABLE 2—The Effect of Anterior Pituitary Like Substance on the Undescended Testes of Boys

Case	Age in Years	General Appearance*	Total Dosage Rat Units†	Position of Undescended Testes	Measurement of Gland in Cm				Results
					Before Injections		After Injections		
					Left	Right	Left	Right	
1	8	Underweight normal height suffering from an infected ear	1.0	Left in inguinal canal		0.8 by 1.7			Discontinued reaction too severe
2	13	Underweight normal height	1.000	Right in abdomen left in inguinal canal					No change in position of testis
3	3	Bright alert normal height overweight	2.700	Right in inguinal canal	0.7 by 1.5		1.6 by 2.8		No change in position of testis
4	11	Bright alert normal height overweight	4.525	Right in inguinal canal	1.3 by 2.1		1.5 by 3.4	1.6 by 4.0	Right testis in mid-scrotal position
5	8	Taller and heavier than usual for his age	1.700	Right in inguinal canal	0.6 by 1.0		1.3 by 2.2	1.3 by 2.4	Right testis in lower part of scrotum

\* The measurements of heights and weights were compared to the Baldwin Wood and Woodbury weight height tables.  
† Each cubic centimeter of fluid was standardized to contain 250 rat units of the substance.  
‡ The width and length of the glands were measured. No attempt was made to measure anteroposterior thickness. The figures can be taken only as an approximation since it is almost impossible to obtain accurate measurements of soft tissue.

In two animals the testis descended to a short distance beyond the external inguinal ring but did not enter the scrotum, in two it descended to the midscrotal position, and in only one did the testis reach the low scrotal position (monkey 205).

Table 2 gives a summary history of the boys treated with anterior pituitary-like principle from the urine of pregnancy. The injections were given intramuscularly. In case 1, the treatment had to be discontinued after two injections because of the marked febrile reaction. The patient's temperature rose to 102 F and remained there for three days.

In case 2 the testes could not be measured because they were in the abdomen and in the inguinal canal. This patient was given 0.4 cc, or 100 rat units, of the anterior pituitary-like principle three times a week. He did not come regularly for treatment but received a total of 1,900 rat units. The testes appeared to increase in size as the treatment progressed and became more freely movable but could not be made to descend, even when force was exerted. The patient complained after each injection of nausea and vomiting and of pain in the inguinal region. After the patient had received 7.6 cc of this substance the scrotum showed some

large for his age when the photograph was taken. When he was examined rectally after having received a total of 2,750 rat units of anterior pituitary-like principle, the prostate felt tense. This is what one would expect. With a marked increase in the size of the scrotum, testes and penis, monkey 205 showed an increase in the prostate and seminal vesicles. No growth of secondary sex characteristics was seen. The right testis did not descend. It became more movable but could not be pushed beyond the point at which it was at the beginning of the experiment.

In case 4 the patient received 2,525 rat units of the gonadotropic factor and the right testis descended to the midscrotal position. The left testis was in the normal scrotal position. The right testis would slip back into the inguinal canal on exertion. Injections were continued until the patient received a total of 4,525 rat units. The substance was given three times a week. For one week 0.4 cc at each injection was given, for four weeks 0.5 cc was given at each injection, one injection each of 0.6 cc, 0.7 cc and 0.8 cc three times a week for four weeks was given. At this time the testis remained stationary in the midscrotal position. Figure 2A shows the external genitalia before injection.

tion, and figure 2B the scrotum containing the right testis. In spite of the additional amount of anterior pituitary-like principle the testis did not descend farther. The patient at no time showed any general reaction to the injections. The scrotum was enlarged, but no increase in the size of the penis was observed. Enlargement of the prostate could not be discovered on rectal examinations. The testes became larger. During the treatment the hair on the patient's upper lip increased somewhat in density and a slight amount of pubic hair appeared. No other changes in the secondary sex characteristics were observed.

Case 5 showed a definite increase in the size of the scrotum and left testis. He received seventeen injections of 0.4 cc each for a period of seven weeks. The right testis descended after the boy had received 1,700 rat units of the anterior pituitary-like factor, reaching the lower scrotal position. Figures 2C and 2D show the external genitalia before and after treatment. No increase in the size of the penis was observed, and no secondary sex characteristics appeared. Enlargement of the prostate was not noted on rectal examination.

The patient showed on two occasions temporary reactions to the anterior pituitary-like substance. The temperature rose to 101 F for several hours. Otherwise the temperature, which was taken daily throughout the experiment, was normal.

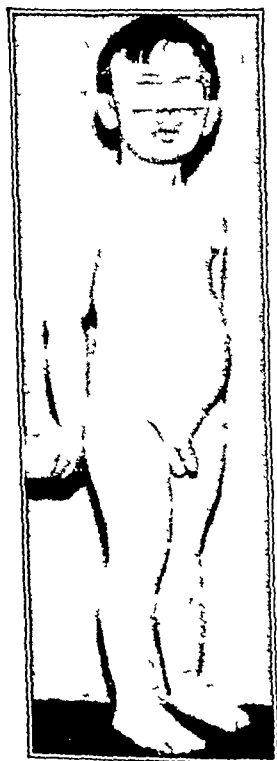


Fig 1 (case 3)—A boy, aged 3 years after having received 2,750 rat units of anterior pituitary-like substance from the urine of pregnancy. The external genitalia can be seen to be markedly larger than is normal for that age. Prior to the injections the external genitalia were normal in size.

#### COMMENT

Anterior pituitary-like principle from the urine of pregnancy caused the complete descent of the testes in one child receiving 1,700 rat units, caused the testis to assume the midscrotal position in one patient receiving 4,525 rat units, and did not cause any descent of the testes in two patients receiving 1,900 and 2,750 rat units, respectively. The experimental results obtained in monkeys can be compared only partially to those obtained in man. In man the presence of undescended testes is abnormal, while in immature rhesus monkeys it is normal. In monkeys the anterior pituitary-like principle caused the testis to assume the midscrotal position in four out of five cases and caused complete descent in one instance. This is not in accord with the cases reported by Engle,<sup>10b</sup> who reported complete descent in eight out of ten monkeys. In the two instances in which complete descent did not

occur he says that one was due to sequelae following operation, the other to an increase of the tissue content of the scrotum.

In the group reported here, the shortness of the fascia surrounding the vas deferens and spermatic vessels was

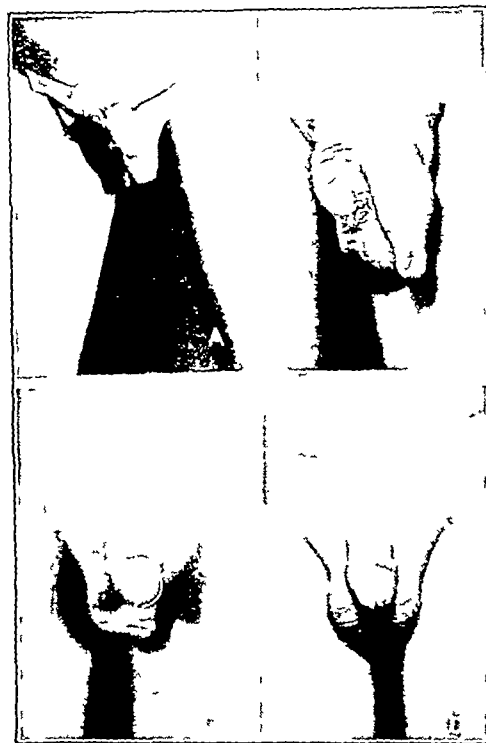


Fig 2 (case 4)—A boy, aged 11 years. A, external genitalia before injections; the right testis was in the inguinal canal. B, external genitalia following the injection of 4,525 rat units of anterior pituitary-like principle; the right testis can be seen in the midscrotal position. Case 5, a boy aged 3 years. C, before injections of the gonadotropic factor; the right testis was in the inguinal canal. D, after having received 1,700 rat units of the substance, the right testis can be seen to occupy a position low in the scrotum.

period, which is the time that elapsed in this experiment. The histologic picture in the monkeys' testes resembled that found by Engle<sup>10b</sup> for the rats and monkeys, namely, an increase in the tubules and interstitial tissue. The seminal vesicles and prostate of Engle's monkeys were greatly enlarged. This enlargement is reported by Moore<sup>11</sup> to be effected through the testes, since no enlargement is obtained when anterior pituitary-like substance is injected into spayed animals. One would therefore expect to find an enlargement in the seminal vesicles and prostate of boys when the testes were seen to increase in size. However, rectal examinations disclosed only one case of definite enlargement (case 3). In this case also the greatest increase in size of the penis and scrotum was found. The fact that no enlargement of prostate and seminal vesicles was found in the three other cases was probably due to the difficulty of palpating a slight enlargement.

Goldman and Stern<sup>12</sup> report testicular enlargement in boys 12 and 15 years of age. They also report a development of the secondary sex characteristics where we noted it in only one patient. This was the patient 11 years of age. No increase in sex characteristics was noted in two patients 3 years of age.

The amount of the material given does not bear a direct relation to the effect on the descent of the testes.



Patient 3 received 2,750 rat units. This dosage had a marked effect, as could be seen from the increase in size of the penis, left testis and scrotum, yet the right testis did not get below the external inguinal ring. Patient 5 had 1,700 rat units of the substance, and the testes moved all the way to the base of the scrotum.

The possibility of an outside mechanical factor obstructing the descent of the testes cannot be eliminated. However, in the case of the monkeys the testes did not assume a lower scrotal position, and here on dissection there was found no external mechanical obstruction. The age, the duration of the injections, the nutrition and possibly the condition of the other endocrine glands may have something to do with the effectiveness of the injected hormone. Borst<sup>14</sup> has shown that, in rats, anterior pituitary-like substance in equal doses has a marked effect on the genital organs of the immature rat, less effect on the rat just past puberty, and no effect on old animals. One of us<sup>15</sup> has shown that a hormone which can produce definite vaginal changes in normal animals is without any effect in rats suffering from avitaminosis A. Selye and his associates<sup>16</sup> have shown a loss of sensitivity to anterior pituitary-like substance in rats after several weeks of injection. Collip and his associates<sup>17</sup> have demonstrated histologic changes in the ovaries and hypophyses of white rats given continuous injections of hypophyseal extracts. There may be many reasons, yet unknown, why a hormone effective in one organism is ineffective in another.

According to tables of Reich given by Wangenstein<sup>3</sup> for the normal size of the testes, in our subjects the testes were normal in size for the age of the individual at the beginning of the experiment. Those in the boys of 3 years of age increased in size to that found in children at puberty, and those in the boy of 11 increased in size to those found at from 16 to 17 years of age. Just what effect this will have on their subsequent development cannot be predicted.

#### CONCLUSIONS

Anterior pituitary-like principle from the urine of pregnancy caused the testes to descend in two out of four boys receiving injections. In only one instance was the descent complete. The substance caused hypertrophy of the scrotum and testes and in one instance a growth of the penis.

In immature monkeys (*Macaca mulatta*) with unilateral orchidectomy, this hormone caused complete descent of the testis in one animal and partial descent of the testes in four. In these four animals the fascia surrounding the vas deferens and spermatic vessels was too short to allow the testes to reach the lower part of the scrotum.

The failure of the treatment may have been due to an incorrect amount of hormone, to age, to nutrition, or to some factor related to the activity of the other endocrine glands. In man a possible external mechanical obstruction and developmental irregularities must be considered.

Microscopic examination of the testes of the injected monkeys showed marked tubular enlargement, a corre-

sponding increase in interstitial material, but no mature sperm.

Identical amounts of the anterior pituitary-like factor caused various degrees of hypertrophy in the prostate, seminal vesicles and testes of immature monkeys. The total dosage of the principle administered is not in direct proportion to the distance that the testes descend either in man or in monkeys.

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## THE EFFECTS OF TOBACCO ON THE PERIPHERAL VASCULAR SYSTEM

### FURTHER STUDIES

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On the basis of clinical and experimental observations, it has been recorded by many authors<sup>1</sup> that the use of tobacco produces definite effects on the vascular system, which are particularly important in certain disease conditions, such as thrombo-angitis obliterans and angina pectoris. In spite of this widely recognized association, the available evidence has tended to show that the smoking of tobacco must be looked on as an aggravating rather than an etiologic factor.

Following the work of Maddock and Coller,<sup>2</sup> experiments have been reported by Barker,<sup>3</sup> Johnson<sup>4</sup> and Wright,<sup>5</sup> proving that the smoking of cigarettes will produce in the great majority of normal individuals, under certain conditions, a marked change in the surface temperature of the extremities. This can be measured at the tips of the fingers and toes. We noted that in many instances slowing and even stoppage of the blood flow occurred in the capillaries of the nail fold during the smoking of a cigarette.<sup>5</sup>

Maddock and Coller<sup>2</sup> later demonstrated that drops in the surface temperature were accompanied by rises in the pulse rate and in the blood pressure. These early studies have left many problems unsolved and have suggested new questions. The experiments here reported were undertaken with the object of answering certain of these.

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From the Vascular Clinic of the Department of Medicine of the New York Post Graduate Medical School and Hospital, Columbia University.

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## TECHNIC

The tests were made with the patients in a sitting position, with the hands at the level of the heart. The surface temperature readings were either made on a recording potentiometer or recorded every minute from a nonrecording potentiometer. The observation of the capillaries was continuous during each experiment. In some instances the nail folds of the fingers of the left hand were used for capillary microscopy, while the fingers of the right hand were utilized for readings of the surface temperature. In other instances the observations on the capillaries and surface temperature readings were made from the fingers of the same hand. The forehead temperatures were studied in a group of cases. The temperature of the room was carefully controlled, the average variation during the experiment being between 2 and 3 degrees Fahrenheit. In each instance a control period was studied. It was found that when an individual comes in from outdoors, or even from elsewhere in the same building, the surface temperature tends to fluctuate widely at first. The fluctuations become less marked, and the experiments were not begun until the fluctuations were less than 2 degrees. At times this necessitated the making of observations for more than an hour before smoking was started. The observations of the capillaries and the

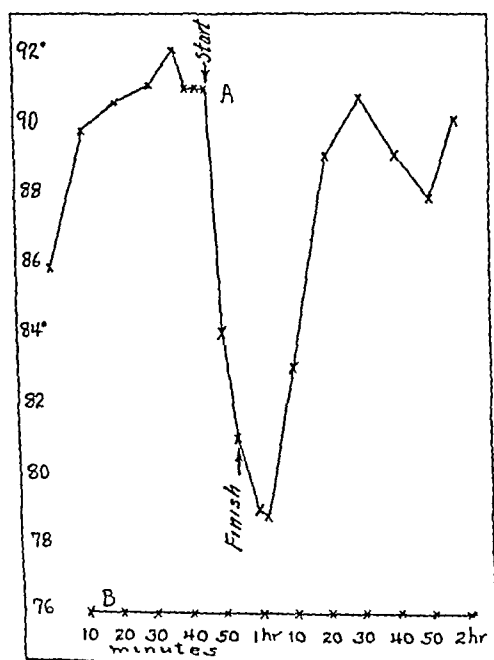


Chart 1—Surface temperature curve at the finger tips of a subject produced by the smoking of a single standard cigarette (Cigarette III patient G. W. Dec. 22, 1933). A—fourth terminal phalanx left hand B—room temperature

readings of the surface temperature were made according to a previously reported technic.

The cigarette was suspended on a slender reed, at the level of the subject's mouth, permitting ease of smoking. The individual was urged to smoke at his normal rate, although it is probable, at least in certain instances, that there was an increase in both the rate and the depth of inhalation during the experiment. Eleven brands of commonly used cigarettes were utilized, including two demotimized brands and one mentholated brand.

The subjects were not blindfolded, but the names of the cigarettes were carefully covered so that the subjects were not aware of them. The temperature readings were concealed from the subjects until the completion of each test. Similar studies of the effects of cigars have not yet been made. The effect of smoking a pipe is being studied now.

The "filter-paper" cigarettes were prepared as follows. Ashless filter paper was washed in alcohol and ether to remove all fat. After being dried in an oven it was shredded, to simulate tobacco. Two standard white cigarette papers were shredded and mixed with two filter

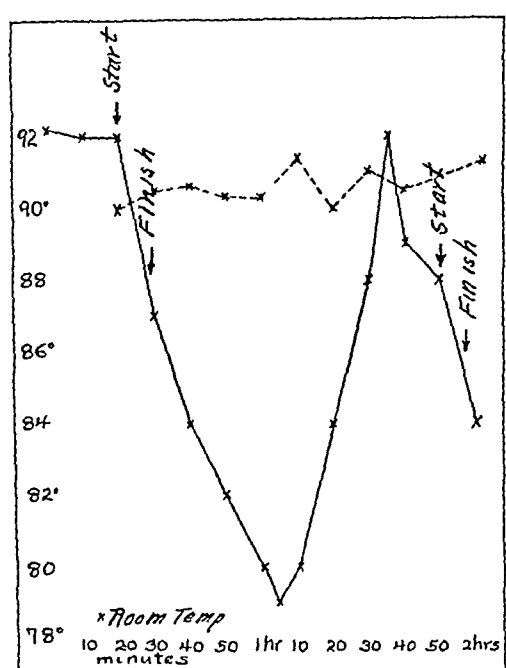


Chart 2—Similar reaction at the finger tips with a stable forehead temperature. Compare with chart 3. (Cigarette III patient K. I. Oct. 27, 1933). Solid line temperature of terminal phalanx of fourth finger, left hand, broken line temperature of the forehead.

papers. The mixture was formed into a cigarette in a cigarette rolling machine, a third cigarette paper being used. It was then humidized. The technic of smoking the filter paper cigarettes was identical with that employed for the tobacco cigarettes.

After the conclusion of each period of smoking, the subject was kept in the same position until the temperature had become reestablished at the normal level. At times, this necessitated continuous observation over several hours and, in rare cases, the experiment had to be discontinued before the normal level of the temperature could be established.

## EXPERIMENTS

The peripheral vascular reactions to the smoking of cigarettes have been studied in more than 100 experiments at the New York Post-Graduate Hospital. The first thirty-four studies were reported by Johnson.<sup>4</sup>

The present report is based on ninety experiments, in which a somewhat more elaborate technic was used and the effects of a larger number of brands of cigarettes were studied. The subjects were confirmed smokers and were in an average state of health. Four groups of cigarettes were utilized. For each test, only one cigarette or less was used.

A. The first group, known as "standard brands," was made up of eight makes of cigarettes, including the better

known brands containing American and Egyptian tobaccos in varying proportions. The study of this group demonstrated the following facts:

1 Under controlled conditions, practically 100 per cent of subjects who inhale show a definite drop in the surface temperature when taken at the finger tips. The change in the temperature may not occur with the smoking of every cigarette,

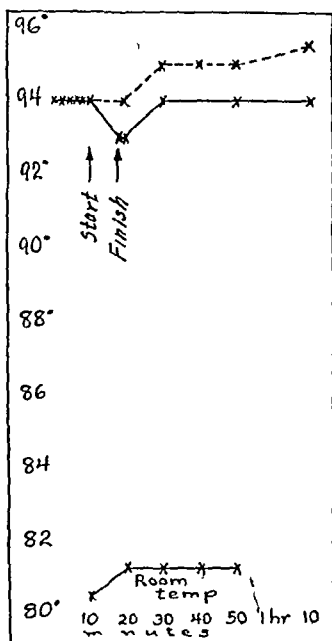


Chart 3—Lack of effect of a cigarette of the same brand on the same individual at a different time. Compare with chart 2 (Cigarette III patient K I Nov 1 1933). Solid line, temperature of the terminal phalanx of the left fourth finger; broken line, temperature of the forehead.

no effect on the degree of the drop in the temperature, some of the most profound drops being seen in the heaviest smokers.

6 Smoking without inhaling resulted in decreased effects on the surface temperature at the finger tips.

7 There was no appreciable effect on the forehead temperature during any of these experiments. The same observation has been made previously concerning the surface temperature at the waist.

8 Under these conditions, in sixteen tests the subjects complained of mild symptoms of tobacco poisoning, such as tingling of the fingers and slight vertigo, and in seven instances severe symptoms developed, including nausea with vomiting, marked vertigo, cold sweats, pallor and even profound syncope. These symptoms, typical of those occurring with the first use of tobacco, were noted in experienced smokers the number of years of smoking of those in whom severe reactions were noted being ten years, five years, five years, three years, seven years, thirteen years and five years. The average consumption of these subjects varied between fifteen and thirty cigarettes a day without marked symptoms. With certain cigarettes especially the first one smoked each day most of the subjects felt effects such as light-headedness, dizziness and nausea.

9 In seventeen of forty (42.5 per cent) tests in which observations were made the blood flow through the capillaries of the nail fold was definitely observed to slow during the smoking of a cigarette. Allowance was made for the average change in rate of flow. In the remainder no change could be noted. There did not seem to be a definite relationship between the number of degrees of the drop in temperature and the degree of slowing of the capillary blood flow. In five of the seven subjects who experienced severe reactions, the rate of flow was definitely slowed. In several instances stoppage was noted. The sixth case showed great variability in rate of flow, and the

seventh could not be observed, because of the severity of the reaction.

10 There was no appreciable difference in the effects produced by the various brands of "standard" cigarettes. One individual did appear to be definitely more sensitive to one standard brand than to any other. This was confirmed with repeated tests.

B The second group was composed of two brands from the so-called denicotinized cigarette classification. No marked difference in reactions could be noted between the two brands used from this class of cigarette. In a series of ten studies the average drop in surface temperature at the tips of the fingers was 4.8 degrees Fahrenheit, or 0.5 degree less than the average for the "standard brands." In view of the few subjects tested in this series, the variation is negligible. Individual studies, however, are very illuminating. The same subject on the same day showed a 12.1 degree drop resulting from the use of a "standard brand" and, after returning to normal, a 12.8 degree drop resulted from the use of a "denicotinized" cigarette.

Another subject showed, Jan 9, 1934, a temperature drop of 8 degrees with the use of a "standard brand" and on January 31 a drop of 9.5 degrees Fahrenheit with the use of a "denicotinized" brand. On the other hand, there were instances in which the drop following the use of "standard brands" was more marked than that following the use of "denicotinized

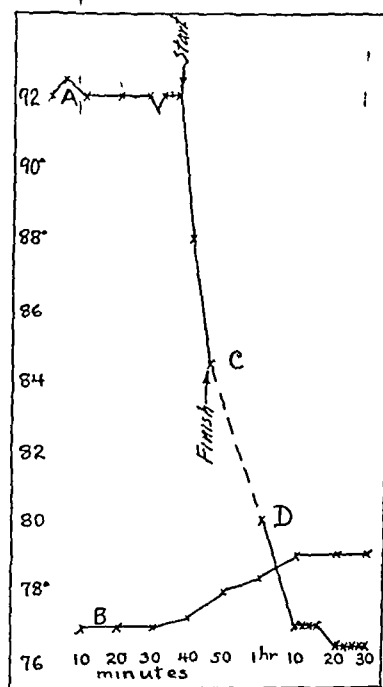


Chart 4—Profound drop in temperature with development of toxic symptoms noted in a moderately heavy smoker of seven years' experience (Cigarette IV, patient C D). A fourth terminal phalanx left hand; B room temperature; C one half cigarette; nausea and syncope forced discontinuance of experiment; D observations continued.

D The fourth group consisted of the "ashless filter paper cigarette," prepared as already described. Ten tests were made in which these cigarettes were used. No appreciable effects on the surface temperature were noted in any instance. Aside from sensations of burning and dryness in the throat, no symptoms were com-

plained of in this series. No abnormal changes in the rate of the capillary blood flow were noted.

#### SKIN TESTS

With the cooperation of Dr Marion Sulzberger, a small series of cases have been studied in an attempt to determine whether our test could be correlated with the intradermal skin tests for tobacco and nicotine hypersensitivity presented by Harkavy and his co-workers<sup>8</sup> and by Sulzberger.<sup>9</sup>

At the time that the skin tests were performed by Dr Sulzberger, he did not know the degree of reaction produced by smoking according to our studies. The preparation of the extracts used was previously described by Sulzberger.<sup>9</sup>

While it is too early to pronounce final judgment on the problem from the point of view of statistics, certain observations are of considerable interest.

The first four individuals studied showed the following reactions:

Patient R who showed a drop of 9.6 degrees F in the surface temperature at the finger tips with the development of moderate symptomatology was negative to the skin test for nicotine but showed reactions of three to four plus to the skin test for tobacco.

Patient B who showed a drop of 9.1 degrees F in the surface temperature gave a questionably positive reaction to nicotine and a negative reaction to tobacco extract.

Patient W who showed a 10.8 degree F drop in surface temperature was negative to both nicotine and tobacco extract.

Patient M who showed no drop in temperature during tests with three cigarettes gave a negative reaction to nicotine and showed a one to two plus reaction to tobacco.

Chart 5—Effect of smoking a mentholated cigarette on the finger tip surface temperature. Compare with chart 1 showing the effect of a standard brand of the same individual (Cigarette No. 11 patient G. W. Dec 22, 1933). A fourth terminal phalanx left hand B room temperature.

Other subjects have shown a close relationship between surface temperature reactions and skin tests to tobacco and nicotine. The study will be continued and the result reported at a later date.

#### COMMENT

As a result of previous observations and the studies here reported it becomes obvious that certain variable factors play a large part in determining the degree of physiologic reaction resulting from smoking. One is the sensitivity of the individual to the smoke at the particular moment of smoking. We are not referring to allergic sensitiveness since that is a moot point in view of our tests, but rather to the physical condition, which is affected by physical and nervous fatigue, the emo-

tional state, the inherited and acquired neurovascular balance, preceding food, the time and amount of tobacco consumed shortly before, existing diseases, and other factors not understood. In view of the fact that experienced and heavy smokers showed some of the most profound temperature and symptomatic reactions under controlled conditions, we are forced to conclude that, at least in many individuals, habitual smoking does not result in the development of an immunity to the toxins of cigarette smoke. It would seem rather that experience teaches one often subconsciously to control one's smoking so that the effects are kept at a submanifest point. This may involve what is termed desire. To be concrete, one does not take another puff from a cigarette if certain effects of the one preceding are manifest. Similarly, a second cigarette is not smoked until the effects of the preceding one have worn off. Our experiments have shown that the length of time necessary for these effects to wear off varies greatly in different individuals and even in the same individual at different times.

Two elements are prominent in the desire for the "next" smoke: the first being the wish for the soothing quieting effect of the smoke, which increases with the cessation of the effects of the preceding cigarette, and the second being the nervous desire to do something with one's hands. It is usually noticed that the most

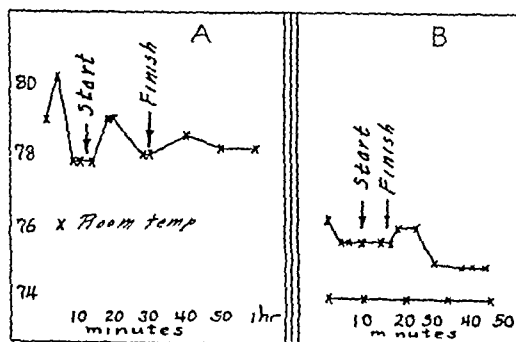


Chart 7—Lack of effect of smoking ashless filter paper cigarettes on the surface temperature at the finger tips (Cigarette X patient K 1) A Nov 27 1933 B December 6

immoderate smokers who use from forty to sixty cigarettes a day, actually smoke less than half of each cigarette, indicating that the nervous habit plays a large part and that the toxic effects are quickly felt. Thus the question arises why such severe reactions developed in these experienced smokers during the experiments when ordinarily they have only minor or no symptoms.

<sup>8</sup> Harkavy J, Hebal S and Silbert Samuel. Tobacco Sensitivity in Thrombo-Angitis Obliterans. *Proc Soc Exper Biol & Med* 50: 104 (Oct) 1932. Harkavy J. Tobacco Sensitivity in Angina Pectoris and Coronary Artery Disease. *ibid* 50: 683 (Feb) 1933.  
<sup>9</sup> Sulzberger M B. *J Immunol* 24: 85 (Jan) 1933. Sulzberger M B and Feit Emanuel. *ibid* 425 (May) 1933. Recent Immunologic Experiments in Tobacco Hypersensitivity. *Bull New York Acad Med* 9: 294 (May) 1933.

We believe that a purely psychologic explanation can be discounted, for several reasons

1 The reactions were severe, with a profound drop in the surface temperature, marked slowing to stoppage of the blood flow, cold sweat, nausea, vomiting, fainting and, in several instances, clonic convulsions during the periods of unconsciousness

2 In no instance did these subjects anticipate any reaction whatever. All of them approached the experiment with the spirit of interest and enjoyment. Several of them were very familiar with the laboratory and equipment and could be considered as objective, scientific workers

3 The equipment was not formidable, and no discomfort or pain was involved in the experiment

Careful questioning has inclined us to the view that, although we suggested that the rate of smoking be normal, the individual continued to smoke steadily after the toxic symptoms had become manifest and until a severe reaction was obtained, whereas ordinarily the cigaret would have been laid aside or at least no further inhalations taken when the symptoms reached the manifest level. In other words, the subjects continued to smoke after the desire to do so had become oversaturated

Whether the development of desire and the effects have a definite relationship to the changes in the blood sugar recently noted by Haggard and Greenberg<sup>10</sup> remains to be established by further studies

The other great factor, or group of factors, lies in the preparation of the cigaret. We are not yet sure which constituent or constituents can be said to be responsible for the effects of smoking. The following must be considered: carbon monoxide, nicotine, ammonia, pyridine and pyridine derivative, cyanides and sulphocyanides, arsenic and nitrites, which are contained in cigaret papers to facilitate burning

Carbon monoxide seems to have been eliminated as a causative factor by the following experiments. Maddock and Coller<sup>6</sup> did not obtain a drop in temperature or rise in pulse or blood pressure with the use of cubebs. Barker<sup>11</sup> obtained no effects from the smoking of cigaret papers in a pipe. This, incidentally, seems to eliminate the nitrites as possible offenders. In experiments here reported we noted no effect from the use of ashless filter paper cigarets which reduced, on burning, to carbon monoxide and oxygen. The nitrites in the cigaret papers were also eliminated by these experiments, because each of the cigarets contained three papers

Nicotine has long been considered the most important factor in the causation of effects from cigarets. The vital consideration is not how much of this poison is in the tobacco but how much is actually absorbed through the mucous membranes and alveolar walls into the blood stream. The tobacco itself varies widely in nicotine content. For example, the average nicotine content of various tobacco is as follows: Havana tobacco, 1.5 per cent, Maryland tobacco, 2 per cent, Virginia tobacco, 6 per cent, Kentucky tobacco, 8 per cent.<sup>12</sup> The amount of nicotine and other products in the inhaled smoke is influenced greatly by, first and most important, the amount of moisture present, and also the tightness of packing, the length of the cigaret and the rate of smoking. The drier the tobacco, the greater the destruction of nicotine. Dixon<sup>13</sup> states that the water content of the tobacco is more harmful to the smoker than the original nicotine content

Recent work<sup>6</sup> in which parallel results in the effect on the surface temperature, pulse and blood pressure were obtained by the intravenous injection of 1 mg of nicotine seems to point strongly to nicotine as the offending factor. Insufficient work has been done to determine the importance of the other constituents of the cigaret in the causation of symptoms. The localization of the reactions to the extremities presents an interesting field for speculation as to the mechanism involved

The areas involved and the type of reactions, both objective and subjective, would incline one to believe that the toxins act on the central nervous system, involving certain cortical areas and the sympathetic trunks controlling the vascular supply to the parts affected rather than on the walls of the blood vessels directly

We are familiar with certain other sharply localized symptoms associated with smoking, such as anginal attacks in patients with and without demonstrable organic coronary changes, and vertigo. These may well be explained by similar vascular spasm affecting the terminal vessels locally and producing a secondary ischemia. We have had one instance in which a subject who, during several previous experiments showed a bilateral drop in the temperature of her fingers, on one occasion showed a unilateral drop of 8.5 degrees F, the other hand remaining unaffected

The fact that there was no appreciable difference in the average effect noted between the "standard" and the "demotimized" cigarets and that profound drops in temperature could be elicited by the smoking of the latter brands was of interest. The average and individual nicotine content of the two brands used was less than 40 per cent of the average for the "standard" brands used,<sup>13</sup> according to figures published in 1929. This is further evidence that the nicotine content does not control completely the amount of absorption and that perhaps other factors contribute to these effects

We did not anticipate that the process of "mentholating" a cigaret would produce any effect on the general physiologic action of the tobacco smoke. This was demonstrated to be correct

As previously stated, we are not prepared to draw definite conclusions as to the correlation of the skin tests with the circulatory tests. The evidence, however, would tend to show that there was no direct relationship between them, and that these effects on the circulation cannot be explained on an allergic basis. Further work in this problem will be presented later

#### CONCLUSIONS

1 The smoking of tobacco in the form of "standard" cigarets produces in the great majority of normal individuals certain definite pharmacologic effects

A A marked drop in surface temperature occurs at the tips of the fingers and toes. This varies in different individuals with the same tobacco and in the same individual at different times. The average drop in our series was 5.3 degrees F, the maximum drop was 15.5 degrees F. Surface temperature taken at the forehead and waist did not show a similar change

B Slowing and stoppage of the blood flow in the capillaries of the nail fold were frequently observed during these tests

2 The length of time a subject had been a smoker and the number of cigarets habitually smoked daily had

10 Haggard H W and Greenberg L A Effects of Cigaret Smoking upon the Blood Sugar Science 79 165 (Feb 16) 1934

11 Barker N Personal communication to the authors

12 Dixon W E The Tobacco Habit Brit M J 2 719 (Oct 22) 1927

13 The Nicotine Content of Tobacco Bureau of Investigation J A M A 101 385 (July 29) 1933

no determinable effect on the degree of the temperature drop

3 Certain subjects showed marked toxic effects from smoking one cigaret under controlled conditions. In each instance, these were experienced smokers who ordinarily note slight or no symptoms from smoking.

4 Very slight, if any, difference could be noted between the effects of standard, denicotinized and mentholated brands of cigarets.

5 No effects on the peripheral circulation could be noted following the smoking of "ashless filter paper cigarets."

6 No direct relationship between the degree of drop in peripheral surface temperature and the skin tests for tobacco and nicotine could be established. (This is a preliminary report.)

7 The lack of symptoms noticed by experienced smokers, under usual conditions of smoking, is probably, at least in many instances, not due to the development of an immunity to the toxins of tobacco smoke but rather to a conscious or subconscious control of the rate and depth of inhalation, which keeps the toxic effects at a submanifest level.

8 Although not definitely proved, the evidence seems to indicate that nicotine is at least one of the toxic factors and that carbon monoxide and the products of the cigaret papers may be eliminated as offending mediums.

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## PSEUDO-ANGINA PECTORIS ORIGINATING IN THE CERVICAL SPINE

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Angina pectoris is a disease characterized primarily by subjective clinical phenomena. There is pain in the left side of the chest, occasionally with radiation of pain down the left arm. Objective clinical methods for the recognition of this disease are generally lacking, so that the patient's complaints must determine the diagnosis. Obviously, if other diseases exist that may give the same type of pain, careful differentiation must be attempted to avoid condemning those suffering with benign ailments to the rigid regimen of the anginal patient.

The importance of this differentiation is exemplified by a patient seen in 1929 for a pain in the cervical spine. This man had been confined to bed for several weeks because of a supposedly bad heart. The internist had found no objective evidence of cardiac dysfunction, but since the patient complained of severe pains in the precordium at times stabbing in character and often associated with radiation down the left arm, the diagnosis angina pectoris was made. Orthopedic examination, made because of some joint pains, revealed an acute arthritis of the cervical spine. Under the use of head traction and salicylate medication the pain in the neck cleared up promptly, and with it the anginal pains disappeared. The patient has since then led a busy life, with plenty of emotional and physical activity, without any anginal symptoms. It is of interest to note that because he was known to have had pain in the left side of the thorax his application for insurance was rejected.

Another clinical experience of interest is that of a young woman who came in because of pain in the neck.

The history revealed the fact that she had anticipated visiting a surgeon because of pain in the right breast, which she feared might be cancer. In spite of the right-sided thoracic pain she did not present any evidence of a malignant condition or of pleural involvement but showed a clear-cut case of cervical arthritis with particular involvement on the right side. Standard treatment for arthritis promptly relieved not only the condition of the neck but also the discomfort in the right breast.



Fig 1—Appearance of cervical spine in a patient suffering with precordial pains. The arrow points to arthritic spiculations.

A third case is that of a physician who was having pain in the left side of the thorax, front and back, and down the left arm. He consulted an internist, who assured him on the basis of his youth and the absence of signs of heart disease that no cardiac pathologic condition was present, but the pain persisted. The suggestion that the condition might arise in the cervical spine was not favorably received until there developed a Horner's syndrome, that is, a drooping of

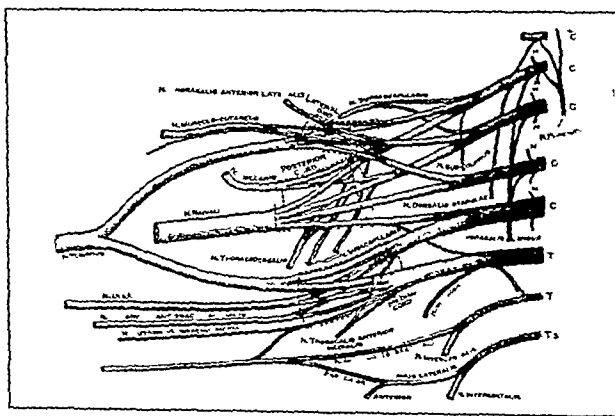


Fig 2—Origins of the nerves of the brachial plexus (after Cunningham).

the left eyelid and a contraction of the pupil. These eye signs have been traced to an involvement of the nerves originating in the region of the first thoracic vertebra. Clinical and roentgen examinations disclosed a marked arthritis of the lower cervical spine (fig 1).

The common denominator in these three patients is an involvement of the lower cervical spine associated with thoracic pains. It is possible to find one area



which, if it is involved by a lesion, can produce these symptoms, including the Horner's syndrome. A survey of the anatomy of the cervicodorsal spine and of the adjacent nerve structure reveals the following pertinent facts. Nerve fibers originate in the spinal cord, course through foramina in close proximity to the articular processes of the vertebrae, pass through the ramifications of the brachial plexus, and emerge to form various nerves (fig 2). Of these the medial anterior thoracic nerves originating in the eighth cervical and first thoracic spinal segments and the lateral anterior thoracic nerve originating in the sixth and seventh cervical segments innervate the pectoralis major and pectoralis minor muscles. The thoracalis longus, thoracodorsalis and subscapularis nerves begin in the posterior roots of the fifth, sixth, seventh and eighth cervical segments and supply the teres major and teres minor, the subscapularis and the deeper portions of the latissimus muscle. Rami communicantes may arise from the lower portion of the cervical and upper part of the thoracic cord and pass through the cephalic portion of the sympathetic system to assist in the control of eye musculature. It is noteworthy that the nerves enumerated are motor in character, that is, they do not carry any skin sensory fibers. Possibly this was responsible

referred either to the region beneath the scapula or to the precordium. This clinical test inferentially supplies the physiologic correlation necessary.

The clinical picture of patients presenting this syndrome is fairly constant. There may be a history of a strain particularly when the head is in an unusual position. Thus, a sudden lurch to catch a falling child when the head is partly turned away has been reported as a precipitating factor. In some patients occupational strains seemed to be responsible, as in a linotype operator who was myopic and worked with his head shoved forward. On the other hand, the onset may be very insidious, beginning with generalized rheumatic aches that seem to localize in the neck or "shoulder." The patient finds it difficult to stoop forward and particularly to turn his head. A frequent complaint is the inability to find a comfortable position in bed. There may be a constant ache in the upper part of the chest, but movements seem to produce stabs of pain in the thorax, front or back (fig 3). At times the patient also complains of discomfort in the neck, but usually, as in sciatica of lumbosacral origin, the referred phenomena completely overshadow the pain in the spinal column. Diet and emotional factors apparently have no effect on the symptoms.

On examination, the patient frequently presents a lateral deviation of the cervical spine. Muscle spasm is almost always present, involving the trapezius or splenius capitis so that the taut muscle is seen to stand out prominently when compared to the same muscle on the opposite side. The movements of the lower cervical spine are restricted. It is important to observe the actual motion of the vertebrae since considerable movement of the head is obtainable in the upper part of the neck. On palpation one may observe some tenderness over the spinous processes but the characteristic pain on pressure is obtained over the lateral articular processes on the affected side. Most generally one finds a point of exquisite pain on pressure over a spot at the junction of the shoulder and neck in the posterior frontal plane (fig 3). It is important to check the reaction of the patient to the pressure by applying similar point-pressure to the opposite side. (To determine the anatomic structures that may produce the severe pain felt on pressure over this point, a nail was driven into a carder in the line of the force. It was found that the nail perforated the skin and muscle and fascial planes and became embedded in the articulation made by the posterior articular processes of the seventh cervical and first thoracic vertebrae.) Rarely one finds an area of hyperesthesia over the chest wall. Roentgen examination often shows arthritic spiculation.

In the differential diagnosis one must bear in mind true angina pectoris, pleurisy, breast tumor, fractured rib, myositis and gastritis. One must examine the patient for signs of heart disease, friction rub, pleural fluids, abnormal masses, and tenderness on deep pressure over the chest wall. It is also worth remembering that the pains of cervical origin are not likely to be substernal, are not brought on by dietary indiscretions, and are not precipitated by emotional stress.

The treatment should be etiologic and need therefore not be discussed at length in this paper. There are, however, a few facts that may be mentioned here. Supportive devices are very helpful. In mild cases restrictive strapping may give relief. In more severe cases any of the usual orthopedic appliances, particularly modifications of the Thomas collar, will give relief.

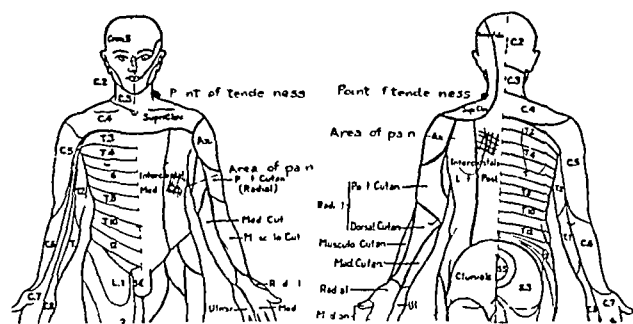


Fig. 3—Areas of referred pain and characteristic point of local tenderness.

for the failure of observers to correlate the cervical lesion with the thoracic pain. It is, however, clearly established that motor nerves can possess protopathic sensations so that the pinching of such a nerve will produce a definite pain, diffuse in character but referable to the terminal portion of the nerve. In these facts is found an anatomic integration of the cervicodorsal lesion with the symptoms of thoracic pain and oculo-motor disturbances.

Physiologic integration of these phenomena could be accomplished by exposing the roots of the brachial plexus in a patient who is awake, applying pressure stimuli to these roots, and recording the location of the pain in the chest. An opportunity to do this has not presented itself, but a clinical test which inferentially supplies the same compression of the nerves has been noted. Movements of the cervical spine alter the relationship of adjacent vertebrae sufficiently to enlarge or diminish the size of the foramina. If, as a result of swelling of the articular membranes or projection of osteophytes, the size of the foramina has been so encroached on as to leave but little clearance around the cervical roots, there will be produced a compression of these nerves when the neck is tilted in the proper direction. I have noticed in many of my patients with a severe cervical arthritis that acute hyperextension and lateral bending of the head will produce a stab of pain

Occasionally head traction is necessary. Physical therapy likewise can be used with benefit in many instances. One may expect fairly prompt symptomatic relief when such procedures are employed.

1814 Eutaw Place

## ANALYSIS OF FOOTBALL INJURIES

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The present study includes a record of major and minor injuries through four consecutive seasons at Cranbrook School, where 80 per cent of the boys play football, the average school attendance is 200 boys. The analysis of the injuries is taken from notes entered each afternoon and evening during the season. These injuries are summarized in the tables and presented pictorially in the accompanying illustration. The use of broad descriptive terms—e.g., chest wall in preference to ribs, intercostal muscles, costal cartilages, and ligaments—simplifies and condenses the report to the seventeen items listed in table 1 in the order of frequency.

The total number of injuries decreases: 243 in 1930, 112 in 1931, 68 in 1932 and 75 in 1933. This interesting reduction developed gradually as the causes for special regional injuries were examined in respect to the anatomic strength or vulnerability of the part, the character and direction of the force inflicting the injury, the distribution of padding (cotton, wool, sponge rubber and leather) within the uniform and the style or form in play.

Comments on the causes and samples of the means of prevention of the most frequent injuries are listed.

**The Ankle.**—The universal application of ankle bandages (2 inch Ace bandages) effectively protects the region.

**The Fingers and Hand.**—Many of these injuries are due to spreading of the thumb and fingers in the process of tackling and straight-arming. Proper spac-

ing of the fingers and careful instruction by the coaches in the correct use of the hands greatly reduces these injuries.

**The Shoulder.**—This injury is the result of a sudden, usually an ungraceful, fall on the shoulder point. One interesting variety is a very special strain in the acromioclavicular articulation, requiring from seven to ten days of treatment. These injuries are reduced in number by well padded, carefully fitted, softly kneaded and oiled leather cups over the turn of the shoulder.

TABLE 2—Types of Injuries

	1930	1931	1932	1933
<b>A Fractures</b>				
Finger	3	5	1	2
Face	2	1	3	4
Spine	1	1	0	0
Ankle	1	1	1	0
Shoulder	1	0	0	0
Wrist	1	1	0	0
Knee	0	1	0	0
<b>Total</b>	<u>9</u>	<u>10</u>	<u>5</u>	<u>6</u>
<b>B Dislocations</b>				
Finger	2	0	1	0
Elbow	1	0	0	0
<b>Total</b>	<u>3</u>	<u>0</u>	<u>1</u>	<u>0</u>
<b>C Concussion</b>				
Cerebral	1	5	2	0
<b>D Visceral lesion</b>				
Kidney	0	1	1	0

**The Head, Cerebral Concussion.**—In the years 1930, 1931 and 1932 there were eight cases of cerebral concussion, five occurring in 1931. The associated dazed and bewildered state persisted from twelve to forty-eight hours, amnesia, especially for events of the day of the game, was most characteristic. The only neurologic finding was the difference in the size of the pupils. Insistence on the wearing of securely laced, well fitted headgear in practice, scrimmage and games is most important. Chin straps should be in place, and the head should be held up sufficiently to follow the play at all times.

**The Spine and Back, Iliac Crest (lumbar region).**—Padding extending well up toward the lower rib margin and over the iliac crest amply protects these regions, with thin boys the padding should be of increased thickness.

**The Knee.**—A greater number of knee injuries is responsible for the increase in the total injuries, from sixty-eight in 1932 to seventy-five in 1933. The present season's style of play, featuring lateral passes, double reverses and sweeping lateral runs, may be the cause. The most bothersome knee injury is a tear in the internal lateral ligament. The use of a 6 foot 2 inch elastic bandage, or other special bandages, affords support to the joint.

**The Face, Feet and Chest Wall.**—These regions are unprotected, although nose guards and padding could be used, this would be cumbersome and impracticable.

Of importance equal to a consideration of regional injuries are certain general measures: a relatively long period of training before scrimmages are begun, limbering and warming up with brief exercises before the games, daily weighing of the players throughout the season, removal from scrimmage of boys who are losing weight and of players from games who become tired during the closing periods of play, careful utiliza-

TABLE 1—Regions Injured

Site	1930	1931	1932	1933
1 Fingers hand	58	24	9	9
2 Ankle	38	15	7	8
3 Muscles	35	22	8	15
4 Knee	29	7	8	17
5 Wrist	20	5	2	1
6 Shoulder	17	4	9	9
7 Spine back	12	4	1	2
8 Elbow	7	6	1	0
9 Toes foot	6	3	4	0
10 Face	6	9	8	9
11 Elsewhere	3	3	2	1
12 Chest wall	2	0	4	2
13 Iliac crest	2	0	0	1
14 Neck	2	4	1	0
15 Head	1	1	2	0
16 Achilles tendon	0	0	2	0
17 Coccyx	0	0	0	1
<b>Total</b>	<u>243</u>	<u>112</u>	<u>68</u>	<u>75</u>

ing of the fingers and careful instruction by the coaches in the correct use of the hands greatly reduces these injuries.

**The Muscles.**—Muscle injuries are due to a direct blow not easily prevented. Two special muscle groups are considered: 1. The muscles passing obliquely downward from the neck to the shoulder which are injured in tackling and blocking to prevent injuries in

Study in collaboration with Mr. John J. Finnessey, coach. The Athletic Coach, October 1933.

tion of the intervals—time out and normal periods for purposes of recuperation, the development of a graceful and effective football form

It is possible that the exhaustion resulting from a strenuous game may be decreased by the use of salt given by mouth, this observation has frequently been made and finds expression in the human craving for salt. Recently there have been more specific measurements of salt balance. One example is the study with

players in this series is 2 pounds (907 Gm.), the administration of salt in capsules and saline solution ( $3\frac{1}{3}$  Gm. per pound [453 Gm.] loss in weight)<sup>2</sup> should hold the blood chloride at a normal level, and, although this remains a theoretical consideration and has not been tried, it might in part overcome the players' sense of exhaustion.

The most serious injuries in 1930, 1931 and 1932 included a fracture of the second lumbar vertebra, a

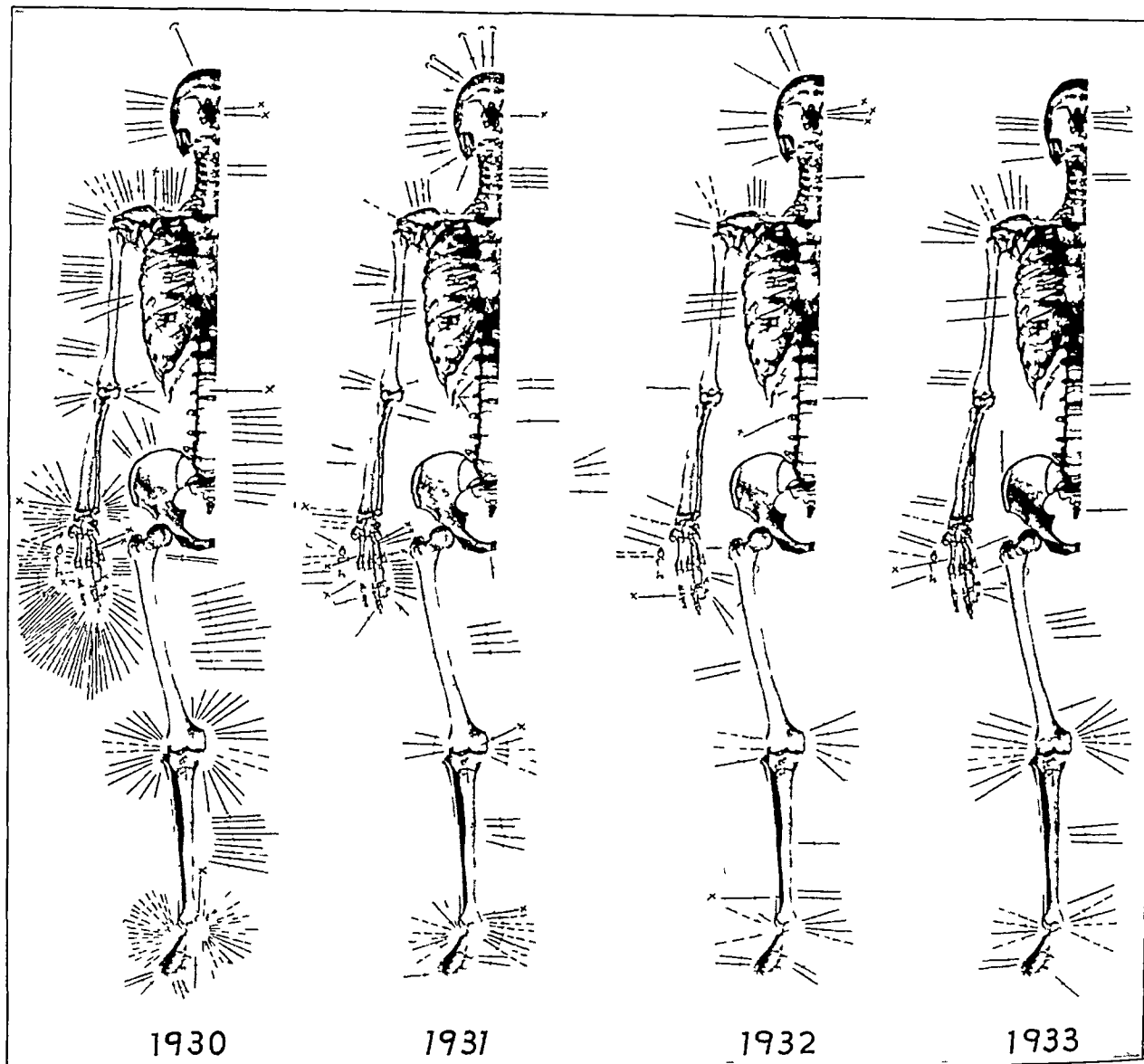


Fig 1—Composite picture of injuries in 1930 1931 1932 and 1933 football seasons. The types of injuries in the accompanying illustrations are indicated as follows: soft parts—solid arrow; ligament—arrow of dashes; fracture—arrow with X; viscus—arrow of dots; concussion—arrow with C.

the "sweat-box" at Dayton<sup>1</sup> where the 20 to 26 Gm of salt lost in a single treatment was replaced by from 4 to 6 liters of 0.6 per cent solution of sodium chloride. This resulted in a restoration of blood chloride to normal and "entirely abolished the sense of fatigue and exhaustion and practically eliminated vomiting, abdominal cramps and muscular twitching."

In a football game from 0 to 7 pounds (0 to 3,175 Gm.) are lost. The average among thirty varsity

kidney blow with gross hematuria, evulsion of bone within the knee joint at the attachment of a cruciate ligament, cerebral concussion, and severe strain of the internal lateral ligament of the knee. There were no injuries to the epiphyseal line.

In 1933 there were no serious injuries. There were two fractures (apart from the nose), one of the third metacarpal and one of the fifth proximal phalanx without displacement of the bone ends, and internal lateral

<sup>1</sup> Simpson, W. M. Ultra High Frequency Pyrotherapy of Neurosyphilis. Preliminary Report. *Ann. Int. Med.* 7: 64 (July) 1933.

<sup>2</sup> This figure is based on a mean between 0.85 per cent (the salt in sweat at rest) and 0.65 per cent (the salt in sweat induced by extremely high temperatures).

ligament (knee) injuries of moderate degree There was an average weight gain in varsity players of  $1\frac{1}{2}$  pounds (680 Gm) during the season

A history of fractures sustained during the lifetime of each boy was obtained The average number of fractures (exclusive of the nose) was 1.47 per boy A history of five fractures, one occurring on each of five separate occasions, was given by two boys In these cases roentgenologic examination of the skull lumbar spine, long bones of the forearm and the pelvis was entirely negative Blood calcium phosphorus and phosphatase were normal From these observations it may be inferred that the bony structures in this group of 200 boys are sufficiently sound to withstand the impacts and stresses occurring in a game of football

## ANTERIOR LENTICONUS

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The term "anterior lenticonus" is used for conical transparent projections from the anterior surface of the lens into the anterior chamber Several observers have attempted to classify these anterior lens projections further into "lenticonus," of conical shape, and "lentiglobus" of spherical shape Because the slight difference in form bears no relationship to the mechanism of production no attempt will be made in this paper to differentiate the two types, which are the same in all respects other than shape, all will be designated as anterior lenticonus

The anomaly is an extremely rare one, and a careful search of the literature reveals only ten cases in which the diagnosis could not be questioned The transparency and absence of opacity formations in lenticonus allow for its differentiation from projecting anterior capsular opacities The etiology of the two conditions is entirely different Clinically, a conelike or spheroidal structure protruding from the center of the anterior surface of the lens into the anterior chamber is observed by oblique illumination With direct illumination it gives a characteristic appearance of a "globule of oil in water" The center of the lens is highly myopic, while the periphery is emmetropic or even hyperopic Ophthalmoscopic examination of the fundus produces an inverted real image through the lens center, and an upright virtual image through the lens periphery

The ten reported cases of anterior lenticonus in which the diagnosis seems to be unquestionable are as follows

CASE 1—The first reported case is that of Webster<sup>1</sup> (1874) In a man aged 24, both eyes when viewed laterally showed a cone shaped swelling of the lens in the center The swellings were transparent but opacities were present in the posterior part of each lens

CASE 2—Van der Laan<sup>2</sup> described under the name cristallonus polaris anterior a conical projection of the lens in a man aged 23 The base of the cone comprised about one fourth of the anterior surface of the lens The protuberance was transparent and showed no line of differentiation from the lens substance The condition had existed for eight years and had developed slowly causing a high degree of myopia

CASE 3—Venneman's<sup>3</sup> patient was a woman, aged 20, whose vision in both eyes was very markedly reduced by the central myopia resulting from the lenticonus During childhood the vision had been good but it began to fail at about puberty, six years previously No opacities were present in the lenses

CASE 4—Jaworski<sup>4</sup> reported the case of a man, aged 32, with chronic nephritis, who had noticed decreased vision for several years On the anterior lens surface of each eye there was an entirely transparent, regular, conical projection Retinoscopy showed a central myopia of about 30 diopters and a peripheral hyperopia of 3 diopters Eight months later the lenticonus had disappeared from both eyes

CASE 5—De Schweinitz and Wiener<sup>5</sup> briefly mention a man, aged 20, who came under their observation in a military camp His vision had been defective since childhood and at examination was shown to be markedly reduced "The lenses were small and slightly hazy, and each showed a pronounced anterior cone the tips of which almost touched the posterior corneal surfaces This case was observed only once and the data are incomplete

CASE 6—Frey<sup>6</sup> reported an instance of a man with markedly diminished vision the onset of which he could not recall Oblique illumination showed a small regular cone on the center of the anterior surface of the lens in both eyes The cones were completely transparent with a smooth continuous surface and projected for a distance of about one fifth of the depth of the anterior chamber The diameter of the cones at their base was about one fourth of the lens surface There was a marked central myopia, with a peripheral hyperopia The lenses showed no opacities

CASE 7—Riedl<sup>7</sup> contributed the case of a man, aged 36, who was examined by Elschning during the war By direct illumination the condition simulated a keratoconus, its true nature was revealed by oblique illumination The picture was identical in the two eyes with the exception that the right lens showed a radial opacity in the upper periphery while the left lens was entirely clear The vision was markedly reduced There was about 7 diopters of myopia centrally and the periphery was emmetropic

CASE 8—Weiss<sup>8</sup> reported an instance of a man, aged 29 whose vision had been poor since childhood By direct illumination both eyes showed a sharply defined disk in the center of the pupils, giving the "oil drop" appearance The lenses were clear and the fundi were normal Skiascopy showed the central refraction to be -120 diopters and that of the periphery to be +15 diopters

CASE 9—Kienecker's<sup>9</sup> was the first reported case to be observed with the slit lamp The patient a man, aged 42, had had nephritis for eight years, during which time he complained of decreased vision Slit lamp examination showed in both eyes a conical arching of the lens substance at the anterior poles extending for a distance of about 2 mm into the anterior chambers The base of each cone measured from between 3 to 4 mm in diameter The capsular epithelium the contents of the conus and all the remaining lens substances, together with the posterior capsule, were clear It could be seen that the conus contained normal lens substance and that the outer planes paralleled the arch of the anterior capsule By direct illumination the characteristic appearance of an "oil drop suspended in water" was given Skiascopy showed a central myopia of 20 diopters with emmetropia in the periphery The vision was very defective in both eyes

CASE 10—Feigenbaum's<sup>10</sup> case was the second to be studied with the slit lamp It is especially noteworthy because of the length of time the patient remained under observation and because of the changes that occurred during that time A boy, aged 10 years complaining of bad vision was first seen in 1926 Direct illumination showed a "globule of oil in water" exactly

3 Venneman E Ann ocul 105 158 1891

4 Jaworski A Arch f Augenh 65 313 1910

5 de Schweinitz G E and Wiener Meyer Anterior Lenticonus A Clinical Communication J A M A 73 1187 (Oct 18) 1919

6 Frey Arch f Augenh 90 135 1922

7 Riedl Klin Monatsbl f Augenh 71 344 1923

8 Weiss Russk oftalmologicheskij zurnal 6 281 1927 abstr Zentralbl f d ges Ophth 18 619 1927

9 Kienecker R Klin Monatsbl f Augenh 82 55 (Jan 25) 1929

10 Feigenbaum Folia ophth orient 1 103 1932

From the Wilmer Ophthalmological Institute and the Carnegie Embryological Laboratory

Read before the Section on Ophthalmology at the Eighty-Fifth Annual Session of the American Medical Association Cleveland June 14 1934

1 Webster Arch f Augenh 4 262 1874

2 van der Laan Nagels Jahresbericht 2 369 1880

in the middle of the pupil of each eye. The refraction was  $-5.5$  diopters centrally and  $-1.0$  diopter in the periphery. In 1929 he was observed and the slit lamp examination showed that the anterior surfaces of the lenses were conically distorted in the middle. Only the anterior layers of the lenses were involved, for the infantile nuclei did not participate in the protrusion. With the higher magnification, delicate granular opacities could be seen in the area of protrusion, situated closely

the posterior corneal surfaces, where they appeared hazy. Both eyes showed microcornea, aniridia and hyperopia.

The second case was that of a boy, aged 17 years, in whom anterior lenticonus developed in the right eye. Within eight months this had become an anterior capsular cataract. An anterior capsular cataract developed also in the left eye. Both eyes showed a marked juvenile arcus.

The explanations offered for the formation of anterior lenticonus are all based on speculative grounds. The case reported by Mohr is the only one that has been investigated anatomically and it was a very doubtful example of the condition. Seefelder and Wolfrum<sup>15</sup> were the only ones who offered an embryologic explanation based on definite observations. Their case will be discussed later.

It is apparent from the manner of onset of the various cases cited that anterior lenticonus can be either acquired or congenital. From Webster's description of his case, the variety of the condition cannot be determined. In van der Laan's case the condition gradually developed over a period of eight years, beginning at the age of 16. The onset was at puberty in Venneman's patient. The condition had its onset during adult life in the cases reported by Jaworski and of Kieneker, while in the cases of Frey and of Riedl the time of onset could not be determined. The story of defective vision since childhood in the patients of de Schweinitz, of Weiss and of Feigenbaum place these cases in the congenital classification.

Krusius believed that anterior lenticonus was always a congenital anomaly resulting from a delayed and abnormal constriction of the lens vesicle from the surface ectoderm, so that a damage of the anterior epithelium of the lens occurred as a result of the adhesion. Ida Mann<sup>16</sup> also favors this view. This theory is completely untenable in view of the fact that in all the

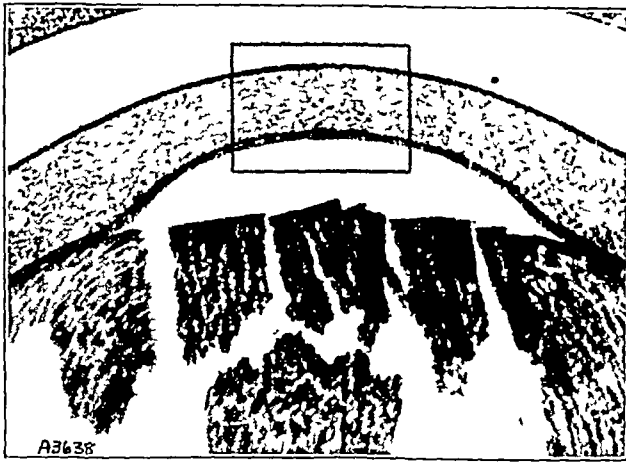


Fig 1—Anterior lens capsule arched forward and separated entirely from the normal lens fiber system in the 4 months old human embryo described by Seefelder and Wolfrum.

under the completely intact anterior capsule. The patient was examined again in 1932, at which time the left eye showed no sign of the lenticonus but only a simple anterior polar cataract.

These ten cases are clear cut and undoubtedly should be classified as instances of anterior lenticonus. The following five cases, also found in the literature, have been called anterior lenticonus, but to me they do not appear to belong in this category.

**CASE 1**—The case described by Krusius<sup>11</sup> was seen in the clinic following a contusion injury of the right eye which had caused a posterior luxation of the lens and a vitreous hemorrhage. The left eye was not injured and examination with the mirror showed a minute droplike structure in the region of the anterior lens pole. It was entirely transparent and projected as a slightly pointed cone being continuously covered by the capsule. The vision in this eye was normal.

**CASE 2**—Mohr's<sup>12</sup> case bears little resemblance to a true anterior lenticonus. The patient was a child, aged 3 weeks, at whose birth bilateral corneal opacities were noted. The right eye was enlarged and the tension was markedly elevated. Because of progressive enlargement the eye was enucleated. The lens was found to have a peculiar shape, anterior surface being elevated like a cone, while the posterior surface was pushed forward into a dimple. The posterior capsule was of normal thickness. The anterior capsule became progressively thinner from the equator forward and at some places on the cone it was entirely invisible.

**CASE 3**—The case reported by Francis<sup>13</sup> was that of a boy, aged 18 years, whose right eye had turned in since birth and showed a 'white spot'. A semi opaque cone was seen projecting from the lens surface, with the apex touching the posterior corneal surface. The base of the cone seemed to spring from a zonular opacity of the lens and came forward through an opening in the outer lens layers. The vision in the eye was reduced to light perception. The left eye was entirely normal.

**CASES 4 and 5**—The first case reported by Tsukahara<sup>14</sup> was that of a boy, aged 1 year, in whom the anterior lenticonus developed shortly after birth. The points of the cones touched



Fig 2—The lens vesicle connected with the surface epithelium in the normally developing embryo of 7 mm length.

typical cases the epithelium and the capsule over the conus are unchanged and show no evidence of opacity formation. That such adhesions between the lens and the cornea can occur is not doubted, and the case reported by Francis is resultant most likely from such a disturbance, but it is not a true lenticonus.

11 Krusius F F Arch f Augenh 65 233 1910

12 Mohr T Klin Monatsbl f Augenh 48 157 1910

13 Francis Contrib to Ophth Science 1926

14 Tsukahara Acta Soc ophth Jap 1930 abstr Zentralbl f ges Ophth 24 171 1931

15 Seefelder and Wolfrum Arch f Ophth 65 320 1907

16 Mann Ida C The Development of the Human Eye New York Macmillan Company 1928 p 30

Jaworski was of the opinion that in his case the lenticonus was related to the renal disease, and he explained it as a hydrops of the epithelial cells. Certainly, if this theory were correct one would expect to find the anomaly much more frequently than has been reported. Kienecker's patient also had nephritis with hypertension, and he attempted to relate the lenticonus to a dis-



Fig. 3—The cavity of the lens vesicle reduced to a crescentic shape by elongation of the cells of the posterior vesicle wall in the normally developing embryo of 12 mm length.

turbance of the water metabolism, resulting in a swelling of the visible lens margin into the pupillary space.

Venneman attempted to relate the condition to some metabolic disturbance occurring at puberty. The nature of such a change would be very difficult to comprehend.

Von Hess<sup>17</sup> thought that the lenticonus was due to a decreased resistance of the anterior capsule, either congenital or acquired, the weakened capsule yielding to the pressure of the growing lens fibers, which is probably most marked at the anterior lens pole. Elschnig's view is that anterior lenticonus is caused by abnormal insertions, position and tension of the three fiber systems of the zonule of Zinn. During the growth of the lens this leads to an irregular form, probably as a result of too slight resistance of the polar part of the capsule. Collins<sup>18</sup> felt that the complete absence of the fibers of the zonule was responsible for the anterior bulging, for under such circumstances there is no mechanism to flatten the anterior surface of the lens. Feigenbaum also believes that a congenital weakness of the central part of the anterior capsule should be held accountable for the anomaly. He also thinks that the anterior lenticonus can increase during the course of life and may sometimes lead to the bursting of the capsule which would cause a flattening of the conus and the formation of an anterior capsular cataract, with a marked improvement of vision.

All these theories are based on supposition. The only definite anatomic evidence to date is that offered by Seefelder and Wolfrum.<sup>14</sup> In a 4 months old human embryo they found a very striking change in the ante-

rior portion of the lens of each eye, which was otherwise normal for that stage of development. The anterior lens capsule was arched forward and separated entirely from the normal lens fiber system. The capsular epithelium was unchanged and covered the capsule continuously. The space between the capsule and the lens substance was filled with a homogeneous substance. The arch of the capsule made an indentation in the posterior corneal surface, but there was no impairment of the corneal epithelium or of Descemet's membrane, and there was no loss of corneal substance. The authors believed that the anomaly represented a retardation of the normal lens development for the following reasons. The development of the human lens begins in about the fourth week of intra-uterine life and the growing fibers reach the anterior epithelium in about the eighth or ninth week. In their embryo, aged 4 months, a space was still present between the epithelium and the lens fibers which represented a retardation of two months in its development. They offered two theories to explain the causation: that it resulted from a large fluid intake from the tunica vasculosa lentis or that a too large albuminous content had interfered with the exchange of fluids.

Seefelder and Wolfrum offered this evidence as an explanation for the origin of congenital anterior lenticonus. They deplored the fact that there was no anatomic material available from a clinically diagnosed case in order to correlate the developmental anomaly with the fully developed condition. They also realized that it would have been possible in their case to have a later resorption of the abnormal lens contents, and thus an apposition of the capsule to the lens substance.

The case that I am presenting tends to confirm the evidence offered by Seefelder and Wolfrum. Further-

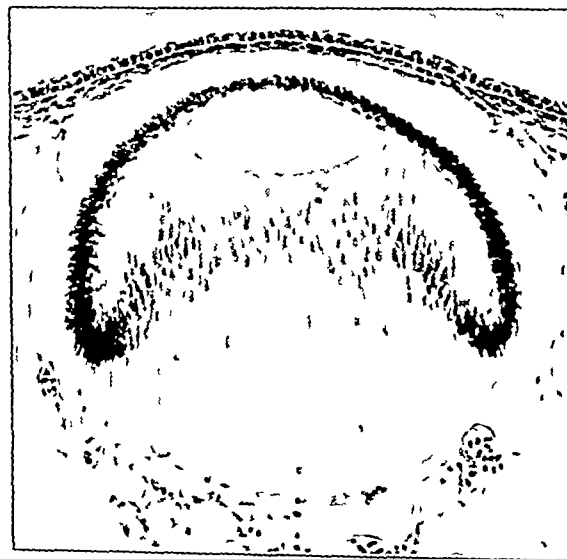


Fig. 4—Anterior lenticonus in an embryo of 18 mm length (author's case).

more, their material was rather fragmented by the sectioning of the eye, and the possibility of an artefact could be brought up as an objection to their views. In my case the material is so well preserved that such an objection could not be considered.

In the process of the normal development of the lens the vesicle is still connected with the surface epithelium in the embryo of 7 mm length, but has become entirely separated in the embryo of 9 mm length. An elonga-

17. von Hess. Pathologie und Therapie des Linsensystems. Graefe-Saemisch Handb. 9. 269. 1911.  
18. Collins E. T. and Mayou M. S. Pathology and Bacteriology of the Eye. ed. 2. Philadelphia. P. Blakiston's Son & Co. 1925. p. 5.



tion of the cells of the posterior wall of the vesicle then begins to appear, so that the cavity gradually becomes obliterated. This process is well seen in figure 3, in which the space is crescentic. The elongation of the fibers proceeds, so that in the embryo of 16 mm length the space is practically entirely obliterated, although a potential space still persists for some time. At this stage the hyaline capsule of the lens begins to form, probably as a secretion by the cells of the vesicle. From the 16 to the 26 mm stages of the embryos the lens keeps the same general arrangement, with the central fibers gradually beginning to fade in their staining characteristics. After the 26 mm stage the process of fiber formation takes place in the equatorial region, where the epithelium of the anterior capsule forms the lens fibers.

The specimen is that of an 18 mm human embryo, sectioned coronally. It shows a lens of normal shape, with a smooth, evenly curved anterior epithelium. A hyaline capsule has as yet not become visible. The primary lens fibers are well developed in the periphery. The most striking feature of the lens is the biconvex defect beneath the normal anterior epithelium. The depth of this space is about one-fifth the diameter of the lens. The posterior wall of this space is formed by a sharply defined margin where the lens fibers terminate. There is no evidence of membrane formation to give the posterior wall of the space this smooth edge. The space itself is filled with a homogeneous serous fluid, taking a very faint stain. The lens fibers have a well preserved appearance, with clear cut nuclei. Other than this lens defect, the eye appears to be normal for this stage of development.

The space noted in the anterior portion of this lens undoubtedly represents an anomaly of development. It is not a mere retardation of the normal development, for then the persistence of a crescentic space would be observed rather than one of a biconvex shape. The explanation of such a developmental anomaly can only be a speculative one. The pressure exerted by the growing fiber system within the lens is apparently not great enough to cause the tissue fluid to filter through the anterior epithelium or to become absorbed. As this fluid becomes compressed it exerts a retarding back-pressure on the advancing margin of the lens fiber system and prevents its full anterior development.

The final outcome of such an anomaly cannot be foretold from the limited data that are at hand. It is possible that the fluid may become absorbed and the lens fibers come in apposition to the anterior epithelium, and the lens then go on to normal development. It is more likely, however, that with the increasing pressure exerted by the proliferating lens fibers there will be a bulging of the anterior epithelium, forming the anterior lenticonus of the clinical variety. Whether the serum would remain under such conditions, or whether there would be an ingrowth of lens fibers into this space, would most likely depend on the pressure balance that is maintained.

#### CONCLUSIONS

1 Anterior lenticonus is probably the result of a congenital or an acquired disturbance of the pressure relationships in the lens system.

2 The congenital form bears no relationship to delayed separation of the lens vesicle from the surface ectoderm.

3 The anomaly here presented appears to be the forerunner of the congenital type of anterior lenticonus,

though the possibility of the disappearance of the fluid and an ingrowth of normal lens fibers must be borne in mind.

4 Since this anomaly is present prior to the development of the hyaline capsule and the zonular fibers, it is apparent that the underlying cause of congenital lenticonus is not a deficiency in these structures.

#### ABSTRACT OF DISCUSSION

DR CLAYDE A. CLAPP, Baltimore. The great difficulty in discussing the question of anterior lenticonus is that few ophthalmologists have seen the condition, either clinically or embryologically. It is of interest that the first case to be described (Webster's) was from Agnew's clinic in New York, although published in German. Many of the cases reported as shown by Dr. Rones, developed in young adult or middle life and in some the condition disappeared later. It is my opinion that these are not true lenticonus cases and under more accurate study by means of the slit lamp will be found to be the result of fluid under the capsule, or possibly a cystlike structure that undergoes absorption. Certainly if the condition is in any way analogous to posterior lenticonus there is a structural change in the lens itself, which in my experience is always congenital in character. As to the etiology it would seem that the congenital type is entirely different from the acquired. In the congenital variety I could imagine that a delayed separation of the lens vesicle from the surface epiblast might cause some alteration in shape of the lens without leaving an opacity, although this would be very unusual. Von Hess and Feigenbaum's idea that a weakened capsule is the cause of bulging in this sector is not borne out by the slit lamp illustrations of either Kienecker's or Feigenbaum's cases. Collins and Mayou's theory as expressed in their textbook "Pathology and Bacteriology of the Eye" is not quite the same as given by the author. Instead of a complete absence of the zonular fibers, they state, "its occurrence may be attributed to the failure in development of the orbiculo-anterior-capsular fibers of the suspensory ligament, which stretch from the capsule to the hindmost part of the ciliary body." The lack of traction of these fibers allows the lens to bulge forward at its center. This explanation, however, seems to be highly theoretical. The theoretical explanation from the embryologic studies of Seefelder and Wolfrum supplemented by those of the author seems to be more logical than most of those which have been advanced and I hope that some actual clinical cases can be studied in order to clear the question. The etiology of the acquired cases of anterior lenticonus can be elucidated by a careful slit lamp study with especial reference to changes in the lens substance itself. I therefore urge that if any ophthalmologists should see such a case they have a study made.

DR BENJAMIN RONES, Baltimore. In view of the fact that this is only an embryonic specimen, these observations cannot be related to those seen in the adult lenticonus.

**The Evolution of Specialists**—The old plan of the natural evolution of specialists from general practitioners is much more desirable than the newer one of producing them, as it were artificially and often without adequate general training. In the practice of internal medicine the chief danger of specialism lies in the detachment of the specialist, particularly the laboratory specialist, from the family doctor—a detachment which is unavoidable because of the complicated and time consuming character of many of the newer tests. The radiologist, for example, hardly ever knows the complete history or makes a general physical examination of the patient whose structures he is illuminating. Laboratory technicians often interpret their findings among the secreta and excreta quite positively without knowing anything about the patient who furnishes the specimens. The result is not infrequently misleading and occasionally disastrous unless the general practitioner is capable as he should be of interpreting the laboratory findings in the light of his general knowledge of the patient.

—Blumer, George. Some Discursive Remarks on Bedside Diagnosis. *J. Biol. & Med.* 6: 571 (Jul.) 1934.

# SENSITIVITY TO FUNGI IN INFANTILE "ECZEMA"

LEWIS WEBB HILL, MD  
BOSTON

There are many factors in the etiology of what is ordinarily somewhat loosely called "infantile eczema," and there can be no clear understanding of the disease until bit by bit the significance of these factors is determined

In the last few years fungi have assumed great importance in dermatology, and it has been shown for adults that many eruptions previously classed as "eczema" are in reality fungous infections. Certain of these present a characteristic morphology, such as the lesions on the palms and soles and between the toes in what is usually called "epidermophytosis," but it is true that the most varied morphology may be seen, and for this reason it may be impossible to diagnose many fungous infections without obtaining scrapings or cultures from the lesions

The fungi that have most often been found in eczema-like eruptions are of two groups: the "yeast-like" forms (cryptococci and monilias) and the trichophytons. The cryptococci multiply by budding and have no mycelia, the trichophyton group, or molds,

fungi have a low pathogenicity, some of them probably have no pathogenicity at all, and many of them occur frequently on normal skin, so that their possible pathogenicity is hard to determine. Bloch<sup>1</sup> recovered yeastlike forms from the skin in twenty-two out of twenty-four normal individuals. Benham and Hopkins<sup>2</sup> recovered yeastlike fungi and certain monilias from the nails and skins of 72 per cent of 100 normal



Fig. 1—Monilia test positive. Note sharply defined area on inner side of left thigh. This patient had in addition an ordinary atopic eczema and was sensitive to several foods.

have no bud forms but show characteristic mycelia. The monilias stand midway between the two: they are yeastlike in that they grow by budding but also show mycelia on certain culture mediums. Most of these



Fig. 2—Monilia test positive. Apparently a primary fungous infection which responded rapidly to antiparasitic treatment.

persons. *Monilia albicans* or members of the trichophyton group are not ordinarily recovered from normal skin, however. *Monilia albicans* is the organism of thrush and is distinguished from other probable non-pathogenic monilias by slight morphologic differences on various culture mediums. The intensive study of mycology is comparatively new and has been made particularly complicated by differences in nomenclature used by various workers and by difficulties in classification, so that the task of making cultures and identifying accurately the various species is for the trained mycologist or for dermatologists who have made a special study of it, and certainly nothing for any practicing pediatrician to take up.

In view of the recent work, which shows that yeastlike fungi can be recovered from so many normal skins, it becomes of doubtful diagnostic value to recover them from pathologic skins, unless the organism can be definitely identified as *Monilia albicans*.

Some mycologists would probably not even agree with this, and there is so much conflicting opinion among them that it is indeed hard for a simple pediatrician to evaluate the available data. There does not seem to be so much difference of opinion about the

From the Department of Pediatrics, Harvard Medical School, and the Eczema Clinic, Children's Hospital.

I am indebted to the many dermatologists who have helped me so much, and who have been so unfailingly courteous and cooperative in the many discussions I have had with them in the last few years, particularly Dr. Marion Sulzberger of New York, who suggested this investigation.

<sup>1</sup> Bloch, Bruno. *Brit. J. Dermat. & Syph.* 42: 569 (Dec.) 1930.  
<sup>2</sup> Benham, Rhoda W., and Hopkins, Anne McH. Yeastlike Fungi Found on the Skin and in the Intestines of Normal Subjects. *Arch. Dermat. & Syph.* 28: 532 (Oct.) 1933.

trichophytions, and most would agree that, if members of this group are recovered from skin lesions by either direct scraping or culture, they are causative in producing the lesion. It may not always be possible, however, to obtain these organisms, either monilias or trichophytions, from lesions that are clinically fungous infections.

But little work has been done with infantile eczema. Cleveland White<sup>3</sup> was able to grow yeastlike forms

an intracutaneous tuberculin reaction. The mechanism of sensitivity also is probably very similar to that in tuberculin sensitivity, and immediate wheal reactions are rare. The diagnostic value of this test in adults is not great, because so many apparently normal individuals, who have no clinical symptoms of mycotic infection, give strongly positive tests, exactly analogous to the situations in tuberculin sensitivity. It seemed possible, however, that it might be of more diagnostic value in babies and young children than it is in adults, just as is the tuberculin reaction.

#### TECHNIC OF TEST

One-tenth cubic centimeter of "oidiomycin" (Lederle),<sup>4</sup> a 1 to 100 dilution of an extract of a pathogenic strain of *Monilia albicans*, or the same amount of 1 to 100 "trichophytin" (Metz), an extract of various strains of trichophytions, is injected intracutaneously into the forearm and observed at the end of forty-eight hours. A positive test is exactly like a positive tuberculin test, evidenced by an area of inflammatory redness and infiltration, which persists several days and then gradually fades, often leaving a little brownish pigmentation and scaling.

Sixty eczematous infants and young children, with out regard to the type of eczema, were tested with the trichophyton extract, with only two doubtfully positive reactions.

One hundred were tested with the monilia extract, with fifteen positive reactions, most of them very pronounced. There were three positive reactions in infants under 1 year, three in children between 1 and 2 years, and nine in children over 2 years.

It is obvious that no conclusions can be drawn as to the value of this test unless it is determined how frequently it occurs in children who have no eczema. It seemed evident that trichophytin sensitization is of very little importance in infants and children, so no series of normals was studied with this test.



Fig. 3.—*Monilia* test positive. Skin lesion resembled seborrheic dermatitis. Also a great deal of greasy scaling on the scalp. The condition was cured with sulphur and salicylic acid ointment.

from 77 per cent of thirty-two cases of infantile eczema of the usual facial type. This was done, however, before the significance of *Monilia albicans* was clearly established, and he reports them as "cryptococci," without any attempt at differentiation into species, and says quite conservatively that he is not certain whether they are saprophytic or parasitic. A few isolated cases of definitely proved skin infection in infants with *Monilia albicans* or trichophyton have been reported in the literature, but it is not at all certain how common these infections are. It is often not possible to diagnose them by clinical observation and it would be of great advantage if there were some relatively simple test that could be used clinically by pediatricians, for the processes involved in differentiating these fungous forms by culture are too complicated except for expert mycologists, and there are not many of these in the country.

For some years dermatologists have known that in trichophyton and monilia dermatoses there is not only infection but sensitization as well, so that the skin, when injected with extracts of monilia or trichophyton, will give an inflammatory reaction. This reaction is of the delayed type, i. e., appears in from twenty-four to forty-eight hours, and is in appearance exactly like

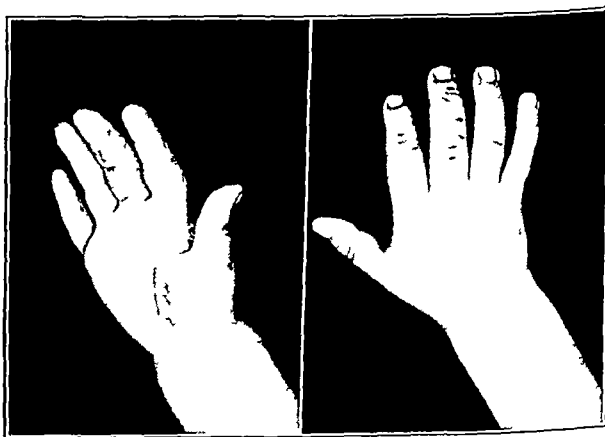


Fig. 4.—*Monilia* test positive. This child was 2½ years old. The skin lesions resemble more the adult type of fungous infection.

The monilia test was done on thirty infants under 2 years of age and on thirty children between 2 and 12 years, none of whom showed evidence of any skin disease. One strongly positive and one weakly positive reaction were found in the first group and one strongly positive and two doubtfully positive in the second group, a percentage of 8 for the whole group, as con-

<sup>3</sup> White, Cleveland. Superficial Yeast Infections of the Glabrous Skin. Arch. Dermat. & Syph. 18: 429 (Sept.) 1928.

<sup>4</sup> I am indebted to Dr. Arthur F. Coca of the Lederle Laboratories for supplying me with this extract.

trasted with a percentage of 15 for the eczematous group

#### COMMENT

Clinically, trichophyton infection, with the typical lesions between the toes and on the palms and soles, is exceedingly rare in infants and young children, and it seems from the results of the test also (two doubtfully positive reactions in sixty cases) that it can be

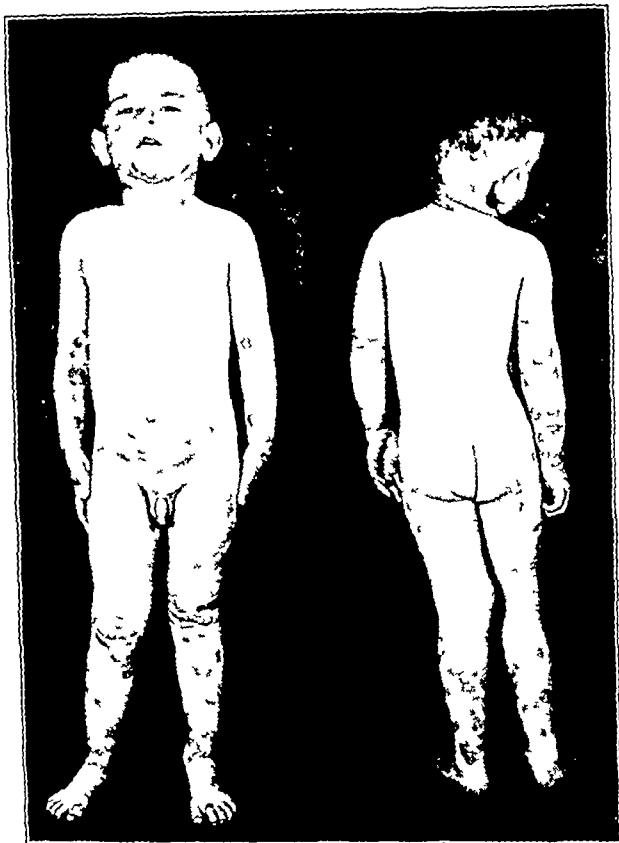


Fig 5—Monilia test positive also sensitive to several foods. This was probably a primary food atopy plus a superimposed fungous infection

excluded as a factor of any importance in the eczema of infants and children

The situation is different with monilia, and although positive tests were obtained in 8 per cent of normal children, the fact that twice as many eczematous children gave positive tests make it apparent that monilia infection may be of considerable importance. This is even more apparent when the characteristics of the skin eruptions found in those who gave positive tests are taken into account. No infant who had the usual allergic, vesicular oozing type of facial eczema gave a positive test. One infant who had a seborrheic type of eruption over the scalp and face gave a positive reaction. For the most part, those who gave positive reactions had three types of eruption

1 Dry, rather smooth rather sharply defined areas in large patches on the inner side of the thighs, very similar to eczema marginatum or "red flap" in adults only usually more extensive and more superficial (fig 1)

2 Patchy areas on the body somewhat resembling seborrheic dermatitis (figs 2 and 3)

3 Scaly lesions of the fingers, sometimes with involvement of the nails (fig 4)

Fungous infection may be primary or it may be superimposed on an ordinary atopic eczema, for most of the fungi are of such low pathogenicity that some primary irritation of the skin may be necessary before they can gain a foothold. It was quite evident that in more than half of these cases there was an atopic eczema as a background (evidenced by positive skin tests to proteins, history and so on), but in others it was equally evident that there was no background of any other primary lesions and that the fungous infection, if it was a fungous infection was primary (figs 5 and 6)

Sometimes there may be several factors involved as in one instance in which there was an undoubted atopic eczema from food sensitivity an extensive ammonia dermatitis of the buttocks, and a probable monilia infection on the inner side of the thighs. In this case it was possible to cure the ammonia dermatitis very quickly by appropriate treatment. The lesions on the inner side of the thighs were obviously of different origin and persisted long after the ammonia dermatitis was cured

It is plain that it is not proved that any of these lesions are due to active monilia infection, because no

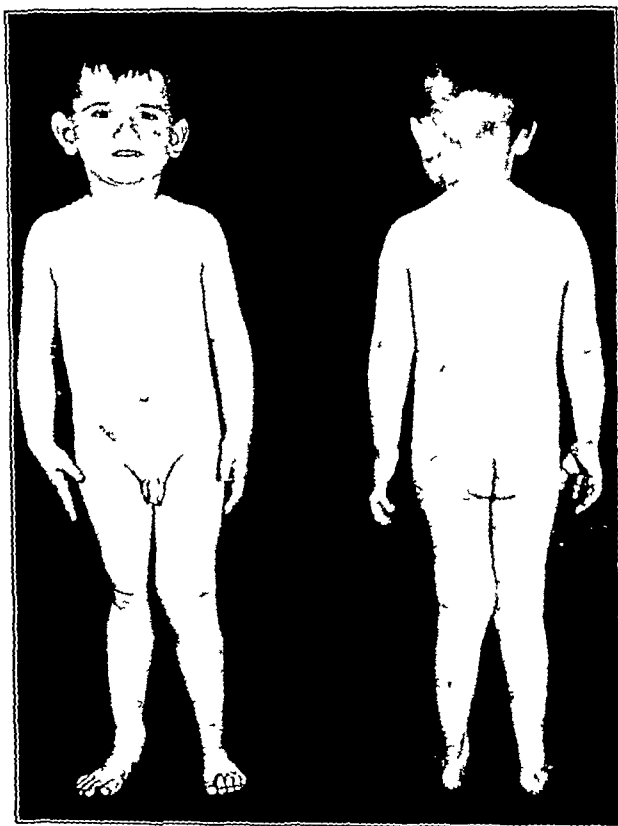


Fig 6—Same patient as in figure 5 after five weeks treatment which was combined antiparasitic and dietary

cultures were made and because the intracutaneous test was positive in a certain number of normal controls. Monilia sensitization however, is proved. This type of sensitization proves invasion of the host, that there has been infection in the past, or that there is active infection at present, and it seems that the intracutaneous test in infants and children is probably more indicative of active infection than the recovering of "yeastlike organisms." The fact that most of the

patients with positive tests had fairly characteristic lesions makes it very probable that they were monilia infections. For practical purposes, for pediatricians, especially, who are not mycologists but who, after all, see many cases of eczema in infants and children, the test is of considerable value in indicating a possible fungous infection, for, if fungous infection exists, the treatment may need to be entirely different from that employed in the ordinary case of eczema. The test is easy to do and easy to read, and if other observers get results similar to mine it should prove a worth while test in suspected cases of monilia infection in infants and children.

#### SUMMARY AND CONCLUSIONS

1 Trichophyton infection is probably of very little importance in the eczema of infants and children.

2 Fifteen per cent of eczematous infants and young children gave positive intracutaneous tests to an extract of *Monilia albicans*. Eight per cent of a series of normal controls gave positive tests.

3 The monilia test is much more valuable as a diagnostic procedure in infants and children than in adults, just as the tuberculin test is, and in younger groups these two tests have much the same significance.

4 It is likely that monilia infection is of importance in infantile "eczema," and the monilia test is worth while doing in all cases that show scaly lesions on the inner side of the thighs, around the anus, on the fingers with involvement of the nails, or patchy flat lesions on the body. It cannot be said that the cases reported here are proved cases of monilia infection. The evidence available indicates very strongly that they may be

319 Longwood Avenue

### COTTONSEED ALLERGY

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CHICAGO

The role of cottonseed as an etiologic factor in asthma, perennial hay fever, eczema and urticaria has not been sufficiently emphasized in the literature to the present time. Most allergists consider cottonseed sensitivity as not particularly common but a very potent factor in producing severe symptoms. These patients are consequently difficult to treat.

Aaron Brown<sup>1</sup> states that 2 per cent of allergic patients react to cottonseed, while Cooke<sup>2</sup> finds 0.6 per cent. These authors, however, do not mention the total number of patients tested. G. T. Brown<sup>3</sup> reports that 2.4 per cent of 530 patients reacted to cottonseed, but he does not state whether these 530 patients were definitely allergic to other substances.

The basis for my report comprises 246 allergic patients, who had complete skin tests with some 300 separate allergens. Thirteen reacted specifically to cottonseed. Of this group, six patients had asthma, two patients had urticaria, two patients had eczema and three patients had perennial hay fever. This series would indicate that 5.3 per cent of allergic patients are sensitive to the protein of cottonseed, a figure relatively higher than was previously reported. In testing

these patients, I employed the scratch test, with dry cottonseed extract. Intradermal testing is extremely dangerous because of the violent constitutional reactions that may follow.

One of the patients in this series was tested intradermally with a 1 to 1 million dilution and within five minutes a violent asthmatic seizure ensued, which finally subsided after the use of 2 cc of epinephrine hydrochloride 1:1,000 given in divided doses. The patient reacted locally to a 1 to 10 million dilution, the wheal being the size of a dime (18 mm), and desensitization was started with a 1 to 20 million dilution.

There is considerable danger in attempting desensitization, since even the smallest doses and the slightest increase in dosage may produce systemic reactions. It is therefore far safer to avoid contact to cottonseed than for one inexperienced in allergy to attempt desensitization.

Patients sensitive to cottonseed usually manifest an eosinophilia somewhat higher than the average allergic individual.

The cotton plant and the kapok tree are botanically related. Their seeds contain atopen substances which are in part identical, for Coca and Grove have shown that the atopens of the kapok seed are found in cotton seed. The reverse, however, does not hold true. Hence all patients sensitive to kapok seed are also sensitive to cottonseed, but only some of those sensitive to the latter show positive reactions to kapok. Cottonseed sensitive patients also manifest a tendency toward hypersensitiveness to other seeds and to members of the pea, bean and nut families.

The active principle in cottonseed is probably a protein. Clinically, these patients can tolerate contact with cotton fiber of the highest grade without difficulty, but they are troubled by cheaper products which contain some of the seed.

The oil of cottonseed contains active atopen and may induce symptoms as an inhalant, ingestant and contactant. It is almost impossible to state all uses to which cottonseed and its products may be put or to determine all forms in which the active atopen principle may cause trouble to the hypersensitive patient. Cotton (*Gossypium herbaceum*) is raised primarily for its fiber, which is used in the textile industries. Of far more importance to the allergist are the cottonseeds which are separated from the fibers by the cotton gin. To express the oil from the seeds, the hulls or outer coatings must be removed first. These hulls, when mixed with cottonseed meal, are used as cattle food, cottonseed hulls dyed green are used on the greens and fairways of some miniature golf courses.

The finest grade of cottonseed oil is obtained from seeds by pressing them before heating or cooking, and this product is known as cold drawn oil. Other grades are obtained by pressing seeds that have been heated.

The various sources of cottonseed as an ingestant, inhalant and contactant are here enumerated:

Ingestant 1 Salad oils 2 Lard substitutes 3 Butter substitutes 4 Packing sardines 5 Setting olives 6 Cooking purposes 7 Frying potato chips 8 Frying fish 9 Bakery goods 10 Often used by confectioners as a coating to hold chocolate firm 11 Wesson oil, a pure grade cotton seed oil 12 Crisco, hardened cottonseed oil 13 Cottolene, beef suet and cottonseed oil

Contactant 1 Used in cosmetics 2 Used by druggists as a substitute for olive oil in the compounding of emulsions 3 As a base for liniments 4 Used in salves 5 Camphorated oil

1 Brown, Aaron. New York M. J. 118:333 (Sept. 19) 1923.  
2 Cooke, R. A. J. Immunol. 7:147 (March) 1922.  
3 Brown, G. T. Cottonseed and Kapok Sensitization. J. A. M. A. 93:370 (Aug. 3) 1929.

Inhalant 1 Mattresses 2 Pillows 3 Cotton blankets  
4 Stuffing in furniture 5 Greens and fairways of miniature  
golf courses 6 Cattle food

It is therefore evident that there are numerous sources of contact to cottonseed, and in order to avoid all possible exposure as a contactant, inhalant and ingestant, one should be familiar with the various substances mentioned

A common source as an inhalant is the mattress. In this event it is simple to cover the mattress with rubberized sheeting or any other impervious material. In some cases a kapok or hair mattress may have to be substituted.

Although the role of cottonseed is emphasized as a potent cause of allergic symptoms its complete elimination from the patient's environment can usually be accomplished with marked beneficial results. Owing to the grave dangers in desensitization to cottonseed only those adequately experienced in the field of allergy should undertake this delicate procedure.

185 North Wabash Avenue

## Clinical Notes, Suggestions and New Instruments

### MASTITIS GARGANTUAN AN UNUSUAL CASE OF PUBERTY HYPERTROPHY OF THE BREASTS

B. A. GOODMAN, M.D., NEW YORK

Pathologic breast enlargement of varying degrees has been observed in our clinic, but rarely is the opportunity afforded to present a case of such unusual interest as the one herewith reported.

#### REPORT OF CASE

**History**—E. S., a white girl aged 14, complained of progressive, painless enlargement of both breasts over a period of twenty months, beginning eight months prior to the onset of menstruation, which occurred at the age of 13.

There was no history of similar breast enlargement, or of any breast disease, in other members of the family. The patient is the oldest of six children (five girls and one boy). None of the others have as yet reached the age of adolescence.

No other abnormal physical development was apparent in the patient, and there was no evidence of endocrine dyscrasia or altered secondary sex characteristics. Menstruation since its onset was regular, and of the 5-28 type. The patient showed mental alertness and average normal cerebration for her age. Her seventh grade junior high school work was interrupted on account of the embarrassing breast enlargement.

The breasts enlarged uninterruptedly until they attained the sizes indicated in figure 1.

With the patient standing, the right breast measured 27 inches (67.5 cm) in length, whereas the left one was only 21 inches (52.5 cm). The asymmetry developed and became accentuated during the past year. Each breast, however, maintained its relative proportions, i. e. the size of the nipple and the areola in relation to the size of the entire breast.

No history of trauma was obtained and no pain in either breast was complained of. At no time was there any discharge from either nipple.

**Operation**—A bilateral simple mastectomy was effected with the greatest possible facility and without particular regard for temporary cosmetic result it being deemed advisable to devote time to plastic reconstruction of the mammary area at a time more favorable to the patient. Prolonged anesthesia might undoubtedly have only added to the associated hazards of shock and blood loss.

After the operation an interesting observation was recorded. The absence of the accustomed pull by the weight of the

breasts almost caused the patient to fall backward to the floor when she attempted to walk on getting out of bed the first time.

Pathologically, the diagnosis by Dr. L. H. Meeker (assistant professor of pathology and bacteriology at the New York Post-Graduate Hospital, Columbia University) was "bilateral

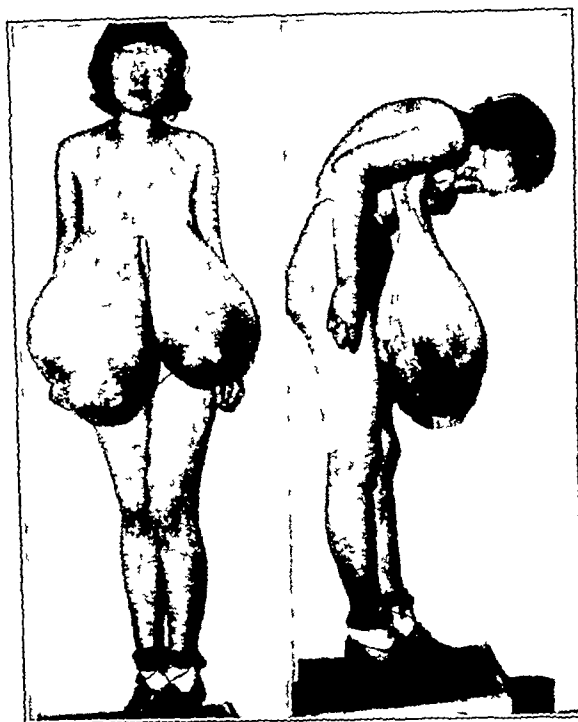


Fig 1—Appearance of patient on admission

hypertrophy of the breasts. Diffuse chronic productive mastitis with marked glandular hyperplasia and associated fibroadenoma."

The right or larger breast (fig 2) weighed 25 pounds 14 ounces (11.8 Kg) and measured 40 by 35 by 30 cm, whereas

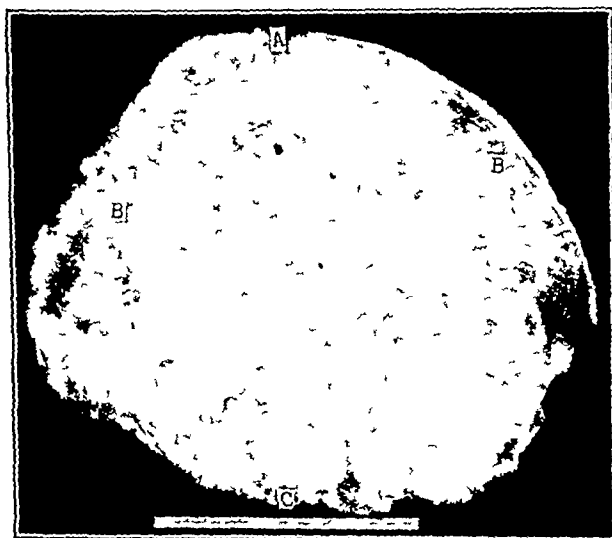


Fig 2—Cross section of larger breast in a perpendicular plane through the nipple to the pectoral fascia. A, nipple; B, fatty tissue; C, fibroadenoma lying on pectoral fascia. All the darker areas are mammary glands and the very pale areas are myxomatous fibrous tissue.

the left or smaller breast weighed 15 pounds 12 ounces (7.1 Kg) and measured 34 by 30 by 17 cm. The nipples were centrally placed and normal in appearance. With the exception of a small ulcerated area 25 mm in diameter on the



larger breast, the skin of both breasts was normal in appearance. Coarse lobulations of gland tissue were palpable throughout both breasts.

On perpendicular section through the nipples to the pectoral fascia the two breasts presented the same structure. There was diffuse proliferation of edematous fibrous tissue throughout. Aggregations of glandular elements ranging in size from a few millimeters to 5 or 6 cm in diameter were embedded as scattered bright pink somewhat spongy areas throughout the fibrous tissue. There were a few scattered masses of bright yellow fat with lobulations, and there were also many dilated lymph spaces and a few dilated blood vessels.

Tissue for microscopic examination was selected at points 5, 10, 15 and 20 cm distant from the nipple in a straight line to the fascia, and 20 cm laterally, from the larger breast, and at random areas in the smaller breast.

Microscopic sections showed diffuse fibrous tissue proliferation, most of which was very edematous and decidedly myxomatous in type. About the glandular masses, the fibrous tissue was more dense and even hyaline in character. The gland ducts, acini and lobules showed marked hyperplasia with ducts and acini separated by large amounts of fibrous tissue.

Several layers of cuboidal epithelium, presenting no abnormalities outside of hyperplasia, lined the ducts and acini, the lumens of which not infrequently were filled with exfoliated epithelium. The stroma in many of the glandular masses showed inflammatory reaction varying from simple mild infiltration by lymphocytes to a diffuse proliferation of young fibroblasts densely infiltrated by lymphocytes and mononuclear cells.

A single, well encapsulated mass (fig 2C) of glandular tissue 70 by 55 by 55 mm in diameter formed of markedly hyperplastic glands with ducts and acini separated by a small amount of fibrous tissue constituted an associated fibroadenoma.

#### COMMENT

Several designations of nomenclature have been applied to this type of breast condition, yet most of them merely imply variations in degree of similar pathologic changes. Heyd's<sup>1</sup> designation of mastitis gargantuan is unique in its conception. Macromastia, colossal mammary hypertrophy and hyperplasia are other terms applied. Puberty hypertrophy or hypertrophy

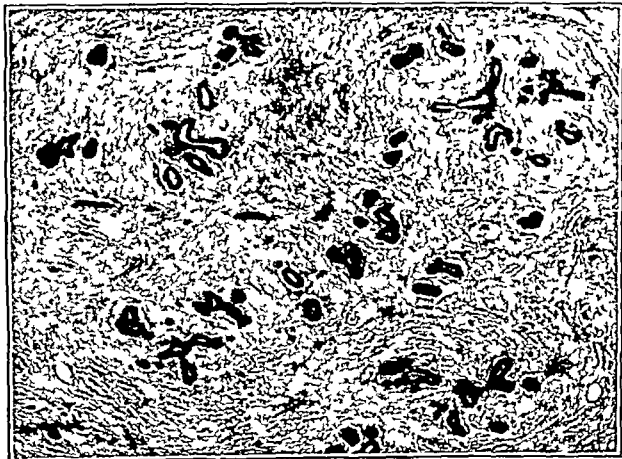


Fig 3—Area at lateral margin of the breast near B figure 2 (Medium high power)

in adolescence are more applicable than virginal hyperplasia, a term sometimes employed inaccurately to signify hypertrophy of the nongravid state.

#### SUMMARY

1 Puberty hypertrophy is a comparatively infrequent disease usually seen at the beginning of puberty, but it may occur earlier.

2 Both breasts are practically always involved, sometimes with marked difference in size. The period of development is

approximately twenty months in those who are under 21 years of age.

3 The breasts usually become pear shaped, markedly pendulous sacs suspended by comparatively slender pedicles (as a result of the traction). A chronic edema from circulatory disturbance invariably ensues.

4 There is uniform and proportional enlargement of all elements and components, with preservation of normal form and structure.

5 Pathologically, lobular formation of the gland is recognized by palpation of nodules or so-called nodular gland complexes. As a rule, too little account is taken of the different stages of maturity of the lobular structure.



Fig 4—Fibro-adenoma near pectoral fascia (C fig 2). Marked glandular hyperplasia (very low power)

6 Cut surface shows the gross pathologic condition of homogeneous whitish masses radiating out into sparse fatty tissue and nodules of glandular parenchyma.

7 Microscopically, both the glandular and the interglandular stroma show hypertrophy and hyperplasia.

8 Differential diagnosis must be made from pseudohypertrophy due to neoplasm and elephantiasis.

9 The true etiology of puberty hypertrophy is obscure.  
975 Park Avenue

#### DICK TEST IN CHILDREN

CLARENCE A. EARLE, M.D., DES PLAINES, ILL.

My records show that of a large number of children who have been Dick tested and retested from two to ten or twelve times during the past ten and one-half years a relatively large number have shown such irregularities in reaction that my faith in the specificity of this test has been shaken. The claims of specificity are further challenged by the frequent reports of Dick negative children getting scarlet fever. Convinced as I had been of the reliability of the Schick test I was slow to believe that such discrepancies could occur with the Dick test. I have never seen a case of true diphtheria in a Schick negative child, but I have records of eight Dick negative children who later contracted scarlet fever. In justice to the accuracy of this test I must state that five of the eight had also given one or more positive Dick tests.

It is embarrassing to assure a mother that there is no danger of her child getting scarlet fever because he gave a negative Dick test and then to be called in later and find that the child has scarlet fever. It is true that much of my work has been done hurriedly. The interpretation of the test is sometimes difficult. The size and depth of color or even the presence of a macule at all may be subject to dispute. The Dicks say that the faintest discoloration of the skin, if large enough, is a positive test. In order to detect such faint reactions, the light must be correct and a proper angle of the observer's eye must be maintained. The skin must be completely relaxed. Often it can be made plainer by stroking the skin with the finger

<sup>1</sup> Heyd, C. G. Personal communication to the author. From Clinical Lectures, New York Post Graduate Hospital, Columbia University.

I have found that the time of reading the test sometimes, not often, makes a difference. After making allowance for differences that may be due to interpretation, I am forced to the conclusion that something must be wrong with the technic which we were taught to employ. The immunity status of a child does not change over night. A child who is Dick negative today does not get scarlet fever next week.

I here offer a preliminary report of some experimental work that I have recently done as a probable explanation of these irregularities occurring in the Dick test.

The technic of the intracutaneous test devised by Schick and popularized by Park and Zingher has dominated the technic of this procedure whenever and wherever an intradermic test has suggested itself. In my experience the local reaction of the Schick test is slightly, if at all, influenced by the depth into the skin in which the toxin is injected. I demonstrated this to my own satisfaction years ago. The results are different with the Dick test. About two months ago I began giving two simultaneous tests to each child that I tested. One test was given according to the usual instruction, namely, into the superficial layer of the skin, so that the conventional wheal with its hair follicles appeared. The other test was given deeply into the corium, and in a few instances it was almost subcutaneous.

I have to date tested 135 children in this manner with the result that the shallow test gave 14 per cent positive and the deep test 52 per cent positive tests. In only four instances was the macule produced by the shallow test equal to or greater in size than in the deep test. Every child who gave a positive test in the shallow tested group gave a positive test in the deep tested group. Not one child that gave a negative test in the deep tested group gave a positive test in the other group.

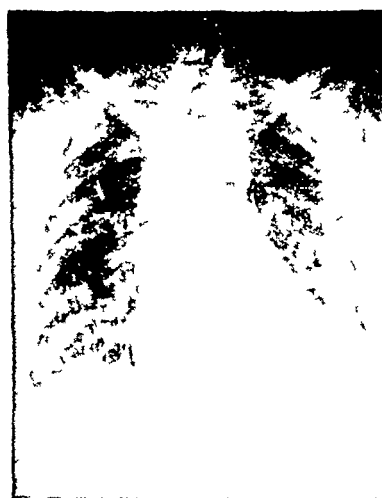
I believe that there is an anatomic physiologic basis for this selective susceptibility of the deeper layers of the skin to the scarlatinal toxin. The layers of the skin develop from different embryonal layers: the epidermis from the ectoderm and the corium from the mesoderm. Louis Dienes has shown that the epidermis is relatively more susceptible to certain toxins than is the corium. Certainly there can be no inherent reason why the deeper skin layers could not be more susceptible to the scarlatinal toxin than the epidermis.

I realize that a group of 135 is rather small on which to base such revolutionary conclusions; however, the uniformity of the results is certainly significant at least.

Since the injection of the toxin into the deep layers of the skin results in three or four times as many positive reactions as it does when injected into the superficial layers, it is reasonable to assume that the deeper injection is the correct technic. By following this technic more children will be found to be susceptible, but the immunity status of the child will be more accurately determined.

the general condition and strength of the patient so that, March 4, a roentgenogram was taken of the gallbladder, which showed at least one large stone. On this date liquids were tolerated by mouth in small quantities. The morning of March 6 the patient was still improving and feeling better than at any time to date. She was sent to the x-ray department for a gastro-intestinal series.

The patient was placed on a motor driven x-ray table and was given one glass of barium, which she took with only a little difficulty. During the second glass, taken in a semi-horizontal position, the patient suddenly vomited, coughed and then aspirated a fair quantity of the barium, which can be seen in the accompanying illustration. The roentgenologist reported that the fluoroscopic examination of the chest disclosed a marked increase in the transverse diameter of the heart. The contour was relatively normal. The esophagus was deviated in the cardiac region, evidently as a result of the cardiac hypertrophy. There was cardiac spasm present, which was rather persistent, with moderate esophageal dilatation above. The stomach was of the normal hypotonic type; the motility was not ascertained. The bulbous duodenum was normal as to filling contour and mobility.



Roentgenogram showing barium aspirated while vomiting and coughing

The patient was unable to cooperate further, and when she swallowed the barium she aspirated some of the opaque meal into the lungs. The examination was immediately discontinued and the patient returned to her room.

The primary gallbladder films taken forty-eight hours prior to this examination disclosed the presence of at least one large gallstone.

At 10 a. m. the patient was returned to her room in marked shock, ashen gray and cyanotic, with an imperceptible radial

pulse and a rapid heart action. At 12 50 p. m. the radial pulse was still imperceptible, the pupils were pinpoint in size and did not react to light or in accommodation. The reflexes on the right side were exaggerated but were absent on the left. There was a drooping of the right corner of the mouth, and the tongue deviated to the left. The blood pressure had fallen to 90 systolic, 60 diastolic, and the patient died at 4 30. Autopsy was refused by the family.

#### COMMENT

Reports of fatal cases have in most instances been of infants or adults with tracheo-esophageal fistulas.

According to the literature, the barium particles have three means of exit from the lungs: first by coughing, second by the ciliary action on the bronchi, and third by the macrocytes carrying the barium particles away to the lymph channels.

A similar case was reported by Lynch and Stewart<sup>1</sup> in 1915, in a man aged 65, with an esophageal obstruction. Some bismuth passed into the trachea and gravitated to the base of the lungs, but, except for some coughing up of bismuth particles, no bad results were ascertained in his case.

Jackson<sup>2</sup> in 1918 reported a case. He had a healthy man insufflate dry bismuth subcarbonate for roentgenography of the bronchial tree with no untoward results.

Fisher<sup>3</sup> reported a case in a woman, aged 40, showing little or no effects of barium from aspiration.

<sup>1</sup> Lynch H. L. and Stewart W. H. Roentgenographic Slides of the Bronchiectasis and Lung Abscesses After Direct Injection of Bismuth Mixture Through the Bronchoscope. *Ann. Surg.* 73: 362 (March) 1921.  
<sup>2</sup> Jackson Chevalier. Foreign Bodies in Air and Food Passages. *Surg. Gynec. & Obst.* 28: 201 (March) 1919.  
<sup>3</sup> Fisher C. R. Inhalation of Barium in Solution. *J. A. M. A.* 80: 102 (Jan. 13) 1923.

#### ASPIRATION OF BARIUM FACILITATING DEATH IN A DEBILITATED PATIENT

S. J. SULLIVAN, M.D., CHICAGO

#### REPORT OF CASE

This case is reported because of the relative rarity of fatalities in connection with gastro-intestinal roentgenograms of persons who do not have fistulas between the alimentary and the respiratory tract.

Mrs. C. aged 70 admitted to the hospital March 1, 1934, following forty-eight hours of severe vomiting had had a cerebral hemorrhage in 1929. She was icteric in color, with symptoms of gallbladder disease, a chronic myocarditis and an advanced arteriosclerosis. Dizzy spells and loss of weight had been increasing complaints for the past five years. The blood chemistry showed an increased nonprotein nitrogen and the urine showed a trace of albumin and casts. The blood pressure was 118 systolic, 78 diastolic and there was a leukocytosis of 13,000 with 86 per cent polymorphnuclears.

The vomiting had produced an extreme dehydration and debility and was caused by any food or liquid. It was spasmodic. Subcutaneous fluids and intravenous dextrose improved

Many other case reports are on record which confirm these observations. Bullova and Gottlieb's<sup>4</sup> experiments on barium and thorium nitrate in dogs showed rapid removal of the foreign substances from the lungs.

## SUMMARY

In this case, a markedly debilitated, aged woman with a weakened heart, a marked arteriosclerosis, a cholelithiasis and a dehydration was given a barium meal in a semireclining position. Aspiration probably caused by a cardiospasm produced immediate shock, which either directly or indirectly led to a cerebrovascular accident, which caused her death.

2630 East Seventy-Fifth Street

## A METHOD OF DRYING WOUNDS

JOHN F. BURTON, M.D., OKLAHOMA CITY

Instructor in Surgery, University of Oklahoma School of Medicine

In treating extensive burns with tannic acid spray, one is concerned with quick tanning and drying of the part, and at the same time with maintaining the patient's body temperature. After I had tried many different methods and various types of apparatus, the following was gradually evolved.

The patient is completely undressed and placed in a bed with overhead bows or a cradle, over which are placed sheets and a light blanket. Two 60 ampere electric light globes are

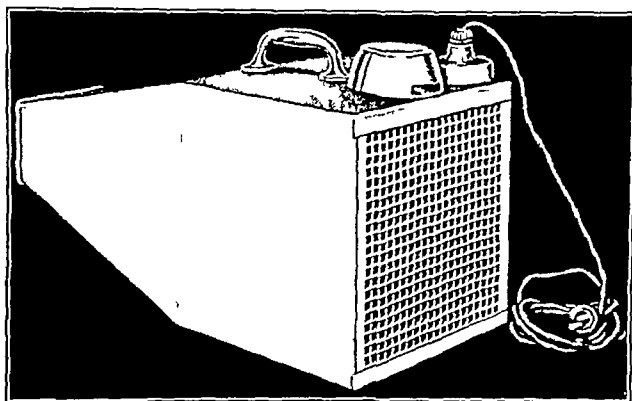


Fig 1—Exterior view

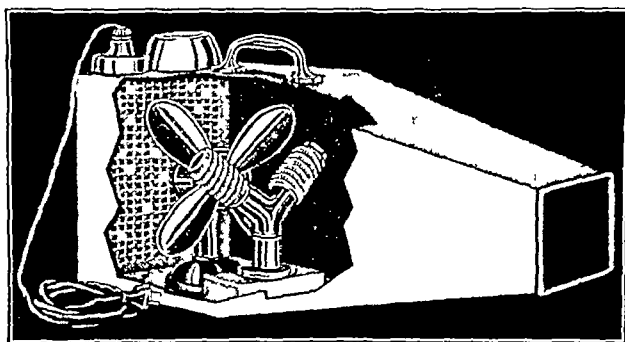


Fig 2—Interior view showing construction. The covering is sheet metal covered with asbestos.

suspended within to maintain a constant temperature. After each hourly spraying, the nose of the air-blower is put under the covering at the foot of the bed and a current of warm air is gently circulated about the patient. This is allowed to continue about twenty or thirty minutes.

The blower is of value in drying out wounds which, owing to nature or location, are causing maceration of the surrounding skin, such as decubitus ulcers, exstrophy of the bladder or small

intestinal fistulas. The accompanying illustrations show clearly the simplicity of its construction, and I believe that it can be readily made by any tinsmith or electrician.

Osler Building

## A LARGE TERATOMA CONTAINING RUDIMENTARY ARM BONES AND A HAND

R. J. BRINES, M.D., YENCHENG, HONAN, CHINA

A man, aged 24, a farmer, came to the outpatient clinic in August 1932 for the treatment of a large tumor on the left buttock, which had increased in size gradually since birth. The man was well developed and healthy. When surgical removal was advised he became frightened and returned home. After some correspondence he was encouraged to return, and, March 2, 1933, the tumor was removed without any surgical difficulties being encountered. Large reflected skin flaps were sewed over the denuded area to which the tumor had been attached. Convalescence was uneventful.

The tumor weighed 31 pounds (14.1 Kg) and was firmly attached at one side to the coccyx by dense fibrous tissue. The remainder of the anterior side was loosely attached to the gluteal region. Bones could be felt along the entire posterior medial side of the tumor. A ball-like mass protruded from the upper lateral side. This part contained about 3 pounds (1,300 Gm) of sebaceous material and was connected to the main cavity by a small canal plugged with the same material.

After removal the tumor was opened on its anterior, soft, surface. It contained about 12 quarts (liters) of dark, cloudy fluid in which there were floating many balls of sebaceous material about one-half inch in diameter. Four balls of hair thickly matted together about 2 inches in diameter were found, also several long pieces of finger nails, but no other objects.

Firmly attached to the coccyx by dense fibrous tissue was a short bone, which was directed posterolaterally and articulated by a normal joint with a 14 inch bone that extended downward along the posteromedian side of the tumor. This bone was thick and flat and in its lower half there existed a pseudo-arthritis, probably due to an old fracture. A spur of bone extended upward and anteriorly from the lower end of the long bone. At the upper end of this spur were seen several rather irregular metacarpal bones, and attached to these distally were well formed phalanges. This condition was revealed by roentgen examination.

The interior of the tumor was covered with a thin white skin on which was growing sparsely long black curly hair. Protruding from the lower medial surface of the tumor into the large cavity was a definitely formed hand, with its palmar surface directed posteriorly. The thumb of the hand was about of normal size and bore a small supernumerary digit. This part was easily movable and bore a thumb nail. The next three fingers were absent, and long curled finger nails about an inch and a half in length were attached to the body of the hand. A small little finger was found at the side of the hand. It was freely movable and had a small nail. Study of this tumor as a whole, together with a roentgenogram, clearly revealed the fact that an extra upper extremity had developed to quite a degree of perfection in this large teratoma.

The Yencheng Sanitarium-Hospital



Patient with teratoma. He could not sit in an ordinary chair since the tumor extended so far back that it alone filled the seat.

<sup>4</sup> Bullova, J. G. M. and Gottlieb, C. Roentgen Ray Study of Bronchial Function. *Am. J. M. Sc.* 160: 98 (July) 1920.

## Council on Physical Therapy

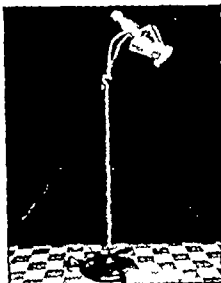
THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS  
H A CARTER Secretary

### SPECIALISTS' MODEL SOLLUX RADIANT HEAT LAMP ACCEPTABLE

The Hanovia Chemical and Manufacturing Company claims that this unit is particularly adapted for ear and throat work or for local application of radiant heat. The lamp employs a 300 watt tungsten filament bulb. It is said to be effective in ear conditions and aids cessation of discharge.

The Specialists' Model Radiant Heat Lamp comes in two styles: the stand type and the desk type.

In an investigation carried out in a laboratory acceptable to the Council, it was found that on 109 volts the current read 235 amperes. On 118 volts it was 254 amperes. The height of the stand model examined when extended was 54 inches. The Specialists' Model Sollux Radiant Heat Lamp is included in the Council's list of accepted devices.



Specialists Model Sollux Radiant Heat Lamp

### HOSPITAL MODEL SOLLUX RADIANT HEAT LAMP ACCEPTABLE

The Hanovia Chemical & Manufacturing Company recommends this unit for use in a physician's office or a general hospital. The heating element may be either a 1,000 watt tungsten filament incandescent bulb or a 1,000 watt Hanovia unit, consisting of four wire wound refractory rods set at 90 degrees from each other. The resistance coils are 7 inches long and are connected in parallel. The terraced aluminum reflector hood, 18 inches in diameter, is said to provide a uniform field for both the metallic resistor and the tungsten incandescent bulb.

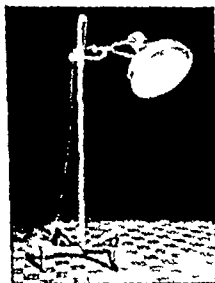
The firm claims that at a distance of 48 inches with an area coverage 5 feet in diameter, points on a plane surface perpendicular to the primary direction of the rays will experience intensity deviations of less than 20 per cent. At a shorter distance, e.g., 24 inches, with an area coverage 3 feet in diameter, such a plane surface will have intensity deviations of less than 10 per cent.

In a laboratory test the 1,000 watt resistance unit was connected to an alternating current line of 107 volts, and the current read 875 amperes. At a distance of 30 inches from the edge of the reflector (wire screen attached) and within an area formed by a 2 foot (diameter) circle directly in front of the reflector on a plane perpendicular to the center rays, the energy values measured by a thermopile and galvanometer substantiated the claims of the manufacturer.

The stand has a height of approximately 6 feet and may be adjusted between 72 and 42 inches. All of the parts except the four legged black flaked base are either polished aluminum or nickel finish. The reflector unit and the burner are counterbalanced, providing easy adjustment.

The hood may be set in any position—either vertically or horizontally. Large and small localizing cones and a straight telescopic localizer are available for use with this lamp.

The Hospital Model Sollux Radiant Heat Lamp therefore, is included in the Council's list of accepted devices.



Hospital Model Sollux Radiant Heat Lamp

### OFFICE MODEL SOLLUX RADIANT HEAT LAMP ACCEPTABLE

The Hanovia Chemical and Manufacturing Company declares that this unit has been designed to provide the physician and the specialist with a moderately priced office infra-red lamp of exceptional flexibility and therapeutic efficiency.

The light element consists of a 500 watt tungsten gas-filled glass bulb or a 500 watt wire wound infra-red generator, both of which are interchangeable in the lamp. The terraced reflector hood is spun from heavy gaged aluminum, highly polished on the outside and having a brush finish on the inside. In conjunction with the terraced reflector, the interior brush finish is said to be most effective in diffusing the infra-red rays over a wide area. The diameter of the reflector is 14 inches. A wire screen can be provided, if desired.

The reflector cross arm member extends the hood 30 inches from the telescopic upright. The vertical adjustments can be made from 36 inches to about 62 inches from the floor. There is a combination of two swivel bearings, enabling the hood to be adjusted in practically any position. The upright is mounted on a three legged castiron base.

In a laboratory test it was found that, by connecting the Mazda 500 watt lamp to an alternating current line having an electromotive force of 109 volts, the current read 421 amperes, and on a 118 volt line the current read 423 amperes. At 30 inches, which appeared to be a comfortable distance between the patient and the lamp, the relative radiant energy values were noted. With a thermopile, it was found that, within an area covered by a 24 inch circle on a plane (in air) perpendicular to the direction of the center rays, the radiant energy in the center was from 25 to 30 per cent greater than that of the periphery.

In a clinic acceptable to the Council, this unit was tried and found to give satisfactory service. The Office Model Sollux Radiant Heat Lamp, therefore, is included in the Council's list of accepted devices.

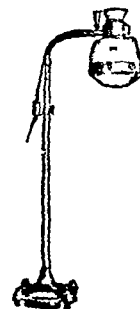


Office Model Sollux Radiant Heat Lamp

### BURDICK DUAL ZOALITE ACCEPTABLE

The Burdick Corporation, Milton, Wis., declares that this unit was developed and designed to provide a source of infra-red to meet every treatment condition for which infra-red radiation is indicated. The resistance unit is a cylinder made of ceramic material, in which resistance wire is embedded. The current being turned on, the ceramic material heats to a cherry red. The heating unit is placed approximately at the focal point of the nickel plated reflector. The opening of the reflector is 9 inches in diameter, and a wire screen is fitted over it. On the back of the larger unit, a small localizing unit is mounted, their reflectors facing opposite directions. The firm claims that by means of this localizing unit it is no longer necessary to heat the entire head when applying infra-red to the ear or other localized area around the head.

The unit was examined in a physical laboratory. When the large unit was connected to a 112 volt alternating current line the current reading was 32 amperes. On 120 volts the current read 343 amperes. The small unit is rated at 75 watts. On a 119 volt alternating current line it drew 0.6 ampere. At 117 volts the current was 0.64 ampere. Irradiating a plane area of 2 feet in diameter (in air) perpendicular to center rays at 40 inches from the reflector of the larger unit, the intensity at the center of the area is more than twice the energy at the edges. Within an area of a circle 1 foot in diameter, directly in front but 40 inches from the reflector, the radiant heat intensity at the center was 36 per cent more than the intensity on the periphery of the same area.



Burdick Dual Zoalite

The unit is mounted on an enamel base. When the upright is fully extended, the distance of the lamp from the floor is 7 feet. There is an extension range of 2 feet 6 inches. The reflector and heating unit may be placed in almost any position by virtue of the flexible gooseneck arm supporting it. The current is supplied by means of a cord on which is placed a dual switch. The two units may be operated separately or together. The Burdick Dual Zoalite, therefore, is included in the list of accepted devices.

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS JEECH, Secretary

**CAROTENE-SMACO**—A mixture of crystalline isomeric hydrocarbons extracted from carrots. The empirical formulas may each be represented as  $C_{40}H_{56}$ . One of the isomers designated as  $\alpha$ -carotene is reported to be optically active,  $[\alpha]_{20}^{25}/\text{Cd}$  in benzene = +380. The other, designated as  $\beta$ -carotene, is optically inactive. The mixture contains approximately one part of  $\alpha$ -carotene and four parts of  $\beta$ -carotene. The crystals are easily oxidized. They should be kept in a vacuum or under an inert gas in the dark at a low temperature. The international unit for vitamin A is determined by the potency of 1 microgram of a mixture of carotenes and is equivalent biologically to 1 unit of vitamin A as defined for Cod Liver Oil—U. S. P. X-Revised, 1934. Carotene-SMACO is claimed to be a purer product than the International Standard carotene and therefore more active.

**Actions and Uses**—The evidence indicates that carotene is converted in the liver into vitamin A. Carotene therefore has actions similar to those of vitamin A. As carotene is a mixture of the alpha and beta forms its relative efficiency may vary according to the ratios of those two components. Evidence is not yet available on which to base an exact conversion factor of carotene in terms of clinical vitamin A effect. Much depends on the conditions for absorption of the pigment. In view of the fact that cases of carotenemia have arisen from overdosage, the Council warns against the administration of too large doses of carotene.

**Dosage**—The dosage of carotene or vitamin A is not yet on a satisfactory basis. Based on the average daily dose of Cod Liver Oil—U. S. P. X-Revised, 1934 (three teaspoonfuls, 12 cc.) the dose should be equivalent to at least 6,624 U. S. P. X-Revised, 1934, units. Carotene is generally administered in the form of carotene dissolved in an oily solution. Solutions of carotene may decompose unless there is present an inhibiting substance, either an extract from carrots or a chemical inhibitor.

Manufactured by the S. M. A. Corporation, Cleveland, Ohio. No U. S. patent or trademark.

Carotene-SMACO occurs as crystals which in plain light show cleavage in two directions and which are pleochroic: light yellow orange to dark yellow orange to dark orange. In polarized light they are anisotropic: biaxial with parallel extinction and medium low birefringence. The crystals are almost tasteless and have a slight aromatic odor. They are soluble in chloroform and benzene slightly soluble in ether, petroleum ether, fats and oils very slightly soluble in alcohol, practically insoluble in water. (Carotene-SMACO as marketed is not completely soluble in petroleum ether.) Carotene-SMACO melts between 172 and 178°C.

Dissolve about 0.025 Gm. of carotene-SMACO in 50 cc. of chloroform mix 1 cc. of this solution with 5 cc. of a saturated solution of antimony trichloride in chloroform. A blue color develops in five minutes. Dissolve exactly 0.020 Gm. of carotene-SMACO in 2 cc. of chloroform dilute to exactly 100 cc. with petroleum ether dilute 1 cc. of this solution to exactly 100 cc. with ethyl alcohol measure the per cent transmittance of a 3 cm. layer of this solution at the following wave lengths: 490, 500, 515 and 530  $\mu$ . The per cent transmittance values are within the following limits: 490  $\mu$ , 12.17 per cent; 500  $\mu$ , 33.38 per cent; 515  $\mu$ , 75.81 per cent; 530  $\mu$ , 90.95 per cent.

Fuse about 0.1 Gm. of carotene-SMACO with metallic sodium carefully add the fused residue to a beaker containing water. Boil filter add 3 cc. of ferrous sulphate solution. Boil add 1 cc. of ferric chloride solution. Neutralize the alkali with diluted hydrochloric acid. Filter. No blue precipitate remains on the filter paper (nitrogenous compounds).

Dry 0.1 Gm. of carotene-SMACO to constant weight over phosphorus pentoxide. The loss is not more than 0.2 per cent. Determine carbon and hydrogen by micro methods based on the dried material. The carbon is not less than 88.80 per cent nor more than 89.60 per cent and the hydrogen is not less than 10.30 per cent nor more than 10.80 per cent.

Incinerate about 0.10 Gm. in a platinum dish. The residue is negligible.

The following colorimetric assay is a modification of Palmer's method. Carotene-SMACO in petroleum ether is matched against 0.2 per cent aqueous potassium dichromate solution. By this method 40 mm. of 0.2 per cent potassium dichromate solution is equivalent to 48 mm. of 0.00268 per cent carotene-SMACO solution. Transfer about 0.020 Gm. of carotene-SMACO to a 500 cc. flask. Dissolve the crystals in about 2 cc. of chloroform dilute with petroleum ether to exactly 500 cc. and match this in a colorimeter with 40 mm. of a 0.2 per cent aqueous potassium dichromate solution. Rapidly make five readings that do not vary more than 1.5 mm. Use the average reading in the following formula and calculate the per cent of carotene-SMACO.

$$\frac{0.1287 \times 500}{\text{average weight of sample}} = \text{per cent carotene-SMACO}$$

The carotene-SMACO is not less than 92 per cent.

**SMACO Carotene in Oil**—A solution containing 0.3 per cent of carotene-SMACO in cottonseed oil. It is biologically assayed to have in each gram a vitamin A potency of not less than 7,500 units, U. S. P. X-Revised, 1934.

**Actions and Uses**—The same as those of carotene-SMACO.

**Dosage**—See under Carotene-SMACO. The product as marketed is accompanied by a dropper designed to deliver 25 drops to the cubic centimeter.

Manufactured by the S. M. A. Corporation, Cleveland, Ohio.

SMACO carotene in oil is prepared by dissolving in cottonseed oil carotene-SMACO with an extract of carrots containing an antioxidant. The solution is standardized to 0.3 per cent of carotene-SMACO by the method described under that product. The finished product is assayed for vitamin A potency by the method of the U. S. P. X-Revised, 1934 to contain not less than 7,500 units per gram.

**SMACO Carotene with Vitamin D Concentrate in Oil**—A solution in cottonseed oil of carotene-SMACO 0.3 per cent with sufficient vitamin D concentrate to bring the assayed potency to not less than 1,000 U. S. P. X-Revised, 1934 units per gram. It is assayed for vitamin A potency by the method of the U. S. P. X-Revised, 1934, to contain in each gram not less than 7,500 units.

**Actions and Uses**—SMACO carotene with vitamin D concentrate in oil is proposed as a substitute for a cod liver oil of equivalent potency.

**Dosage**—The same as for cod liver oil of equivalent potency.

Manufactured by the S. M. A. Corporation. The vitamin D concentrate is used by license of Columbia University under U. S. patent 1,678,454 (July 24, 1928; expires 1945). No U. S. trademark.

**SMACO Carotene and Vitamin D Concentrate in Cod Liver Oil**—A solution of carotene-SMACO, 0.03 per cent, in cod liver oil, adjusted by the addition of sufficient SMACO vitamin D concentrate so that it will assay at not less than 100 units of vitamin D, U. S. P. X-Revised, 1934 per gram. The mixture is assayed to have a vitamin A potency of not less than 2,000 units U. S. P. X-Revised, 1934, per gram. The Carotene-SMACO is the source of not less than 650 of these units.

**Actions and Uses**—SMACO carotene and vitamin D concentrate in cod liver oil is proposed for use as a substitute for cod liver oil of high potency.

**Dosage**—The same as for cod liver oil of equivalent potency.

Manufactured by the S. M. A. Corporation, Cleveland. The vitamin D concentrate is used by license of Columbia University under U. S. patent 1,678,454 (July 24, 1928; expires 1955). No U. S. trademark.

**SMACO Vitamin D Concentrate in Oil**—A solution in cottonseed oil of the vitamin D concentrate of cod liver oil obtained by the method of Zucker. It is assayed to have in each gram a potency of not less than 1,000 units of vitamin D, U. S. P. X-Revised, 1934.

**Actions and Uses**—SMACO vitamin D concentrate in oil is proposed for use as an antirachitic.

**Dosage**—Based on the average daily dose of cod liver oil U. S. P. (three teaspoonfuls, 12 cc.), the dose should be equivalent to at least 930 units of vitamin D, U. S. P. X-Revised, 1934. This is suggested as an approximate dosage. The product as marketed is accompanied by a dropper designed to deliver 25 drops to the cubic centimeter.

Manufactured by S. M. A. Corporation, Cleveland. The vitamin D concentrate is used by license of Columbia University under U. S. patent 1,678,454 (July 24, 1928; expires 1945). No U. S. trademark.

**SMACO Carotene with Vitamin D Concentrate in Oil**—(See under Carotene-SMACO).

**SMACO Carotene and Vitamin D Concentrate in Cod Liver Oil**—(See under Carotene-SMACO).

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG Secretary

### CELLU JUICE-PAK BARTLETT PEARS

**Distributor**—The Chicago Dietetic Supply House Inc., Chicago

**Packer**—Eugene Fruit Growers Association, Eugene, Ore

**Description**—Processed, peeled and cored Bartlett pears packed in undiluted juice without added sugar

**Manufacture**—The pears are picked hard but when they have reached the required degree of firmness (determined by a pressure testing machine) are brought to the plant, graded, stored for ripening until soft and golden colored peeled by hand, spray washed, graded according to size halved, cored by hand, and packed in cans according to size and count. Between operations the fruit is kept in a 4 per cent brine solution to retard oxidation. The cans are filled with undiluted pear juice from pressed, sound off size fruit. The cans are placed in an exhaust box for a definite period at 91 C after which they are sealed, processed for a fixed time at 100 C, cooled and stored. Before shipment, the cans are inspected and labeled.

**Analysis** (submitted by distributor) —

	per cent
Moisture	87.6
Ash	0.3
Fat (ether extract)	0.1
Protein (N $\times$ 6.25)	0.2
Reducing sugars as invert sugar	7.4
Sucrose	0.7
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	11.6

**Calories**—0.5 per gram 14 per ounce

**Claims of Manufacturer**—Packed in undiluted pear juice without added sugar

### FISHERS PANCAKE FLOUR

**Manufacturer**—Fisher Flouring Mills Company Seattle

**Description**—Pancake flour containing wheat flour, powdered skim milk, calcium acid phosphate dextrose sodium chloride and soda

**Manufacture**—The ingredients in formula proportions are thoroughly blended and packed in cotton bags. Baking tests are made on each batch run.

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	12.0
Ash	5.3
Fat (ether extraction method)	1.8
Protein (N $\times$ 5.7)	8.6
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	71.9

**Calories**—3.4 per gram 97 per ounce

### (a) KRAFT'S RED RIBBON BRAND SPARKLING CRYSTAL WHITE SYRUP

### (b) KRAFT'S BLUE RIBBON BRAND SPARKLING GOLDEN SYRUP

**Distributor**—Henry Kraft Mercantile Company Nevada Mo

**Packer**—Bliss Syrup and Preserving Co, Kansas City, Mo

**Description**—(a) A table syrup corn syrup sweetened with sucrose syrup and flavored with vanilla

(b) A table syrup corn syrup flavored with refiners syrup

**Manufacture**—(a) The same as Bliss Pancake Crystal White Brand Syrup (THE JOURNAL Nov 18 1933 p 1635)

(b) The same as Bliss Pancake Brand Golden Syrup (THE JOURNAL, October 28 1933 p 1393)

**Claims of Manufacturer**—Recommended for use as an easily digestible and readily assimilable carbohydrate supplement to milk in infant feeding and as a syrup for cooking, baking and the table.

### McCORMICK'S BEE BRAND CAKE & PASTRY SPICE

**Manufacturer**—McCormick and Company, Inc, Baltimore

**Description**—Spice mixture for use in cake and pastry baking, including nutmeg, allspice, cinnamon, ginger, cloves, coriander seed and caraway seed

**Manufacture**—Definite proportions of the spice ingredients, prepared as described under McCormick's Bee Brand Allspice (THE JOURNAL, Oct 28, 1933, p 1393), are mixed and automatically packed in tins

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	7.7
Total ash	4.3
Acid insoluble ash	0.2
Volatile ether extract	5.1
Nonvolatile ether extract	14.0
Protein (N $\times$ 6.25)	7.6
Starch (diastase method)	14.9
Crude fiber	13.8
Carbohydrates other than crude fiber (by difference)	47.5

**Claims of Manufacturer**—Spice ingredients conform to the United States Department of Agriculture definitions and standards

### VITAMIN D FORTIFIED PASTEURIZED MILKS

(1) ARDEN

(2) ARDEN

(3) ARDEN

(4) BEECHMONT DAIRY'S

(5) CHESTNUT FARMS-CHEVY CHASE DAIRY'S

(6) FERNDAL'S

(7) FREEMAN'S

(8) MAID O'CLOVER

(9) OUTAGAMIE

(10) PAGE'S KLEEN MAID

(11) UNITED S

(12) VITE LABORATORIES

**Distributors**—(1) Dairies, Inc, St Louis, (2) Home Ice Cream and Ice Company, East St Louis, Ill (3) Mid Western Dairy Products Company, Salt Lake City, (4) Beechmont Dairy, Inc, Bridgeport, Conn, (5) Chestnut Farms-Chevy Chase Dairy Washington, D C, (6) Ferndale Dairy, Inc, Kensington, Conn, (7) Freeman's Dairy, Allentown, Pa, (8) Mutual Creamery Company, Salt Lake City, (9) Outagamie Milk & Produce Company, Appleton Wis, (10) The Page Dairy Company, Toledo, Ohio, (11) The United Milk Company, Inc, New Britain Conn (12) Vite Laboratory, Minneapolis

**Bottlers**—(2) Dairies Inc St Louis, (12) Franklin Co Operative Creamery Association, Minneapolis

**Description**—Bottled pasteurized milk fortified with vitamin D (vitamin D concentrate prepared from cod liver oil), contains 400 U S P X (Revised 1934) vitamin D units per quart

**Preparation**—The milk complies with legal requirements and is pasteurized by the standard holding method. See THE JOURNAL, July 1, 1933, page 34, for description of fortification with vitamin D

**Vitamins**—The vitamin D concentrate used and the fortified milk are regularly tested biologically. Clinical investigation shows this milk to be a reliable antirachitic agent if proper amount is used

**Claims of Distributors**—A vitamin D fortified antirachitic pasteurized milk having otherwise the flavor and food values of usual pasteurized milk

### FAIRY QUEEN SELF-RISING FLOUR (BLEACHED)

**Manufacturer**—The Light Grain and Milling Company, Liberal Kan

**Description**—Self-rising flour prepared from bleached hard winter wheat standard patent flour calcium acid phosphate sodium chloride and sodium bicarbonate, the same as Light's Best Oven Perfect Flour, Self-Rising (Bleached) (THE JOURNAL April 28 1934 p 1384)



## AMERICAN BRAND GOLDEN SYRUP

*Manufacturer*—American Syrup & Sorghum Company, St Louis

*Description*—Table syrup, corn syrup base (85 per cent) with refiners' syrup (15 per cent), seasoned with salt

*Manufacture*—Corn syrup, boiling refiners' syrup, hot water and a small amount of salt are mixed in definite proportions to produce a syrup of desired density. The syrup is heated to 82 C and packed in friction top cans

*Analysis* (submitted by manufacturer) —

(calculated from separate analyses of component syrups and formula of preparation)

	per cent
Moisture	25.9
Ash	0.8
Fat (ether extract)	0.0
Protein (N $\times$ 6.25)	0.2
*Reducing sugars as dextrose	9.5
*Reducing sugars as dextrose after invertase inversion	1.4
Sucrose	5.2
*Maltose	19.1
Dextrins (by difference)	37.9

\* Bryant and Jones, *Indust & Engin Chem* 25 98 (Jan) 1933

No methods are available for accurately determining the composition of syrups of this nature, therefore the foregoing analysis is roughly approximate

*Calories*—2.9 per gram 82 per ounce

*Claims of Manufacturer*—Recommended for use as an easily digestible and readily assimilable carbohydrate supplement to milk in infant feeding and as a syrup for cooking, baking and the table

EXCELSA MUSHROOMS—FANCY BUTTONS  
EXCELSA MUSHROOMS—PIECES AND STEMS  
EXCELSA MUSHROOMS—SLICED

*Distributor*—Illinois Mushroom Co., Denver, Colo

*Packer*—Michigan Mushroom Company, Niles, Mich

*Description*—Cooked mushrooms, whole, sliced, or pieces and stems, with added water, salt, and citric acid (U S P)

*Manufacture*—Mushrooms are cultured on trays in a thin layer of rich top soil covering a mixture of dirt, lime straw and manure, in dark mushroom houses the temperature of which is controlled. The mushrooms are picked by hand, conveyed to the cannery, inspected (spots and dirt removed) and either mechanically sliced for "sliced mushrooms" or "pieces and stems" or automatically sorted to be canned as "buttons." All the mushroom material is carefully washed with water

The mushrooms, in perforated aluminum kettles, are immersed for one minute in a solution containing citric acid and salt, for from two to three minutes in water maintained at 88 C for the purpose of shrinking, and then in cold water for ten seconds. The drained material is weighed into cans, covered with hot salt solution, the cans are automatically capped, cooked in a steam retort at 116 C for twenty minutes and rapidly cooled with cold water

*Analysis* (submitted by manufacturer) —

	Mushrooms per cent	Drained Liquor per cent	Composite of Mushrooms and Liquor per cent
Moisture	89.0	95.3	92.3
Ash	1.4	1.5	1.4
Sodium chloride	0.9	1.0	0.9
Fat (ether extract)	0.3	0.0	0.2
Protein (N $\times$ 6.25)	3.6	1.1	2.3
Crude fiber	0.9	0.0	0.4
Carbohydrates other than crude fiber (by difference)	4.8	2.0	3.4

*Calories*—Mushrooms have little caloric value

## KEYSTONE EVAPORATED MILK

*Distributor*—Keystone Grocery Company, Inc., Harrisburg, Pa

*Packer*—The Page Milk Company, Merrill, Wis

*Description*—Canned unsweetened sterilized evaporated milk, the same as Page Brand Evaporated Milk (Sterilized, Unsweetened), *THE JOURNAL*, May 30, 1931, page 1872

## Special Article

## ACUTE ANTERIOR POLIOMYELITIS

A REPORT ON THE FIRST PHASE OF THE  
1934 OUTBREAK

J C GEIGER, MD

GEORGE H BECKER, MD

AND

J P GRAY, MD

Director of Public Health Director of Bureau of Communicable  
Diseases and Assistant Director of Public Health  
Respectively City and County of San Francisco  
SAN FRANCISCO

With an elevation in the reported incidence of acute anterior poliomyelitis in California during the last spring and early summer months of 1934, the attention of public health officials has been attracted again to an outbreak on the Pacific Coast because of the apparent mutation of certain epidemiologic characteristics of the disease. This analysis of the San Francisco series of cases, reported during the months of May, June and July of 1934, is presented as a brief study of the first phase of the outbreak and because it is apparent that there is sufficient interest in the occurrence to warrant a preliminary report

Attention has been directed previously to the epidemiologic aspects of acute anterior poliomyelitis in California and in San Francisco,<sup>1</sup> but brief reference may not be inappropriate here. The disease has been given the label "infantile paralysis," has been described as one occurring more particularly in rural population groups, in some areas at least, and has been thought of as appearing usually during the late summer and early fall months. In California, however, it should be recognized that acute anterior poliomyelitis has affected individuals of nearly all age groups, even into the seventh decade, paralyzing not in every instance and leaving permanent residual paralysis in a relatively low percentage of the actual total number of cases, it might be called more appropriately a "disease of civilization," since its incidence in the urban population groups is the rule rather than the exception, and it has made its appearance in all the twelve months of the year, with an incidence elevated over that expected as a normal,<sup>2</sup> as early as April and as late as February and March

## SEASONAL INCIDENCE

A tabulation of the reported incidence of the disease by months over a period of years (1910-1934) demonstrates that acute anterior poliomyelitis occurs in San Francisco with a rather regular periodicity, with a cycle of from two to four years. In the series referred to, while it is apparent that there was an increase in the reported incidence consistently in alternate years during the decade 1911-1920, during this period the elevation reached a sufficiently high level to be considered what might be termed an outbreak only in 1916, when thirty-one cases were reported. It is to be remembered, however, that the diagnosis of acute anterior poliomyelitis at that time was more truly that of "infantile paralysis," and on this basis it is reasonable to assume that there were many other individuals affected by the

1 Geiger J C and Gray J P. A Statistical Analysis of the Outbreak of Acute Anterior Poliomyelitis in San Francisco in 1930 *J Prev Med* 6 145 (May) 1932  
2 The normal referred to is based on the average nonepidemic reported incidence week by week over a ten year period corrected to population estimates

disease, in whom paralysis, or even paresis, did not occur, and whose illnesses therefore were not reported and probably in many instances not even seen by a medical attendant. During the decade 1921-1930, moreover, the periodicity, while apparently less regular, continued with definitely increased numbers of reported cases in successive outbreaks, as in 1921 (60 cases), 1925 (66 cases), 1927 (90 cases) and 1930 (230 cases)<sup>3</sup>.

It is noteworthy also that the curve for reported cases in California by weeks in 1930 showed a definite second phase, believed to be due to the San Francisco series of cases. During the 1930 outbreak, the most extensive recorded in California until the outbreak of 1934, there was a period of latency of approximately two months between the definite indications of an increase in the number of cases of acute anterior poliomyelitis reported for California and that for San Francisco.

A study of the weekly reports of the *Bulletin of the State of California Department of Public Health* reveals the fact that the first indication of a definite increase in the reported incidence of acute anterior poliomyelitis in California in 1934 occurred during the last week of April and the first weeks of May. Most of the cases in the group referred to were located in the Los Angeles metropolitan area. In San Francisco the first instances in which the disease was suspected were reported during the last half of May, a circumstance which leads to the impression that the latent period between the appearance of the disease in the two population centers was materially shortened over that of 1930. This factor warrants interest because of the considerable amount of travel that takes place between the two cities. No explanation is offered for this apparent shortening of the latent period other than that it might be assumed that the two series of cases, in the Los Angeles area and in San Francisco, were unrelated in 1930, and that there is a relationship, approaching simultaneity, in 1934. With a detailed study of the dates of onset of the series of cases in the two communities, more nearly accurate epidemiologic data will be available.

#### PLANS FOR OUTBREAK

With the rapidly increasing reported incidence of acute anterior poliomyelitis in southern California and the appearance of the first cases in San Francisco in May, the director of public health invited a group of San Francisco men to sit on the Committee on Acute Anterior Poliomyelitis,<sup>4</sup> to serve in an advisory capacity to aid him in laying plans for the expected outbreak. The committee was made up of representatives of the Hooper Foundation for Medical Research, of the faculties of the University of California and Stanford University medical schools, of the San Francisco chapter of the American Academy of Pediatrics, of the San Francisco County Medical Society, and, from official San Francisco, of the Health Advisory Board and of the Board of Supervisors (Health and Finance committees). Certain members of the staff of the Department of Public Health, in addition, attended the meetings of the committee. Among the group were public health administrators, bacteriologists, epidemiologists, pediatricians, orthopedists, internists, surgeons and hospital administrators.

Plans were formulated for the establishment of diagnostic-treatment centers in those hospitals known to be able to meet certain fundamental requirements, including trained personnel, laboratory facilities and equipment, particularly Drinker respirators, for the bleeding of donors and the preparation of pooled convalescent and normal adult serums under standardized procedure, and for orthopedic care in each instance in which paralysis or paresis occurred. All physicians of San Francisco were sent an informative and instructive letter and a reprint of the "Practical Suggestions on Poliomyelitis" of the Special Committee of the American Medical Association.<sup>5</sup> Money was made available with the approval of the chief administrative officer and the mayor, by action of the Board of Supervisors, providing for certain technical assistance, payment of blood donors, purchase of experimental animals and increased facilities in the San Francisco Hospital.

Through the communication to physicians, through the press and in medical meetings, the committee advised the use of convalescent serum for the treatment of the affected individual (50 or 100 cc intramuscularly or intravenously, as indicated), and the use of normal adult pooled serum, properly prepared under a standard procedure, for the possible protective value that it might give, in direct and close contacts, including physicians, nurses and interns in attendance, and possibly their children (20 cc intramuscularly, repeated monthly), or whole blood, preferably from both parents, in this group (direct contacts and the like), (50 cc intramuscularly). At no time did the committee recommend or encourage attempts at mass immunization of the entire adult, adolescent or child population groups. It was stressed in newspaper publicity, by radio broadcast, by public address and in telephone contacts that the subject of the use of the normal adult pooled serum as a prophylactic providing passive immunization against acute anterior poliomyelitis was still controversial, that the benefits to be derived were probable but that they could not be positively assured, and that, while the laboratory evidence supported the thought that passive protection was a probability, the experimental state had certainly not been passed. The committee and the director of public health advised that individuals rely on the advice of their own physicians. Administration of serum by the department of public health was strictly limited to the San Francisco Hospital personnel and those direct contacts who were unable to pay for private medical attendance. Certain of the practicing medical profession encouraged the administration of the serum as a prophylactic in all children of their practices, others denounced its use. It was and is believed, however, by the committee, that the opportunity offered in the 1934 outbreak of acute anterior poliomyelitis in California offers an excellent opportunity to obtain data that may be of value in determining the worth both of convalescent serum in the treatment of the disease and of normal adult pooled serum as a prophylactic possibly providing protection against infection.

#### FIRST PHASE 1934 OUTBREAK

The first phase of the 1934 outbreak in San Francisco, during which there were reported more cases (100) than in the entire outbreak of 1927 (90), presents certain features that are believed worthy of analysis at this time. The first instances in which

<sup>3</sup> Duration of outbreaks with dispersion of cases: 1916 July through January; 1921 June through November; 1925 April through December; 1927 April through December; 1930 June through February.

<sup>4</sup> The members of the Committee on Acute Anterior Poliomyelitis were: K. F. Neyer, Ph.D., W. P. Lucas, M.D., E. B. Shaw, M.D., H. K. Faber, M.D., I. W. Ward, M.D., L. E. Abbott, M.D., I. W. Thorne, M.D. and A. E. Schmidt, M.D.

<sup>5</sup> This useful pamphlet was reprinted and copies were furnished by the State of California Department of Public Health at no cost to local authorities.

acute anterior poliomyelitis was suspected were reported during the second half of May. The weekly reports, when presented in the form of a curve on the logarithmic scale, superimposed on the normal expectancy curve, show a definite elevation of the reported incidence in the twenty-first week (ended May 26, 1934), when three were recorded as against none expected. Had the following week brought no additional cases, the occurrence of the cases during the one week would have had little or no significance, even with a continuation of the outbreak in southern California, but with four cases reported during the twenty-second week (ended June 2, 1934), there was confirmation of the impression that this elevation of reported incidence was probably the first warning of an outbreak in San Francisco. Additional support for the prediction that an outbreak of acute anterior poliomyelitis would occur during the summer of 1934 was found in the history of previous outbreaks in San Francisco as referred to, particularly since the disease did not appear in epidemic form after a three-year interval (1933).

Although outbreaks of acute anterior poliomyelitis in San Francisco have had their apparent onsets as early as April (1925 and 1927), the peak of the outbreak, or of the first phase of the outbreak, has not been reached heretofore as early as June. The first phase of the 1934 outbreak in San Francisco is definite and clean cut, on the bases of dates of reporting and of onset, with decreases in the number of reported cases in San Francisco consistently through the twenty-sixth, twenty-seventh, twenty-eighth and twenty-ninth weeks.

Mention should be made also of the parallelism that exists in the curves plotted for the reported incidence in the state of California, Los Angeles County (including the Los Angeles metropolitan area), Los Angeles city as a separate series and San Francisco. In each instance the curves exhibit a large angle with the base line, indicating a sharp elevation in incidence. The curves for the state and for Los Angeles County apparently are practically coincidental during the twenty-first week, ended May 26, 1934, but the curve for the state series of cases does not show a coincidental drop with the fall in the curves for Los Angeles, both city and county, continuing on up to reach a peak of 345 cases reported during the week ended June 23, 1934, coincidental with the peak of the curve for the San Francisco series by date of reporting.

The curve plotted for the San Francisco series, by weeks, by dates of onset, lies to the left of the curve for the same series by dates of reporting, with the peak reached during the twenty-fourth week, but one week later than the peak of the curves for the Los Angeles series, both by dates of report and by dates of onset. These data indicate simultaneity, therefore, between the two series of cases.

#### IMPRESSIONS FROM CASE RECORDS

At this time, although 100 cases have been reported during the first phase of the outbreak, complete records are available in only eighty-four instances. The data from these records have been tabulated and the following impressions deduced.

1 Among the total of eighty-four cases there were eight deaths, a fatality rate of 9.5 per cent (not including two deaths in individuals brought in from outside points for treatment, in whom death occurred within eighteen and thirty-six hours thereafter). (These eight deaths comprise the total in the entire series thus far, so that the fatality rate is now 8 per cent.)

2 Males were more frequently affected than females, in a ratio of 1.25:1, but there was equal distribution of sexes in the local series of deaths, in a ratio of 1:1.

3 The age group 5-15 years included fifty-seven cases, or 71 per cent of the total number analyzed, and males predominate over females in all groups except that of 26 years and over, in which males were affected less frequently than females, in a ratio of 0.43:1.

4 Age groupings of deaths show that six of the eight deaths in the San Francisco series fall in the 5-15 year group, with one each in the under 5 year group and in the 16-25 year group. (The two additional deaths in individuals whose source of infection was nonlocal were of women aged 20 and 26 years.)

5 Tabulation of types of onset shows that the most frequent group of initial symptoms and signs were those referable to the nervous system (twenty-five). The frankly gastro-intestinal type of onset occurred twelve times, but the respiratory type, frequently stressed in descriptions of the disease, was uncommon in its occurrence, being reported but twice in the series. In those instances in which the onset was of a combined type, however, the neurologic-respiratory combination was most frequently reported (twenty-five).

6 Paralysis, of one or more types, occurred in thirty-four of the eighty-four cases, or in a ratio of 0.4:1, and, in an additional ten instances, muscular weakness occurred, but a total of forty of the eighty-four (or 0.48:1) showed no paralysis and no paresis. The ratio of the paralyzed individual to the total reported cases, by age groups, was highest in the 16-25 year group (0.75) in which nine of twelve were paralyzed, and lowest in the age group 26 years and over (0.2), in which two of ten were paralyzed.

7 The distribution and extent of paralysis in the thirty-four instances reported are widely varied, with most frequent involvement of both arms, both arms and both legs, both legs and combinations of these with other parts, a total of twenty-one for these types. The bulbar type was also rather frequent, with a total of seven affected.

8 An attempt was made to correlate the reported changes in reflexes (early) and cerebrospinal fluid cell counts with paralysis.

A In twelve instances, in eight of which cerebrospinal fluid counts were recorded and averaged 139 cells per cubic millimeter, the reflexes were considered normal, but paralysis occurred. In eight instances, exaggeration of the reflexes was noted, and the cerebrospinal fluid cell counts in the seven instances in which lumbar puncture was done averaged 193. In the two instances in which these diminished reflex reactions were noted, the cerebrospinal fluid cell count was recorded in but one, showing 100 cells. In the paralyzed group, cerebrospinal fluid studies were not made in eleven of the thirty-four instances, and in twelve instances there were no records of reflex reactions.

B From the records in the nonparalytic group of forty cases, it is seen that in thirteen instances cerebrospinal fluid studies were not made. In nearly half of the entire groups, or nineteen, reflex reactions are not recorded. If a cell count of less than 12 is to be considered as within normal limits, six of the twenty-seven counts made were normal. Normal reflex reactions are recorded with average cell counts of 50 in five of the nine in this group. (In two others there were markedly elevated cell counts of 240 and 327, and in the two remaining no puncture was done.) Exaggerated reflex

reactions were noted in eight individuals of this group, in three of whom cerebrospinal fluid cell counts were normal, but in five of whom the average was 300. In six instances, diminished reactions were noted, and in this group three cell counts were within normal limits, and three averaged 315.

C The data from the records in a third group of ten individuals in whom no paralysis occurred, but in whom muscular weakness or paresis or pain only were recorded, reveal high cell counts in three instances, a slightly elevated count in one, counts within normal limits in three, and no recorded studies in three. No apparent relation exists in this group between reflex reactions and cell counts.

9 In forty-nine of the eighty-four case records available, treatment included the intramuscular or intravenous administration of convalescent serum, convalescent plasma, immune sheep serum, immune horse serum, or whole blood transfusion. The group includes eighteen of the thirty-four paralyzed, twenty-five of the forty not paralyzed, and six of the ten whose disturbance included muscular weakness or paresis, or pain only.

A In the first subgroup, in six instances the immunotherapy was given on the same day on which the paralysis occurred, in four instances on the day preceding the onset of paralysis, in one instance on the second day before paralysis occurred, in five instances the date is not recorded, and in the other two instances the paralysis occurred on the sixth day of the disease but the report does not include the date of the administration of serum in one, and the serum was given during the day after paralysis had developed in the other. The time interval between the date of onset and the administration of immunotherapy was one day or less in four instances, two days in three instances, three days in two instances and from four to seven days in seven instances. In the remaining two instances the case records are incomplete.

B The same data for the nonparalyzed subgroup of twenty-five were as follows. Ten patients received immunotherapy during the first day following the onset of the disease, three patients received treatment two days following onset, treatment was delayed in four until the third day, and in four, the delay was of four or more days' duration. In four instances the records are incomplete as to dates of administration of serum.

C In the group exhibiting only pain or muscular weakness, six of the ten patients received immunotherapy after intervals of one day (one), three days (one), twelve days (one) and unrecorded intervals (three).

10 Of the entire group of eighty-four, seventy-four were hospitalized in eleven institutions.

11 In no instance in the series in which the case records are complete had tonsillectomy when noted, been performed within a year. Of the twenty-six patients in whom tonsillectomy had been done one or more years previously, fourteen were paralyzed.

12 In five instances of the eighty-four, a definite statement was made that the patient had been swimming five, seven, nine, ten and fourteen days prior to the date of onset of acute anterior poliomyelitis. In four of the five, paralysis occurred.

#### SUMMARY OF ACTIVITIES DIRECTED AT THE CONTROL OF THE DISEASE

Among the measures that were initiated and carried out by the Department of Public Health and the Com-

mittee on Acute Anterior Poliomyelitis may be included the following:

1 The organization of the committee, composed of students of the disease, represented the various local units within organized medicine and the universities' medical schools.

2 The outline of policies to be followed in recommending the use of convalescent and normal adult pooled serum in the treatment of the disease and as a prophylactic against the infection.

3 The establishment of regulated diagnostic-treatment centers in local hospitals.

4 The regulation and supervision of those laboratories collecting, processing and distributing convalescent and normal adult pooled serums.

5 The dissemination of public health information through the public press and by radio broadcast, at frequent intervals.

6 The instruction of physicians by letter, pamphlet, hospital staff meetings, and general society meetings (one attended by more than 1,500 persons).

7 The execution of state regulations on quarantine of cases and direct contacts (three week period).

8 Epidemiologic study of each individual reported case by an epidemiologist (physician), and a follow-up epidemiologic study in those families in which cases or contacts were known to have developed, by a public health nurse.

9 Emphasis on the need for adequate orthopedic care for each and every patient in whom paralysis or paresis occurred, not only during the acute stages of the disease but throughout convalescence over many months, as indicated, and the provision for such care by the city and county of San Francisco for those who could not provide such care for themselves.

10 The continuation of school as in normal years, with the year ending as scheduled on June 15, 1934.

11 The nonclosing of swimming pools, since those who wished to swim were subjected to fewer dangers in well conducted pools than in polluted bay or ocean waters, but swimming was discouraged on the basis of the fact that flushing out of the nasopharynx disturbs the normal physiologic and biochemical protective mechanism that probably exists in a considerable proportion of the population.

12 The regulation of camps, with emphasis on the necessity for medical or nursing attendance at all times, for available isolation facilities, for a check-up examination on every child by a physician within twenty-four hours before he leaves for camp, and for the limitation of membership in each camp to children from the same or neighboring communities in which similar incidence of the disease obtained.

#### CONCLUSION

Acute anterior poliomyelitis has occurred in San Francisco in 1934 to an extent not heretofore recorded for this community so early in the year. Two courses exist as possibilities that may be expected during the coming weeks. (1) The first phase, which is analyzed in this paper, will be followed by a second phase, which may see an even greater elevation of the reported incidence of acute anterior poliomyelitis, with the peak reached in August, September or even October, and (2) the first phase may represent the entire outbreak, which would be an epidemiologic hybrid, manifesting another of the protean forms which outbreaks of this disease present in California.

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SATURDAY, AUGUST 4, 1934

## "SMOOTH" vs "ROUGH" TYPHOID VACCINES

In an examination of six stock cultures used for the commercial preparation of typhoid vaccines, Larkum<sup>1</sup> found but one culture of typical virulence and cultural characteristics. In a similar survey, Grinnell<sup>2</sup> reported that twelve stock strains of *Bacillus typhosus* used by different commercial laboratories differed from recently isolated typhoid strains not only in cultural characteristics and virulence but also in protective efficiency for laboratory animals. Most of the atypical strains thus reported were "rough" variants of the conventional "smooth" type of *Bacillus typhosus*.

Observations of this type have been quoted as probable explanations for the numerous failures of routine typhoid vaccines to afford adequate protection against subsequent exposure to a typhoid epidemic. This assumed inefficiency of "rough" vaccines was confirmed about four years ago by Grinnell<sup>3</sup> of the Harvard Medical School, who made relative efficiency tests on human subjects. He found that the customary course of vaccination with a typical, smooth, virulent strain of *Bacillus typhosus* led to a definite increase in the normal specific bactericidal power of human blood serum. Control vaccinations with atypical, "rough," avirulent "dis-sociates" of the same strain led to little or no increase in normal bactericidal titer. It appeared logical to assume from his observations that "rough" typhoid vaccines are valueless in clinical prophylaxis.

There has been rapidly increasing evidence during the last four years that in many specific infectious diseases the specific antibody titer of the blood serum is not a reliable index to individual immunity. In some cases, adequate tissue immunity is known to exist in the absence of demonstrable circulating antibodies. In other cases, high "antibody" titer may be demonstrated in individuals highly susceptible to homologous infections.

Maltaner<sup>4</sup> of Columbia University has recently retested the relative efficiency of "smooth" and "rough" typhoid vaccines, using experimental methods that would test both humoral and cellular immunities. Using sufficiently large intravenous doses of a highly virulent typhoid culture, for example, the New York investigator found that fully 80 per cent of all injected normal rabbits died in about twenty-four hours from acute toxemia. In his hands the "rough" and "smooth" typhoid vaccines were equally effective in preventing this acute death, cutting down the 80 per cent mortality to 15 and 13 per cent, respectively. After intravenous injection of his routine test dose, *Bacillus typhosus* could be demonstrated in the bile of many rabbits. The date of his examinations varied from several days to several weeks after the injection. In a series of fifteen normal rabbits, fourteen (93 per cent) developed this bile carrier condition. This percentage was reduced to 40 as a result of previous vaccination with a typical "smooth" typhoid vaccine. Much to his surprise, previous immunization with the "rough" vaccine was even more efficient and reduced the carrier percentage to 13. If one dare assume that prevention of this carrier condition in rabbits is a reliable indication of probable clinical value, one is forced to conclude that "rough," "atypical" or "involution" forms of *Bacillus typhosus* are the cultures of choice for the preparation of routine vaccines.

The main interest in the Grinnell-Maltaner controversy is to call attention to the contradictory conclusions that may be drawn from different arbitrary technics on lower animals. None of these technics reproduce the exact conditions of human epidemiology. Although no final conclusion can be drawn from such data, a clinical trial of a polyvalent antityphoid vaccine containing both "rough" and "smooth" types seems indicated.

## HEAD INJURY AND POSTTRAUMATIC NEUROSIS

For many years medical opinion regarding the late symptoms of head injury has oscillated between the organic and the functional points of view. Although the debate has been concentrated for the most part among the neurologists and psychiatrists, the frequency of concussions of various sorts makes the problem important to all physicians. Current reports indicate that the question is far from settled.

Strauss and Savitsky,<sup>1</sup> while recognizing the psychiatric factor in some cases of head injury, champion the organic explanation. They deplore the tendency of some examiners to ignore unfamiliar changes and unusual clinical observations by relegating them to the vague group of "functional" manifestations. Too much emphasis, they believe, has been placed in the past on

1 Larkum N W Michigan Department of Health Reprints Series No 56 1929  
2 Grinnell F B J Exper Med 56 907 (Dec) 1932  
3 Grinnell F B J Immunol 19 457 (Nov) 1930

4 Maltaner F J Immunol 26 161 (March) 1934  
1 Strauss Israel and Savitsky Nathan Head Injury Arch Neurol & Psychiat 31 893 (May) 1934

the necessity for the presence of intellectual defects in cases of organic disease of the brain. The term "traumatic neurosis" should be reserved for the terror and anxiety reaction following a threat of bodily injury. The subjective posttraumatic syndrome, on the other hand, characterized by headache, dizziness, inordinate fatigue on effort, intolerance to intoxicants and vasomotor instability is, they feel, organic, and dependent on a disturbance in intracranial equilibrium due directly to the blow on the head.

This opinion is not based on the results of the usual neurologic examination or "normal" mental status. A systematic clinical survey, utilizing some of the newer methods of examination and the cooperation of several investigators, has led the authors to this conclusion. The extensive distribution of the visual pathways and the position of the visual centers in the occipital lobes expose them to involvement during head injury. Extensive defects in the fields can, in fact, exist without any complaint. Careful ophthalmologic studies including the visual fields should therefore be made. The suggestion that ring scotomas may be due to fatigue is worthy of close scrutiny, since fatigue and ready exhaustion run through the whole clinical picture of the postconcussion state. A prominent mode of expression of a diseased brain may, indeed, be ready fatigue. It is not reasonable to maintain, however, that the only mechanism of this fatigue is ideogenous. While constriction of the visual fields may be an expression of functional disease, it occurs at other times as a definite manifestation of organic defect or injury. Vestibular tests with accurate determinations of auditory acuity should also be made. Involvement of the ear or labyrinth before the accident should, if possible, be ruled out.

Considerable emphasis is placed by the New York investigators on encephalography as a mode of examination. Despite the absence of normal controls it is their impression that physiologic variants of the contour of the ventricles and the subarachnoid space are rare, and that, given a good technic, certain well known changes on the roentgenogram indubitably point to the existence of some degree of previous or present intracranial damage. With these accessory methods of diagnosis they believe it possible to demonstrate organic abnormalities in a large number of patients with postconcussion symptoms. In any case something will have to be done in the near future, they believe, to minimize the number of unjust rewards and unfair rejections of claims for compensation resulting from head injuries.

Hall and Mackay,<sup>2</sup> taking issue to some extent with the "organic" conclusions of Strauss and Savitsky, call attention to the fact that the neuroses following injury to the head do not differ materially from those after injury to other parts of the body, in which injury to the central nervous system cannot be in question. It

seems unwarranted, consequently, to abandon the concept of neurosis following head trauma. The term "neurosis" is no longer a waste basket for diagnostic failure but is recognizable by a definite symptomatology. The majority of these neuroses fall into one of three groups: posttraumatic neurasthenia, posttraumatic anxiety neurosis or posttraumatic hysteria. Furthermore, these workers seriously question the value of the encephalogram in elucidating the question of organic brain disorders due to trauma, since they point out that what constitutes a normal encephalogram has not been finally established.

Two schools of thought concerning the effects of head injury are thus seen to be developing. Each acknowledges the contributions and part played by the other, their differences are in part only differences of emphasis. Interlocking factors are recognized by both, and the question to determine seems to be primarily whether the concussion produces organic disturbances of the central nervous system with resultant "functional" symptoms or whether it acts as the precipitating factor in a person already prone to a neurosis.

#### A DIETARY QUACK DISCUSSES DYSENTERY

Since amebic dysentery began to attract wide public attention, every popular writer on health has discussed the disease in a newspaper or periodical. These discourses have demonstrated not only a considerable amount of wisdom but also some of the most extraordinary conceptions conceivable by the mind of man. The apotheosis of nonsense would seem to have been reached in a statement put forth by Frank McCoy, whose record has been made available both in *THE JOURNAL* and in *Hygeia*. Since his medical training included only the study of chiropractic and physical culture, his views regarding diseases of bacterial or parasitic origin are bizarre and amusing. With the usual ignorance and perverted reasoning powers of those who oppose the established facts of science, he insists that the amebas are the result and not the cause of dysentery. Thus his statement reads:

'Acute diarrhea is usually produced by some kind of food poisoning, and may occur several days after one has eaten sausage, canned fish or other foods which sometimes produce ptomaine poisoning. The frequent bowel movements are simply Nature's way of trying to get rid of some offensive poisonous substance.

"If such an acute attack occurs, it may be rapidly cured by the use of two or three enemas, taken one hour apart. This simply gives the colon more water with which to wash out the irritating material.

Chronic diarrhea often turns into a condition called dysentery, with many bowel movements each day. These movements frequently contain large quantities of mucus and small amounts of blood. A careful examination of this discharge will disclose the presence of small single-cell forms of life called amoeba.

'The common belief is that these amoeba produce the dysentery and much effort is made to kill them off by strong enemas and the administration of such remedies as emetin. In fact as in many cases of medical practise, it is like 'putting

<sup>2</sup> Hall, G. W. and Mackay, R. P. *The Posttraumatic Neuroses*. A. M. A. 102: 510 (Feb. 17) 1934.



the cart before the horse,' as the amoeba are the result and not the cause of dysentery

"In all dysentery, there will be found an extreme irritation of both the small and large intestines. This is produced by the throwing out from the liver of excess quantities of bile.

"As in acute forms of diarrhea, Nature is trying to throw out some offending substance. In the case of chronic dysentery, the offending poisons are being eliminated from the liver, itself.

"The only sensible course to follow is to stop all food for a week or two and allow the liver to completely empty out the toxic material. Two or three enemas should be used each day during the fasting treatment, and skin elimination increased by sponge or shower baths.

"I have handled the worst kind of cases of dysentery, and have never seen a case that could not be stopped by this treatment. If you or any of your friends have this trouble develop use this common sense method and see how quickly you can get over your trouble."

The danger to the public health of this type of advice is obvious. When one case of amebic dysentery appears in a family, other members are likely also to be infected unless suitable precautions are taken. Amebic dysentery treated by such methods as McCoy advocates is likely to result in serious complications if not fatally. Moreover, the food handler with amebic dysentery may menace an entire community. And like all the naturopathic, drugless and peculiar healers, McCoy joins the promoters of the colon-washing and filling stations.

How long will newspapers and periodicals which share some responsibility for the public health continue to advise the uninformed in regard to infectious diseases in such ways as to encourage the spread and the virulence of these infections? It is not known how many newspapers print these daily discourses of Frank McCoy, pet of the *Los Angeles Times*. Surely editors fail their readers when they continue to promulgate such superlative nonsense as emanates from McCoy and his *Los Angeles Times* associates.

## Current Comment

### REMOVAL OF CYSTS OF ENDAMOEBIA HISTOLYTICA FROM WATER BY FILTRATION

The possibility of an outbreak of amebic dysentery as the result of a contaminated public water supply was emphasized by the outbreak that originated in Chicago last year. As the wide distribution of *Endamoeba histolytica* through the water supply was an unusual circumstance, experiments have been undertaken by Chicago investigators<sup>1</sup> to learn whether such parasites can be removed from water by the simple method of filtration. These experiments were conducted at the Chicago Experimental Filtration Plant. Suspensions containing a large number of cysts of *Endamoeba histolytica* from infected persons were mixed with clear water, treated with aluminum sulphate and then filtered through rapid sand filters. The filter bed used had the same depth,

and the size of the sand was the same as that found in many filtration plants throughout the country. The filters were operated at a rate of two gallons per square foot per minute, which is customary in filtration practice. The water, after being coagulated with aluminum sulphate, was agitated for fifteen minutes to form a good coagulum, and the coagulated water was then either filtered directly or allowed to stand thirty minutes and a large part of the sediment siphoned off, or it was siphoned from one receptacle to another without removal of the sediment. Beneath the 24 inches of sand in the filters were 8 inches of gravel, ranging in size from three-fourths inch in diameter at the bottom to one-eighth inch at the top. These filters had been used for months prior to these experiments, filtering coagulated Lake Michigan water. After filtration, the water was allowed to stand for a day in order that any cysts present might settle at the bottom of the bottles. The sediment was then collected and centrifuged and examined for cysts. Before filtration the number of cysts present in the settled water varied from 189,000 to 416,000 per gallon. It was found that all cysts of *Endamoeba histolytica* were removed from the water by this treatment. In only one experiment was there the least exception made and in that case the samples of water had stood several days before being tested. No cysts were present in this sample after filtration, but there were a few free living flagellated organisms. As this sample of water was not sterilized, the investigators say it is probable that the organism developed in the filtered water following the passing of the filters by a few organisms. Experiments were conducted to determine also the amount of chlorine necessary in water to kill *Endamoeba histolytica*. It was found that the amount necessary is much more than could be used in a public water supply. This fact in substance had been brought out previously by Craig. Such studies as those here reported on the possible transmission of *Endamoeba histolytica* in water supplies are of the utmost significance. This parasite has become widely distributed in the United States. The information gained should be applied to keep public water supplies free from it.

### MECHANICALLY DISRUPTED BACTERIAL VACCINES

Bacterial endotoxins, according to an old generalization, are incapable of stimulating the production of specific antiserums.<sup>1</sup> This generalization would seem however, to be merely a convenient metaphor to express the intracellular location of these specific colloids. Freed from their isolation they are apparently strongly antigenic. Miller,<sup>2</sup> at the University of California, for example, has prepared several extracts or mechanically disrupted pertussis vaccines, capable of producing high titer antiendotoxins in from two to four days after a single subcutaneous injection in rabbits. This prompt antibody response suggests the feasibility of prophylactic immunization after known exposure to whooping cough or of hastening convalescence after the develop-

<sup>1</sup> Spector, Bertha K., Baylis, J. R. and Gullans, Oscar. Effective-ness of Filtration in Removing from Water and of Chlorine in Killing the Causative Organism of Amebic Dysentery. *Pub. Health Rep.* 49: 786 (July 6) 1934.

<sup>1</sup> Wells, H. G. *Chemical Aspects of Immunology*. New York: Chemical Catalog Company, 1929. chapter v, p. 132. Zinsser, Hans. *Resistance to Infectious Diseases*. 1931. chapter II, p. 33.  
<sup>2</sup> Miller, J. J. Jr. *J. Immunol.* 20: 247 (April) 1934.

ment of catarrhal symptoms With ordinary pertussis vaccines, Miller could not detect specific complement deviating antibodies in the rabbit circulation until about the sixth to the sixteenth day after vaccination The maximum titer was not reached until the fourteenth to the twenty-fourth day Parallel vaccinations with aqueous extracts or mechanically disrupted bacterial cells, however, led in many cases to demonstrable antibodies by the end of two days, with a maximum antibody titer by the sixth day The sixth day titer was usually from two to four times greater than the maximum after vaccination with intact bacteria Filtration of an extract or mechanically disrupted pertussis vaccine through a Berkefeld filter completely removed its effective endotoxin

## Association News

### MEDICAL BROADCASTS Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4 30 to 4 45 Central daylight saving time The speaker will be Dr W W Bauer The next three broadcasts will be as follows

August 9 Death Angel  
August 16 Black Widow  
August 23 Infantile Paralysis

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION PUBLIC HEALTH ETC)

### CALIFORNIA

**Society News**—Karl F Meyer, Ph D, of the Hooper Foundation, University of California Medical School, San Francisco, discussed infantile paralysis before the Sonoma County Medical Society, June 29, he also spoke on the same subject before a joint meeting of the Solano and Napa County medical societies in Napa July 10—Dr Victor E Stork, Los Angeles was recently elected president of the Southwestern Pediatric Society

**Chiroprapist Guilty of Illegal Practice**—L R Mogle a chiroprapist of Los Angeles was committed to the city jail following a hearing, May 29, when the state board of medical examiners presented evidence of his violation of the state medical practice act Mogle was sentenced to 180 days in jail but was placed on probation for two years on condition that he serve ninety days in jail According to the state board, Mogle has been a 'persistent violator of the state medical practice act in relation to chiroprapy' Evidence showed that he had been giving treatments for various diseases, consisting of massage over the entire body adjusting the vertebrae and cracking the neck He claimed to treat the entire body by prayer or instruction It was also pointed out that he had been attending the American School of Chiropractic, receiving his tuition free in return for his services of instruction on the feet

### COLORADO

**Dr Sewall Honored**—Dr Henry Sewall, emeritus professor of medicine University of Colorado School of Medicine, Denver, was honored June 6 when the Delta chapter of Delta Omega presented to the University of Michigan a bronze plaque in recognition of his early work on antitoxin Dr Sewall conducted his experiments at the University of Michigan from 1882 until 1887 during this time he was professor of physiology at the school a position he held until 1889 In 1887

Dr Sewall published a treatise on his work in immunizing animals against snake venom According to *Science*, the society plans to publish a pamphlet containing a photostatic copy of the original treatise

### DISTRICT OF COLUMBIA

**Report on Tuberculosis Survey**—Recommendations to improve the tuberculosis situation in the District of Columbia have been made to the board of commissioners by a committee appointed to study the adequacy of tuberculosis facilities Members of this committee, appointed by the board following its receipt of a report from the Medical Society of the District of Columbia, are Drs William C Fowler, William Charles White, Prentiss Willson, Joseph W Peabody, Henry J Crosson and F C Smith The committee urges that all tuberculosis activities be centered in a full time tuberculosis officer in the health department, this officer to be supplemented by an advisory board of representatives of tuberculosis agencies in Washington Since there are about 600 deaths from tuberculosis annually in the district, the erection of a 500 bed sanatorium for adults would, in the committee's opinion, increase present facilities and permit the eventual abandonment of the present tuberculosis sanatorium on Upshur Street In addition, the provision of an adequate free tuberculosis clinic is recommended, to receive patients, both white and colored, and of any age at any working hour of every week day The committee recognizes that the tuberculosis conditions in the district are acute and recommends that the commissioners take steps to secure adequate funds from Congress to provide for these emergency measures for the remainder of the current and the coming fiscal year Dr Fowler submitted a minority report, in which he pointed out that a full time tuberculosis health officer would tend to subordinate the position of health officer of the district in matters relating to tuberculosis He urged the creation of the position, however, provided the incumbent serve under the direction and with the approval of the health officer He also feels that the present management of the tuberculosis clinic on its schedule of alternate days has been satisfactory, and that the application of the majority report recommendation would lead to criticism and other difficulties In 1933 the death rate from tuberculosis in the District was 123.8 per hundred thousand population as compared with 122.1 in 1932, it is reported

### GEORGIA

**Personal**—Dr Rufus F Payne, McCaysville, has been named health commissioner for Walker County, succeeding Dr Oscar B Murray, resigned—Dr William L Mathews, Winder, was chosen president of the Alumni Association of Emory University School of Medicine June 9

**Society News**—Speakers before the Sixth District Medical Society at Louisville, June 27, included Drs Charles Hall Farmer Macon on 'Diet and Mineral Metabolism in Children' and William W Chrisman, Macon, 'Collapse Therapy in Chronic Pulmonary Disease'—Dr James Harris Dew, Atlanta, read a paper on 'Posterior Vaginal Hernia' before the Fulton County Medical Society, Atlanta, July 19

**University Sponsors Lectures**—A series of lectures was given in Carrollton, July 9-13, by members of the faculty of Emory University School of Medicine Atlanta, under the auspices of the extension department of the university and supervised by the state board of health The lecturers were

Dr William H Kiser Jr Behavior Problems of Children  
Dr Floyd W McRae Diseases of the Thyroid Gland  
Dr Henry C Sauls Blood Dyscrasias  
Dr Lonnie W Grove Diseases of the Colon  
Dr Cyrus W Strickler Diseases of the Chest  
Dr John F Denton Cancer of the Uterus  
Dr James E Paulin Arthritis  
Dr Montague L Boyd Treatment of Urinary Obstruction  
Dr Edgar D Shanks Cardiovascular Renal Diseases  
Dr Frederick G Hodgson Treatment of Fractures

### ILLINOIS

**Malnutrition Survey**—There is no evidence of unusual malnutrition among school children in Scott County, while the children in Franklin County are better provided for now than in any recent years according to the Illinois State Department of Health which recently completed a five weeks study of child health conditions in the two counties The purpose of the survey was to determine whether malnutrition and other conditions attributable to undernourishment or lack of food have increased among Illinois children during the last four years A total of 2,394 children nearly one half of whom were in the first four school grades in the two counties, were examined These counties were selected as typical of rural and mining counties The physicians making the survey were

of the opinion that there was no evidence of an unfavorable trend that may be charged against economic conditions of recent years

### Chicago

**Study of Hospitals in Russia**—Dr William H Walsh, hospital consultant, sailed, July 21, for London where he will board a soviet steamer for Leningrad. Dr Walsh is making an independent study of health and hospital conditions and practices in soviet Russia and his itinerary will include Leningrad, Moscow, Kharkov, Odessa, Kiev and Minsk. He will return in September via Warsaw, Berlin and Paris. Films on obstetrics made by Dr Joseph B DeLee will be exhibited by Dr Walsh in various medical schools in the soviet union.

**Dr LeCount Receives Award**—Dr Edwin R LeCount, professor of pathology, Rush Medical College has received the 1934 James E Stacy Award by the University of Cincinnati College of Medicine for "his experimental studies on the isolation of streptococci from sore throats and the experimental induction, through their injection, of acute, healing and scarring types of nephritis, identical with the chronic nephritides observed in man." The award consists of a medal and a sum of money and is bestowed for "significant contribution to the theory of focal infection in theory or practice."

**Physical Examination of Relief Employees**—The Illinois Emergency Relief Commission has directed that physical examinations be made of all men and women now enlisted under the Work Relief Administration and those to be employed in the future, to protect the workers from avoidable injury or disease, and the government or other employing bodies from future unjustifiable claims for compensation. The work has been arranged in Cook County so as to give assistance to physicians who are in financial need. Physicians desiring this work should communicate with the Medical Relief Service, 1319 South Michigan Avenue. Groups will be assembled for examination at 1222 South Michigan Avenue. Physicians will be assigned to make examinations during three hour periods for ten consecutive working days not including Saturdays and Sundays, when the unit will be closed. Assignment will be made once each month and reimbursement per month will therefore be \$75 for thirty hours' work.

### IOWA

**Keokuk Alumni Reunion**—Dr Joseph M Trigg, St Louis, was reelected president of the alumni association at the reunion of Keokuk Medical College and the College of Physicians and Surgeons, June 18. Dr Carl S Bishop, Fairfield, was named vice president, and Dr Bruce L Gilfillan reelected secretary. The next reunion will be held in 1936.

**District Conference**—The summer meeting of the Upper Des Moines Medical Society at the Inn on Lake Okoboji, June 28, was devoted to the third district conference, under the presidency of Dr James B Knipe, Armstrong. Speakers included

Dr Harold C Haben Rochester Minn How Emotions Affect the Body  
Dr Jacob Arnold Borgen Rochester, Diagnosis and Treatment of Various Types of Colitis  
Dr Francis R Holbrook Des Moines Coronary Disease  
Dr Nathaniel G Alcock Iowa City Transurethral Prostatic Resection

Dr Lee R. Woodward, Mason City, was toastmaster at the dinner in the evening, and Dr Gordon F Harkness, Davenport, president of the Iowa State Medical Society, the speaker.

### MICHIGAN

**Typhoid Outbreak in a Circus**—Seventy-seven members of the Ringling Brothers and Barnum and Bailey combined circus were in Detroit hospitals, July 26, half of them ill with typhoid and the others suspected of having the disease, according to the *Chicago Tribune*. Two members of the circus are in a hospital in Cincinnati where the disease apparently first broke out. One person died of the disease a few days later at Dayton. It was first discovered in Detroit Saturday, July 21, when four performers became ill and were taken to a hospital. Circus officials informed the Detroit health department, it was stated, that they believed the disease was contracted in New Castle, Pa, where the show performed, July 13. From New Castle it went to Erie Pa, thence to Cleveland, Columbus, Cincinnati, Dayton, Toledo and Detroit.

**Personal**—Dr William J O'Reilly Saginaw, observed his seventieth birthday, July 3. Members of the staff of St Mary's Hospital attended a dinner in his honor. Dr O'Reilly has been a member of the staff for thirty-nine years and its chief for twenty-four. The completion of fifty years in the practice of medicine by Dr E Herbert Bailey Corunna was

observed by the Shiawassee County Medical Society at a luncheon meeting, June 21.—Dr Harry B Knapp, Battle Creek, has been appointed medical director of the Pocono Nutrition Center at Mount Pocono, Pa.—Dr Theodore R Meyer, Sag Harbor, Long Island, N Y, was recently appointed director of the newly organized health unit of Van Buren County of the W K Kellogg Foundation. Headquarters of the unit are in Paw Paw.—Dr John E Ames was recently elected mayor of Niles.—Dr Kenneth B Moore has been appointed health officer of Flint, succeeding Dr Charles J Scavarda, resigned. Dr Scavarda will continue in the department on a part time basis, however.—Dr Franz Blumenthal formerly extraordinary professor of dermatology and syphilology, Friedrich-Wilhelms Universität, Berlin, has been appointed research professor of dermatology and syphilology at the University of Michigan Medical School for two years, according to Science.

### MINNESOTA

**Personal**—Dr Myron M Weaver, associate professor of health and physical education for men and physician in the college health service, Carleton College, Northfield, has resigned to accept a position in the medical service department of Eli Lilly and Company, Indianapolis.—Dr Archibald H Logan Rochester, received the honorary degree of doctor of science at the annual commencement of Washington and Jefferson College.

**Judge Dissolves Incorporated Clinic**—The Northwest Hair Clinic, Inc, was dissolved through an order of Judge Arthur W Selover in the district court for Hennepin County, June 4. A petition for voluntary dissolution had been filed following an investigation by the state board of medical examiners. The organization had been incorporated in 1932 for the purpose of owning and operating "beauty shops and hair and skin clinics" but had advertised extensively that its work was done under "strict medical supervision." The corporate practice of medicine is not permitted in Minnesota. Neither are lay persons permitted to practice medicine through the medium of employing a licensed physician. Dr C W Wall, Minneapolis, who holds a license to practice medicine in Minnesota and who was a substantial stockholder in the corporation, was the medical director and conducted the actual business for the organization. A certified copy of the order was filed with the secretary of state, which terminates the corporate existence of the firm.

### MISSOURI

**Society News**—The St Louis County Medical Society devoted its meeting, July 25, to a showing of motion pictures on pediatrics.—Dr Paul J Zentay was elected president of the Missouri Social Hygiene Association at a meeting in St Louis, June 17, succeeding Dr Llewellyn Sale, both are of St Louis.

**Health at Kansas City**—Telegraphic reports to the U S Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended July 21, indicate that the highest mortality rate (21.5) appears for Kansas City, and for the group of cities as a whole, 10.2. The mortality rate for Kansas City for the corresponding period last year was 9.1, and for the group of cities, 9.5. The annual rate for eighty-six cities for the twenty-nine weeks of 1934 was 11.9 as compared with a rate of 11.3 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

### NEW JERSEY

**Personal**—Dr Theobald Smith, Princeton, received the honorary degree of doctor of laws from the University of Edinburgh, June 28.—Dr Sidney H Joffe, New York, has been appointed resident surgeon of the Jersey City Medical Center, Jersey City.

**Milk-Borne Epidemic of Septic Sore Throat**—An outbreak of septic sore throat involving 131 cases within a month is described in a recent issue of *Public Health News*, organ of the state board of health. Investigation by the board revealed that most of the cases occurred among users of milk from one dairy. Three cases occurred in the household of this dairyman, the first in a young man who took part in the work of the dairy. His case was followed by the explosive outbreak. The dairy was well equipped and modern and the dairyman was accustomed to have himself and his workers

examined by physicians twice each year, but he did not pasteurize the milk. His herd was tuberculin tested. The investigation showed that six cows were diseased. These were immediately removed and a pasteurizing machine was installed. Because of the fact that the epidemic was not reported until it was in its last stages, satisfactory cultures from the throats of the victims could not be obtained. In a few cultures submitted to a private laboratory it was reported that hemolytic streptococci were found. It is believed that the epidemic was true septic sore throat, however, as the clinical picture of the disease was typical and typical complications occurred. Two deaths occurred in men 55 and 81 years old. The investigator reported excellent cooperation on the part of the dairyman, the citizens, the medical profession, health officers and the local newspaper.

### NEW YORK

**Annual Meeting at Lake Keuka**—The Lake Keuka Medical and Surgical Association held its thirty-fifth annual session at the lake near Penn Yan, July 12-13. Dr Thomas W. Maloney, Geneva, was elected president, succeeding Dr. Clare N. Shumway, Painted Post, and Dr. John A. Hatch, Penn Yan, was reelected secretary for his nineteenth year. The program included a symposium on cancer presented by Drs. Burton T. Simpson and Louis C. Kress, Buffalo, John J. Morton Jr. and Samuel J. Stabins, Rochester, and Richard B. Cattell, Boston. Other speakers were Drs. Russell L. Cecil, New York, on "Etiology of Chronic Arthritis and Its Bearing on Treatment", William V. Garretson, New York, "Allergy—A Neuro-Endocrine Interpretation", Frederick C. Herrick, Cleveland, "Acute Appendicitis with Peritonitis", William D. Stroud, Philadelphia, "Coronary Disease and Angina Pectoris", and Joseph F. McCarthy, New York, "Medical and Surgical Treatment of the Prostate."

### New York City

**Appointments at New York Polyclinic**—Dr. Joseph Eastman Sheehan has been appointed professor of plastic and reparative surgery at the New York Polyclinic Medical School and Hospital, where a department has been organized for graduate teaching in this subject. Dr. Sidney V. Haas has been appointed professor of pediatrics, and Dr. James P. Croce, clinical professor of internal medicine.

**Hospital News**—A grant of \$1,000 has been made by the Simon Baruch Foundation for Medical Research to the Pathologic Laboratories of St. John's Hospital, Brooklyn, to carry forward an investigation of fetal endocrine tissue extracts on cell growth. An allotment of \$350,000 from the Public Works Administration will make possible early completion of the new building of the Jewish Memorial Hospital. The new building is eight stories high and will contain 209 beds, in comparison with 117 in the old building.

**A Case of Anthrax**—Thirty-two attaches of Morrisania Hospital recently received antianthrax serum after they were exposed to a case of anthrax in a patient who had been employed in a brush factory. The patient died the day after he was admitted to the hospital. The health department announced that an investigation would be made of the factory to determine if possible the source of the infection. Morrisania was said to be one of four hospitals in the city that receive anthrax cases. Twenty-seven of the attendants who were immunized suffered from serum sickness.

**Interns in New York Organize**—Interns of several hospitals have formed the Intern Council of Greater New York for educational advancement and economic welfare of its members. The council is cooperating with the committee on internships and residencies of the New York Academy of Medicine in investigating the educational aspect of the internship and is also interested in compensation, insurance, maintenance and other intern problems. Dr. Earle H. Harris, Gouverneur Hospital, was elected president and Dr. Arnold Treitman, corresponding secretary for six months, at a meeting June 20.

**Program to Reduce Maternal Mortality**—A program to reduce maternal mortality has been set in motion by the Kings County Medical Society, Brooklyn, through a special committee. Detailed recommendations for an educational program to reach the public, the medical profession, hospitals and midwives were presented in the committee's report at a recent meeting of the society and action to make them effective was authorized. Through various publicity mediums it is planned to encourage prospective mothers to seek prenatal observation by competent physicians to instruct physicians in practical obstetrics

through special lectures and courses, to stimulate better obstetric care in hospitals, especially by the granting of obstetric privileges to all physicians who will agree to abide by the regulations of the institutions, to supervise existing midwives and to cease licensing of such women. Dr. Charles A. Gordon is chairman of the committee on maternal welfare, and members are Drs. Francis B. Doyle, Cameron Duncan, Charles T. Graham-Rogers, William S. Hubbard, O. Paul Humpstone, William A. Jewett, Abraham Koplowitz, Harvey B. Matthews, Vincent P. Mazzola, William C. Meagher, Joshua Ronsheim and W. Sidney Smith.

**Care of the Chronically Ill**—A committee on chronic illness appointed several months ago by the Welfare Council of New York recently made its recommendations to Dr. Sigismund S. Goldwater, commissioner of hospitals. The committee urged that the city administration adopt a definite policy in regard to treatment and care of the chronic sick, that a comprehensive plan for care of chronic patients, based on the medical and nursing service required either in an institution or at home and built around a nucleus of social service, be worked out, that home care and boarding home care be worked out as soon as legally possible, that the unfit buildings of the Neurological Hospital and Cancer Institute on Welfare Island be replaced, and that custodial care under medical supervision be provided for the chronic sick of the city home. A modern hospital for chronic diseases with 500 beds for active hospital cases and with a custodial department for patients in whom disease process is arrested but who have been left with a permanent physical disability was specifically recommended. The committee also asked the commissioner to consider similar development of medical and custodial facilities in Brooklyn. Dr. Ernst P. Boas was chairman of the committee.

**"Psychoanalyst" Convicted of Illegal Practice**—Mrs. May Benzenberg Mayer, alleged psychoanalyst and founder of an institution known as Pojodag House, 112 East Seventy-Sixth Street, was convicted May 29 of practicing medicine without a license. She was sentenced, June 19, to spend a year in jail and pay a fine of \$500. The prison sentence was suspended and the defense announced that the case would be appealed. This is believed to be the first case in which a so-called psychoanalyst has been convicted of illegal practice. Mrs. Mayer was charged with practicing medicine without a license as a result of testimony offered by a woman who had been crippled by infantile paralysis. The woman testified in court that she had paid Mrs. Mayer \$3,185.65 for pamphlets, lectures and treatment. The witness declared that Mrs. Mayer promised to cure her crippled state in five years by psychoanalytic treatments. In addition, the crippled woman was led to lend \$5,300 to meet a mortgage on Pojodag House, of which she received back \$2,800. Mrs. Mayer denied that she was a psychoanalyst. "My work is an important metaphysical experiment which has to do with the study of the subconscious," she said. "When it is completed and a report made, the results will prove very interesting to the public." She had never attended high school or college, it was said, and had been engaged in her present activities for fifteen years.

### OKLAHOMA

**Society News**—Drs. Bert F. Keltz and Harry Wilkins, Oklahoma City, addressed the Caddo County Medical Society, Anadarko, on diabetes and brain tumor, respectively. Speakers at the quarterly meeting of the Southern Oklahoma Medical Association, Chickasha, June 5, included Drs. Ben H. Nicholson, Oklahoma City, on "Uses of Vaccines and Sera in Children", William F. Dean, Ada, "Degenerative Heart Disease of Middle Life", and Charles A. Brake, Norman, "Mental Conditions Associated with Thyroid Dysfunction". At a meeting of the Southeastern Oklahoma Medical Association at Tahlequah, June 26, speakers included Drs. William D. Rosborough, Tahlequah, on "Heliotherapy and Pulmonary Tuberculosis", Louis C. Kuyrkendall, McAlester, "Tuberculosis of the Throat: Diagnosis and Treatment", and Richard B. Ford, Holdenville, "Surgery of the Gallbladder". Among speakers at the midsummer meeting of the Muskogee Academy of Medicine, July 12, were Drs. Edward H. Cary, Dallas, Texas, on "Ocular Manifestations of Nasal Origin", Arthur E. Hertzler, Halstead, Kan., "Office Treatment of Stomach Trouble", and Cyrus E. Burford, St. Louis, "Bladder Neck Obstruction". Drs. Harry Wilkins and William W. Rucks, Oklahoma City, addressed the Garfield County Medical Society, Enid, on "Intracranial Injuries" and "Spinal Cord Lesions", respectively. Dr. Powell L. Hays, Vinita, addressed the Woodward County Medical Society, Supply, June 12, on "Sequelae of Encephalitis Lethargica".

## PENNSYLVANIA

**Society News**—The annual meeting of the Seventh Council District of the Medical Society of the State of Pennsylvania was held in Williamsburg, July 11. Drs Donald Guthrie, Sayre, president, Moses Behrend, president-elect, and Walter F Donaldson, secretary, of the state medical society, made short talks on organization activities and Dr Harold A Miller, Pittsburgh, state director of emergency medical relief, discussed relief plans. Drs Emil Novak, Baltimore, and Harvey T Smith, Harrisburg, spoke on functional gynecologic problems and appendicitis, respectively.—The Chester County Medical Society has arranged a campaign to reduce appendicitis mortality to be held during October and November, addresses will be made by members in seventeen communities in the county.—Dr Joseph W Fisher, Pittsburgh, was elected president of the Pennsylvania Radiological Society at the annual meeting at Pocono Manor in May.—At a meeting of the Northwestern Pennsylvania Medical Society at Oil City, June 27, speakers were Drs Dean Lewis and John T King Jr, Baltimore on "Fractures and Their Complications" and "Causes of High Blood Pressure," respectively, and William V Mullin, Cleveland, "Hoarseness Its Differential Diagnosis".—Dr Hugh Cabot, Rochester, Minn, addressed the fifty-fourth annual meeting of the Lehigh Valley Medical Society, Allentown, July 19, on "Development of Prostatectomy, with an Appraisal of Present Methods."

## TEXAS

**Society News**—Dr Cleve C Nash, Dallas, among others, addressed the Dallas County Medical Society, June 14 on "Chronic Subdural Hematoma", the society heard Dr Kelly L Cox, Dallas, June 28, among others, discuss "What the General Practitioner Should Know About Glaucoma".—The North Texas Medical Association met in Terrell, June 5-6, with the following speakers, among others: Drs Tate Miller, Dallas, "Modern Aspects of Amebic Infection", Joseph D Becton, Greenville, "Suppurative Peritonitis", Preston W Pearson, Emory, "Dietetics in Pregnancy", and Richard L Nelson, Dallas, "Lead Poisoning in Children with Special Reference to Encephalitis".—Drs George D Mahon Jr and Ben R Buford, Dallas, addressed the Wichita County Medical Society, Wichita Falls, May 8, on "Toxic Thyroid" and "Treatment and Diagnosis of Common Heart Conditions," respectively.—Drs R A Roberts San Antonio, and Percy C Anders, Lockney, addressed the Hale Swisher-Floyd-Briscoe Counties Medical Society, Plainview, May 8, on vitamins and eclampsia, respectively.—Dr Quincy B Lee Wichita Falls, addressed the Baylor-Knox-Haskell Counties Medical Society, Goree, June 12, on "Unusual Manifestations of Appendicitis."

## UTAH

**Personal**—Dr Charles Griffin Plummer, Salt Lake City, received the merit award of Northwestern University Alumni Association on "illumination night" in Evanston, Ill, preceding the annual commencement exercises, June 15. The award is a certificate given annually to alumni for "worthy achievement which has reflected credit upon their alma mater."

## VIRGINIA

**Graduate Courses in Obstetrics Ended**—The tenth circuit of the graduate course in prenatal and postnatal care which has been sponsored during the past two years by the Medical Society of Virginia, the Medical College of Virginia and the University of Virginia ended the series for the present. Dr Maxwell E Lapham, Philadelphia, has been field clinician. Every medical society in the state with enough members to form a class has been offered Dr Lapham's services and practically all have been served in the program. The tenth circuit, which began July 9 and will continue ten weeks, includes the towns of Alexandria, Fairfax, Fredericksburg, Culpeper and Orange. The preceding courses had enrolled 594 physicians in fifty classes. Funds for this intensive program have been supplied by appropriations amounting to \$6,000 by the state medical society and grants from the Commonwealth Fund amounting to \$15,000. The enrolment fee was \$5.

## WISCONSIN

**Personal**—Dr Hjordisfur T Kristjanson, Milwaukee, was reelected president of the Associated Diplomates of the National Board of Medical Examiners at the annual meeting in Cleveland.

**Society News**—Speakers at the meeting of the Fifth District Medical Society, Sheboygan, May 31, were Drs John W Harris Madison, on prenatal care, Henry W Meyerding, Rochester Minn fractures, Frank Smithies, Chicago amebic dysentery and Edwin G Bannick Rochester acute abdominal conditions.—Drs Richard S Rogers Junction City Ore

Francis T McHugh, Chippewa Falls, and Clifton A Cooper, Colfax, presented a symposium on obstetrics at the June meeting of the Chippewa County Medical Society in Chippewa Falls.

## GENERAL

**Bequests and Donations**—The following bequests and donations have recently been announced:

United Hospital Port Chester N Y \$5 000 by the will of the late Julia Trendwell  
St John's Hospital Brooklyn \$15 000 and the floating hospital of St John's Guild \$1 000 by the will of the late Mrs Josephine Erwin  
Mount Sinai Hospital New York \$1 981 by the will of Emil Kiss  
Brooklyn Hospital and Wyckoff Heights Hospital New York \$5 000 each by the will of the late John W Weber and Eastern Long Island Hospital \$1 000  
Staten Island Hospital \$1 000 by the will of the late John White  
New Rochelle Hospital \$5 000 by the will of the late James R Merrill  
Hospital for Relief of Incurable Cancer Hawthorne N Y \$40 000 under the will of the late Bertha M Coughlan \$10 000 and the residual estate under the will of Eliza J Kratz  
Bellevue Hospital New York children's division will receive most of the estate of the late Mrs Anna Phipps Tinker estimated at \$300 000 in memory of her husband the late Dr Horace H Tinker. Half is benefited outright and the remainder is contingent on the death of beneficiaries.  
Brooklyn Hospital Brooklyn \$5 000 by the will of Sarah T Bailey  
Lankenau Hospital, Philadelphia is to be ultimate beneficiary of the \$30 000 estate of William F C Griepenkler Oak Lane according to his will probated June 28.  
Memorial Hospital, Norwalk Ohio \$7 000 and the International Society for Crippled Children Elyria Ohio \$9 000 by the will of the late Mrs F M Kirk  
Methodist Episcopal Hospital Brooklyn \$20 000 by the will of the late Mrs Katherine Mead Sloan  
Delaware County Hospital Drexel Hill Pa \$5 000 by the will of Mrs Louise Mende Hembold

**The Lowest Birth Rate**—There were 2,064,944 births in continental United States in 1933, giving a rate of 164 per thousand of population, the lowest on record since the federal birth registration area was established in 1915, when it included only ten states and the District of Columbia, according to provisional statistics issued by the Bureau of the Census. This figure compares with a rate of 174 for 1932 for the birth registration area, which at that time did not include Texas. In 1933 the infant mortality rate was 582 per thousand live births as compared with 576 in 1932. New York with 187,139 births led the states with the greatest number of births, Pennsylvania was second with 157,046, Texas is third with 107,924 and Illinois, 106,861. The states with the highest birth rates per thousand of population, however are New Mexico, 267, North Carolina and Utah, each 229. South Carolina, 227, Mississippi, 216, Alabama, 211, and Virginia, 21. All except Utah are southern states and all largely rural. The lowest birth rates are for Oregon, 122, and California, 124. Infant mortality rates, which are based on the number of deaths of infants under 1 year of age per thousand live births, are excessively high in New Mexico (1342), and Arizona (1114), both states with large nomadic Indian and Mexican populations which have little knowledge of infant care. The next highest rate is 784 for South Carolina, which has a large Negro population. The lowest rates reported are those for Washington and Oregon, 389 and 393, respectively. A rate of 37 per hundred live births was noted for stillbirths.

**Impostor Jailed**—An impostor with many aliases who has been traveling about the country for years victimizing physicians, was recently arrested in Boston after he was recognized by a physician from Atlanta who knew of his activities there. Wilder the name used in this instance, had approached physicians at the Peter Bent Brigham and Children's hospitals Boston calling himself a pathologist from Singapore and requesting the courtesy of visiting laboratories. The Atlanta physician recognized Wilder as 'Dr John Bellinger,' who used the same tactics in Atlanta and who left a trail of worthless checks behind him. Wilder confessed when he was identified by this physician and was placed in the city jail. Various names by which he has been known include Ernest Donald Roberts, Dr A L (Jerry) Castle, Dr Gwyn Chadwick, Dr John Bellinger and Dr George Neville. The impostor's method of approach is nearly always the same. He calls on physicians and, with his pleasing manner and medical knowledge, manages to win their confidence. After becoming acquainted he usually entertains generously and on his departure it is found that he has cashed numerous worthless checks. He is well informed on medicine and prominent physicians, well versed in English French German and Greek, and is conversant with music and literature. He also plays polo. He has pursued his activities in many places including Atlanta Albuquerque N M, San Francisco Santa Barbara, Palo Alto Calif Seattle Wash St Louis and Kansas City Mo Lincoln, Neb Dallas Texas Nashville Tenn Madison, Wis, and Duluth Minn (THE JOURNAL, April 15 1933 p 1196).

# Foreign Letters

## LONDON

(From Our Regular Correspondent)

July 7, 1934

### Financing Hospitals by Sweepstakes

The total amount subscribed to the last Irish Hospitals Sweepstake amounts to nearly \$15,000,000. Of this about \$9,000,000 was expended in prizes and the hospitals received \$2,600,000, the remainder being government taxation and promoters remuneration. To date about \$150,000,000 has been received for these sweepstakes, mainly from other countries than Ireland and about \$100,000,000 has been distributed in prizes. Great Britain has subscribed about two thirds of the money and also received two thirds of the prizes. Ireland's subscription amounts to only about 7 per cent of the total. The Irish hospitals have received in all about \$32,500,000. At first, aid was given only to the Irish voluntary hospitals, but the government now allots a portion of the proceeds to tax-supported hospitals. So great has been the amount received that it is now proposed to endow the hospitals, so that support will be forthcoming even if this novel source of income should dry up. It is also proposed to finance research work in Ireland by these sweepstakes.

This method of financing hospitals by taking advantage of the gambling spirit of the world has been highly successful in Ireland, but such a method is not approved of in Great Britain. The prevention of this drain has become a problem for the British government. These sweepstakes are illegal here, but the attempt to prevent subscription to them has not been successful. A few prosecutions of persons selling tickets have taken place, but the effect has been negligible. The government is now attempting by new legislation to deal with the evil. It has introduced a betting and lotteries bill in order to deal more effectively with such large sweepstakes. It prohibits absolutely the publication of lists of prize winners. At present these are such an important news item that when the lists are published the placards of the evening papers are given up to them. The bill also prohibits the publication of any other matter relating to the sweepstakes calculated to induce persons to participate in them. It is made an offense to bring into this country any tickets or advertisements for the purpose of sale or distribution. The bill prohibits the sending abroad by agents in this country of counterfoils or money derived from the sale of lottery tickets. All such money will be forfeited. These provisions have been welcomed by nearly every section of the press.

As to aid for English hospitals by such means the hospital authorities do not desire to enter on such speculation as they are receiving contributions from every working man throughout the country in addition to the subscriptions of charitable persons. The government has therefore decided against legalizing large-scale lotteries for the support of hospitals although this has been demanded by some influential persons. On the other hand the important puritanical and nonconformist section of the English people is opposed to such lotteries on moral grounds.

### International Conference on Vitamin Standardization

The second international conference on vitamin standardization has been held in London under the chairmanship of Dr Edward Mellanby FRS. All the great countries excepting Germany were represented. Dr Nelson represented the United States. The conference was remarkable for two things. The conclusions were unanimous which can be explained by the fact that all the members were experts and Sir Henry Dale

FRS, of the Permanent Standards Commission, suggested that all having editorial influence with any journal should bring pressure to bear so that all papers on vitamins, in which units other than the international were used, should be refused. The following recommendations for standardization await confirmation by the Permanent Committee on Biological Standardization.

#### VITAMIN A

Pure beta-carotene, of melting point 184 C and optically inactive, is recommended in place of impure carotene, provisionally adopted before. The previous unit was 1 microgram of the standard carotene. Beta carotene is more active and so the corresponding amount is 0.6 microgram. Coconut oil has proved so satisfactory a solvent that distribution of the pure carotene in solution is recommended to avoid the difficulties which workers have with the crystalline material. As a subsidiary standard, a sample of cod liver oil the potency of which in international units has been well established is recommended. A spectrophotometric test measuring the coefficient of absorption at 328 millimicrons in strictly defined circumstances is held to be a satisfactory measurement for vitamin A in liver oils and concentrates.

#### VITAMIN B<sub>1</sub>

The adsorbate on acid clay, previously adopted, has been found most satisfactory and is therefore recommended.

#### VITAMIN C

Like vitamin A, vitamin C can be prepared as a pure substance. The lemon juice previously adopted as a standard is therefore abandoned and *L*-ascorbic acid, as defined by physical constants, takes its place.

#### VITAMIN D

The old standard of viosterol in olive oil has been found quite satisfactory. No advantage was to be gained at present by attempting to substitute for it crystalline vitamin D. There is still a large stock available. Provision was made for such an ultimate change when it should appear desirable. But one trouble has arisen. It has recently been found that animals do not all utilize different antirachitic materials in the same proportions. Thus cod liver oil is much more potent than viosterol when tested on chickens than when tested on rats. Therefore a much larger number of units would be attributed to the oil if chickens were the test animals than if rats were. Possibly similar differences may exist in other animals. To define the animal to be used for the test is considered to be a defect of biologic standardization. Possibly further research will remove this difficulty.

#### OTHER VITAMINS

Pure lactoflavine as a standard for vitamin B<sub>2</sub> was considered but its use was held to be premature. There seemed to be no hurry in the matter, as deficiency of vitamin B<sub>2</sub> is not yet definitely connected with any disease or syndrome in man.

### Hirsuties in the Female Treated by Ovarian Hormone

At the Section of Dermatology of the Royal Society of Medicine, Dr A. D. K. Peters brought forward a new treatment of hirsuties in the female which depends on recent advances in knowledge of the sexual hormones. A woman aged 38 complained of hirsuties which she had for eighteen years. Her general health was good and menstruation was regular. Though she had married at 25 there were no children. She had a feminine physique but a heavy growth of curl hair on the moustache and beard areas, the inner sides of the thighs and the upper part of the legs. The suprapubic hair was of feminine distribution. The eyebrows were heavy.



but the hair of the scalp was fine. Crystalline trihydroxy-estrin, 100 Doisy rat units (approximately 330 international units) was taken by mouth daily for a week. Nineteen days after the administration was begun the hairs began to fall from the moustache and beard areas. This continued for a while and then gradually decreased until it ceased sixty-two days after the administration. The treatment was repeated and the hair again fell. Bare oval areas about half an inch long were left on the chin. A month later crude keto-hydroxyestrin, 1,000 international units (approximately 303 Doisy rat units), was taken every day by mouth for ten days. Hair fell at the rate of two or three hairs daily. The dose was increased to 2,000 units with the same result. The loss of hair was always greater from the chin than from the upper lip. An earlier but diminished response followed each course of treatment. In the end there was still a moderately heavy moustache but only a few stiff hairs on the chin. However, hair was beginning to grow again. The case appeared to be one of endocrine imbalance. It is proposed to institute more vigorous treatment. Kaufmann has shown that enormous doses of estrin are necessary to obtain full therapeutic results. It is suggested that, if the feminine type could be established, slight dosage might maintain it.

### PARIS

(From Our Regular Correspondent)

June 10, 1934

#### The Birth Rate of France

The bureau of statistics has published a final report on the vital statistics of France in 1933. The general results are frankly unfavorable. There were 40,000 fewer births than in 1932, 200 more deaths and 600 more marriages. The excess of births over deaths was reduced to 21,600, as compared with 61,400 in 1932. The birth rate was reduced from 17.3 to 16.3 per thousand of population, the mortality remained stationary, and the number of marriages showed but slight variation (15.1, as against 15.0). The reduced birth rate is manifest chiefly in the southern departments of France. The central region shows little variation over the previous year. The excess of births over deaths is found chiefly in the departments of the North, West and East and has been so every year for a considerable period. It is surprising that the warmer regions of the South have fewer births, for Italy, under similar conditions, has an excess of births over deaths. In southern France, however, the population is less inclined to work hard. The people live a great deal in the open air and are fond of discussing, to little purpose, questions of politics, while the interest in religious questions is diminished. In place of industrial or agricultural work, they seek positions in the cities as employees or so called civil servants. In this environment, increases in families appear to be less welcome. On the contrary, in the agricultural regions of Bretagne and Normandy, in which religious sentiments are more manifest and the interest in manual toil is greater, the families are larger. Children work in the fields at an early age. Similar conditions are found in the industrial regions of the North and the East, which are likewise more religious. In these regions school attendance is less rigorously supervised. The mayors of villages who have charge of school matters are inclined to permit peasants to keep their children at home for work in the fields. The conclusion is that the excess of births is in direct relation to the early use of the working power of the child and is in inverse proportion to school attendance, the progress of school instruction and interest in religion. Economic factors appear to be dominant. The number of children is evidently greater

in regions where their services are profitable and is diminished in regions where their presence is a burden on the family budget. The departments that have the most divorces have the smallest number of children per family. Widespread unemployment has caused many foreign workers to return to their own country, particularly the Poles and the Czechoslovaks, who came to France after the war. These foreign peasant families have always been more prolific than the French. The unchanging nature of the birth rate shows no improvement in spite of the development of the prophylactic services, the dispensaries and the hospitals.

#### The Status of the Ministry of Public Health

Considerable discussion is being awakened in medical circles on the subject as to whether parliament acted wisely in creating in 1920 a special ministry of public health. Up to that time the bureau of hygiene was a subdepartment of the ministry of the interior, which controls, from the administrative point of view, the prefects and the various public departments. For years the physicians had been loudly demanding the creation of a special ministry of health, which would be independent in its tasks and in its budget. The ministry was created in 1920 but in 1924 it was abolished and made a subdepartment of the ministry of labor, chiefly for political reasons, the purpose being to connect it with the passage of the baneful law pertaining to social insurance, which was about to be promulgated, the idea being to give the law the appearance of a health measure and thus mask its demagogic purpose. The ministry of public health was reestablished in 1930, but for several years the department was in the hands of politicians not one of whom was a physician. They represented merely a group of the party in power, the members of which the government wished to appease. The choice of the head of the ministerial department, regarded as of a secondary order, was not considered of great importance. The present incumbent, Mr. Louis Marin, who is a lawyer, confessed frankly, in an imprudent interview, that he had never paid special attention to health problems and that he was obliged to rely on the high officials in the various offices.

One of these ministers, Mr. Justin Godart, likewise a lawyer, took his duties seriously. He created a public bureau of social hygiene and established the Parti social de la Santé publique. But he disappeared, along with the others, with the next political upheaval. Recently the decrees resulting from the situation occasioned by the readjustment of the budget again brought the bureau of health under the ministry of the interior. This amounts, to a great extent, to a return to the conditions existing previous to 1920 and may be the prelude to the reabolition of the ministry of public health. Dr. Doisy, who is a deputy from the Ardennes region and who demanded with great energy the creation of this ministry when he was a member of parliament, admits today that this ministry has been the source only of disappointments, chiefly because of the instability of the heads of the department. He thinks it would be better to have a special subdepartment acting under the ministry of the interior and having as its head a professional hygienist uninfluenced by the fluctuations of political parties. A humorous side of the question is the fact that this view was entertained in 1925 by Louis Marin himself, the same man to whom the Doumergue ministry awarded the office of minister of public health, of which circumstance one of the newspapers has reminded him. The important thing is that the departmental directors of hygiene, who are the necessary units of the whole organization, be well chosen and that sufficient authority be accorded them that they can compel the prefects to carry out the administrative measures that they have decided on.

### Industrial Poisonings Due to Benzene

Poisonings from the use of benzene are becoming more numerous as the industrial use of substances with a benzene base becomes more widespread. Dr. Heim de Balzac, director of the technical institute of the Conservatoire des arts et metiers, has reported the results of his investigation of the subject. He expresses regret that great confusion exists in the terms used in various countries to designate the various products employed, without any account being taken of their origin—a distillation of either gasoline or coal tar. The word "benzin" designates in Germany essence of petrol (gasoline) and in France one of the products of the distillation of tar, which the Germans call "benzol", but in France benzol signifies a mixture of hydrocarbons of coal. As these various products are often imported from foreign countries under the names peculiar to the country of origin, it sometimes happens that industrialists are ignorant of the degree of toxicity of the product that they are using. Under different names there are twenty or more different products, none of them alike, employed as solvents in the manufacture of rubber and varnishes. Of all these substances, pure benzene ( $C_6H_6$ ) is the most toxic. It is not used in a pure state but only mixed with toluene and xylene. Heim de Balzac distinguishes therefore, in the French factory, benzolism, benzolism and benzinism. However, it appears that some authors who have written on the subject have confused these facts. Essence of petrol (gasoline) is only weakly toxic in its effect on the nervous system, whereas benzene and the substances associated with it in the distillation of coal are protoplasmic poisons, with predilection for the blood, the hematopoietic and the central nervous system, heat production and the oxidation processes. They exert an action also on the walls of the vessels, which they render fragile and predisposed to hemorrhages. One observes a diminution of the erythrocytes and of the hemoglobin index. Chronic poisoning with benzene is manifested by a more or less marked anemia, with hemorrhagic tendencies and sometimes fatal results. Heim de Balzac cited the case of a shop for the manufacture of varnishes where suddenly a series of poisonings developed affecting 50 per cent of the force and causing eight deaths. Inquiry revealed that the accidents followed the use of a solvent for rubber, with a pure benzene base, which had been substituted for essence of petrol (gasoline) heretofore used. Rejection of the benzene and a return to essence of petrol (gasoline) put an immediate end to the accidents. A fatal case was observed in a small shop of the Paris region with a similar origin, namely, the substitution of benzene for essence of petrol (gasoline). At the present time, benzene is used more and more as a solvent of new sprayed varnishes used on automobile bodies, and accidents are becoming more frequent. Heim de Balzac recommends a thorough inspection of all the industrial establishments in which benzene is employed, extensive aeration and a periodic medical examination of all the workmen, including examination of the blood, blood count and percentage of hemoglobin so as to discover early the blood changes that characterize the onset of the poisoning. An early sign of great value consists in the elicitation of blue spots on the skin by means of light taps on the sternum or the application of a tourniquet to the arm.

### The Congress of French-Speaking Physicians

The Congrès de médecine de langue française, which meets annually and is held alternately at Paris and in some large city of a French-speaking country, will convene this year at Quebec, at the invitation of the Canadian government, which desires to have the congress held in connection with the ceremonies in commemoration of the fourth centenary of the discovery of Canada by the French navigator Jacques Cartier. About 150 French professors and physicians have enrolled and will embark August 18 on the transatlantic steamer *Champlain* chartered for the occasion. All will participate in an excursion

through the United States and will visit during the first week in September Chicago, Rochester (Minn.), Washington and New York, where they will embark, September 9, for the return voyage.

### BERLIN

(From Our Regular Correspondent)

June 11, 1934

### The Society for Research on the Circulation

The chief topic at this year's session of the Deutsche Gesellschaft für Kreislaufforschung, held under the chairmanship of Professor Norr, veterinarian of Munich, was "Thrombosis and Embolism." The first paper was presented by Aschoff of Freiburg, who discussed remote thrombosis as the most important source of lung embolism. With few exceptions the thrombus is located in the veins of the thigh and pelvis, which points to the static factor in the development of thrombi. The conditions favoring the development of the remote thrombus are retardation of the blood stream, the behavior of the blood platelets as to number and agglutinability, and the behavior of the protein bodies of the blood. Of the external factors that play an important part, mention may be made of changes in the general nutrition. The increase of thrombosis since the war is regarded as due mainly to sharp fluctuations in the diet, particularly the fat intake. Recently the frequency of thrombosis has declined, doubtless because the diet of the population is again better balanced. Also persons affected with obesity or high blood pressure have a tendency to thrombosis and embolism—furthermore, infections, operative interventions, losses of blood, and possibly also changes in the carbon dioxide tension of the blood. A. Dietrich of Tübingen emphasized the significance of injuries of the vessel walls in connection with thrombosis. According to his view the formation of thrombi is based chiefly on changes in the endothelium, the increased precipitation of platelets occurs then secondarily.

On the second day, Morawitz of Leipzig called attention to the fifteenfold increase of thrombosis and embolism during the postwar period, and particularly during the years of inflation. At the same time an increase in circulatory disorders was noted. The relation between the two disorders has not been fully clarified. In Europe, Germany was chiefly affected, and the older more than the younger age groups. No single cause can be brought forward in explanation of thrombosis, the blood and the blood vessels are an anatomic and functional unit—a single organ, a sharp separation, such as was brought out in the first papers, did not appear feasible. Morawitz described the relations between blood platelets and thrombi. The tendency to thrombosis varies in different morbid conditions, depending on the behavior of the blood platelets and the plasma (agglutinins). There is no way to prevent the progress of a thrombosis, therapeutics has not introduced any new methods.

Nürnberg of Halle stated that in gynecologic practice the increase of thrombosis and embolism has not been so widespread. The cause for local increases could not be established. In diagnosis, the pain symptoms in thrombosis of the pelvic veins, especially rectal, abdominal and shoulder pains, are important. One observes also plantar pain and pain in the calf of the leg, a spastic venous strand in the groin, dysuria, anal pain during an enema, and meteorism, likewise increased cutaneous sensitiveness as a sign of 'silent embolism,' which appears about the fifth day after an operation, along with lung and heart symptoms and shoulder pain. As prophylactic measures, numerous methods are used to speed the blood circulation: massage, gymnastics and inhalations of carbon dioxide. Statistics on early and late rising after an operation are conflicting. In septic thrombophlebitis, ligation of the veins seldom affords much benefit.

### Research on Cardiac Infarction

Professor Brugsch of the University of Halle and Dr Misske presented recently the results of their research on cardiac infarcts. Angina pectoris is associated with infarct of the myocardium in a third of all cases, although it is not a leading symptom. The leading symptom, fear of death, affects the whole vegetative nervous system, hence the cold clammy sweat and aspect of collapse. Angina pectoris serves the purpose of a brake. The patient with angina pectoris stops short if he has an attack on the street, then the pains recede. In case of cardiac infarct, the patient is seized with fear, with or without heart pain. After the attack there comes a lowering of blood pressure, amounting sometimes to from 70 to 80 mm. The cases in which the blood pressure falls below 80 mm are desperate. Cardiac infarct is often wrongly diagnosed, necrosis of the pancreas is likely to be thought of because of collapse and the swelling of the abdomen. A leukopenia may be observed in pancreatic necrosis, whereas in cardiac infarct a leukocytosis is present. The electrocardiogram is of great aid in diagnosis. One must distinguish between an intramural and a septum infarct. In intramural infarct the currents in the damaged area produce in the electrocardiogram the monophasic instead of the pluriphasic course of ventricular activity, called upward deflection of the ST portion. In the septum disturbances the changes are characteristic for disorders of the bundle of His. The most frequent form of the infarct is that affecting the descending branch of the left coronary artery. Therapeutically, nothing should be given by vein. One or two days after the attack, a clysis of a digitalis infusion (15-200) may be given in two days in four portions. Digitalis will usually raise the blood pressure about 20 mm. On the fourth or fifth day, an attempt may be made to inject slowly a 20 per cent dextrose solution. After from eight to ten days an intravenous injection of strophanthin is permissible, but not without theophylline ethylenediamine and dextrose. The injection must be made very slowly. It takes from six to eight weeks before the patient recovers to a certain extent. The patient should take a long rest. All clinically diagnosed infarcts are large. Small infarcts cause chronic heart weakness. The pain of angina pectoris may be harmless or it may be the forerunner of an infarct. Most infarcts manifest themselves without the angina pectoris. The diagnosis of coronary thrombosis or of infarct of the myocardium can be made in most cases by the electrocardiogram. The ventricular complex shows characteristic changes affecting particularly the ST interval with abnormal T deflection below the line. In place of the RST segment above the line an ST portion is often found below the zero line. The ST interval with the inverted T ("coronary T") wave may, years later, betray the coronary blocking or the infarct of the myocardium, although, in the course of time, the normal wave form may be reassumed. Occasionally it is possible to determine the location of the heart muscle injury from an inspection of the typical change in the RT segment and to distinguish an anterior from a posterior infarct. From their own observations, Brugsch and Misske were not able to set up a rigid scheme of electrocardiographic changes in blocking of the coronary system. An enlargement of the Q peak in the second and third deflection (Q III larger than Q II), combined with changes in the T peak or of the intermediate portion in the same deflection may be regarded as a sign of an infarct. The same importance attaches to the occurrence of a depressed Q I. Besides the changes in the ST interval and the T peak they found most frequently intraventricular disturbances of conduction in the form of a blocking of a main stem or of a branch, and they always found blocking of the right main stem and never of the left. This is explained in part by the fact that the left

main stem gives out many fan-shaped branches and hence cannot be so easily and completely blocked as can the simple strand-shaped right main stem, which does not usually divide into three branches until it reaches the base of the large papillary muscle. Also the distribution of the blood supply may be responsible. Only in about 8 per cent of the cases is the left ventricle supplied exclusively by the left coronary artery. Hence for a left-sided complete ventricular blocking a closure of both coronary vessels is necessary, whereas the closure of a small septal branch from the ramus descendens is sufficient to block the right stem completely in its lower course.

Mahrum distinguishes an anterior cardiac infarct resulting from a disordered condition of the descending branch of the left coronary artery, and a posterior infarct, which occurs in two forms, the high infarct, in which the atrioventricular node and the common trunk are affected and the depressed infarct with injury of only the left posterior branch. Similar conditions may be observed also in myocarditis diphtherica and narrowing of the coronary orifices in syphilitic aortitis, with defective blood supply in the septum. In association with blocking of the descending branch of the left and the right coronary artery, Brugsch and Misske, in addition to intraventricular conduction disturbances, observed auricular fibrillation with absolute arrhythmia of ventricular activity.

### VIENNA

(From Our Regular Correspondent)

June 12, 1934

#### Composition of the Jewish Population in Vienna, from the Standpoint of Anthropology

At a joint session of the Gesellschaft für Rassenkunde and the Anthropologische Gesellschaft of Austria, over which Prof Dr Wagner Jaueregg presided, discussion arose over the composition of the Jewish race in Vienna. Since scientific research may still be carried on in Austria unhampered by politics, which is an impediment in Germany, the results of such a discussion should be interesting. The discussion was opened by the investigators Dr S Hella Poch and Robert Routil, assistant professors at the Anthropologic Institute of the University of Vienna. The methods of measurement and observation had been worked out in Vienna and had been applied to the Bushmen in South Africa and, during the World War, to Russian African and Asiatic war prisoners. The initial stimulus to the comparative measurements on the 200,000 Jews of Vienna came from the investigation of the geographers Prof H V Wissmann and Prof Dr Rathjaens of Hamburg, who during extensive travels in Arabia, and particularly in Yemen, had collected photographs and measurements of Arabians and Jews and had turned them over to the Vienna Institute, where new material was added. The result of the research was to the effect that at least seven distinct racial types, and possibly three more, are distinguishable in the Jewish people of today. The Jews of Yemen seem to belong to an ancient and primitive racial type, especially in the oases. By taking their racial characteristics as a basis for comparison, a classification of the various groups of the Jewish people becomes possible and serves to correct previous erroneous conceptions. The Jews still show elements of races that long ago left their original place of settlement. Their anthropologic history goes back, then, to two ancient Semitic races: (1) the Canaanites, who still live in Palestine under the name of Samaritans—large and tall individuals with large noses and fairly long heads, and (2) the Accadians, which include the Babylonians and the Syrians of Mesopotamia—of average height, with short heads and sharply curved noses. The original Jews received a part of their foreign blood while still in Palestine, through which foreign peoples were constantly passing and a further part on their

own wanderings, which have extended over the whole world. The present day types can be shown to possess characteristics of the Hittites and Ammonites, also qualities of the populations of southern and southeastern Europe (Greeks, Scythians, Sarmians), which may be given special mention as parts of the oriental parent stock. Various marks and characters that were noted in skulls and sculptures 5,000 years ago may be observed today precisely as they were centuries ago and thus prove the connection between ancient and modern times. It is evident that in the ancient types there were *dauertypen*, or persistent types. For thousands of years no fundamental changes in the races of man have occurred, the modification that has developed being due solely to crossings, which can be demonstrated by anthropologic methods. The racial mixture constituted by the Jews of Vienna shows thus characters of oriental peoples who came down from the North mingled with racial characteristics of North African Berbers, Abyssinian Negroes, Old Egyptians, Fellahs and various European peoples. During the discussion, which was comprehensive, Professor Oberhummer stressed the aspects of primitiveness that cling to the Jews of Yemen. Professor Christian pointed out that the Canaanites had mixed with the Jews, or Hebrews. The Amorites, who likewise were in Palestine before the Jews, are of North European origin. They intermarried soon with the new lords of the land, and traces of their racial stock are distinctly observable in the Jews of today. Dr. Frankfurter called attention to the widespread mingling of peoples in Europe, whereby the races of man were changed and the somatic characteristics of the Jews were so markedly influenced.

#### Public Lectures on Health by Laymen Prohibited

A recent order of the public health service provides that the presentation of public lectures on therapeutic methods and the functions of the human body and its organs by persons who have not been admitted to the practice of medicine in Austria shall be prohibited because of the associated menace to public health. This order applies to the entire area of the republic of Austria. It does not, however, extend to lectures delivered before private societies or to speakers who although not authorized to practice in Austria are practitioners in a foreign country. Lay practitioners will not be permitted to deliver lectures in Austria even though they are allowed to practice the healing art in some foreign country. Violations of this order will be subject to fine and imprisonment.

#### Protection of Workmen in Certain Industries

About a year ago the public was stirred by the poisoning of seventy-two girls employed in a factory manufacturing rubber goods in which benzene and xylene were used. During the court action that grew out of the disaster the laws bearing on the situation were declared by the public health service to be inadequate. The federal ministry of health then issued a regulation designed to protect the health of employees in manufacturing plants in which the following chemicals are used: benzene, toluene, xylene, trichloroethylene, tetrachlorethane, carbon tetrachloride and/or carbon disulphide. Workmen will not be permitted to work longer than four hours a day in rooms in which they might be exposed to the fumes of such substances. Where carbon disulphide is being used the time is cut to two hours a day. No women or boys under 18 years of age may ordinarily be employed on work with chemical products in which injurious vapors cannot be avoided, as in the manufacture of varnishes or paints, the production of rubber articles, glues and pastes or waterproof substances or printing presses or other presses when such work necessitates the use of benzene, toluene, xylene or carbon disulphide. If however the concentration of poisonous substances is no stronger than 10 per cent they may by exception be allowed to work

provided an effective suction apparatus has been introduced. Persons employed in such plants must report for a health examination at intervals of three months, when the composition of the blood must be carefully ascertained. The costs of the examination must be borne by the employer. If, after two years of regular periodic examinations, the health of the workmen has been found to be good, the interval between examinations may be lengthened. Workmen who are found to be ill or to display insufficient resistance will not be permitted to work again in such plants. Establishments using these dangerous substances will be required to keep a record card for each workman, which will state the nature and duration of the employment, the dates and results of the periodic medical examinations, and, in the case of illness, the nature, course and termination of the illness, and the day on which work was resumed by the examinee.

#### Treatment of Avulsion of the Scalp

Dr. Schnek, of the University Surgical Clinic in Vienna, demonstrated recently before the Gesellschaft der Aerzte a case in which a cure was effected in grave scalp injuries. The patient was a woman worker 20 years of age, who, six weeks before the demonstration, had been caught by the hair of the head in a revolving shaft. The hair was twisted into a roll, and a circular skin flap of the scalp about 6 inches in diameter, beginning with the frontal hair border, was torn loose from the head. Half an hour later the injured woman was at the emergency station of the clinic, in a fairly good condition. The edges of the wound were fairly smooth, except on the forehead. The periosteum of the parietal bones was loosened in part, but the bones were but slightly contaminated. The avulsed portion of the scalp with the hair, had been wrapped in a newspaper and taken along to the hospital. Under local anesthesia the edges of the wounds were cleansed and devitalized tissues were removed, but some of the contused tissues in the anterior area had to be left, for the time being. The flap of the scalp that had been twisted loose was washed in physiologic solution of sodium chloride, after the hair had been removed with clippers and razor. The scalp was then placed on the wound and fastened by sutures. The spurting arteries were not ligated, in order not to injure the supporting vessels of the surrounding area. A drain served to prevent the development of a hematoma under the scalp. A dry bandage induced a light compression and supplied warmth as the avulsed portion of the scalp was entirely cold. After a week the covering bandage was removed and the wound was treated open. The upper layers of skin were changed into dry necrotic crusts, under which the healing process—much as in burns—progressed. Now (six weeks after the operation) the wound area is dry except for a small necrosis of the margin of the skin of the forehead. A new growth of hair has appeared on the shaved surface, which, however, in contrast with the former dark hair, is of an absolutely blond type. It may be seen that an attempt to save tissues that have been completely severed from the body may be successful if the following conditions are fulfilled: youthful age of the patient, ample blood supply in the surrounding area and a prompt operation. As a rule, the possibility of saving a flap that is still connected with the remaining scalp is excellent; the cleansing and the fixation are not difficult. In case of total loss of a portion of the scalp, with exposed bones nothing can be done but (after hemostasis) to cover the wound the base of which is usually formed of cranial bones covered with periosteum primarily with a Thiersch flap, or, after healing by granulation, to perform a secondary Thiersch operation. In such circumstances, sensitive and deforming scars are left. The foregoing method constitutes an excellent method of avoiding such evils. There have been few successful attempts of this kind reported.

## Marriages

LUCA EUGENE HUMBERT CELENTANO to DR JEAN DE FRANCES HIPPOLITUS, both of New Haven, Conn, July 23  
EUGENE J NIGGORSKI, Corinna, Maine, to Miss Gertrude Twarogowski of Salem, Mass, June 3  
CLARENCE GEORGE OCHSNER, Wabasha, Minn, to Miss Anita Bouquet of Caledonia, in June  
HUBERT H BURROUGHS to Miss Dorothy May Bowers, both of Sioux City, Iowa, July 22  
LOWELL SINN SELLING to Miss Mary Charlotte Paradis, both of Detroit, June 2

## DEATHS

JOUR A M A  
Aug 4 1934

Missouri State Medical Association, past president of the Carroll County Medical Society, aged 65, died, June 14, in St. Luke's Hospital, Kansas City, of coronary occlusion and myocardial fibrosis

Sterling Buckner Ragsdale, Washington D C, University of Nashville (Tenn) Medical Department, 1908, medical superintendent of the Columbia Hospital for Women and Lying-in Asylum, aged 49 was drowned, July 3, when he stepped into a deep hole while wading in the Severn River

Samuel St John Wright, Akron, Ohio, Cleveland Medical College, 1876, member of the Ohio State Medical Association, past president of the Summit County Medical Society, aged 63, many years on the staff of the Children's Hospital, aged 81, died, May 29, of chronic myocarditis and arteriosclerosis

Edgar C B Mole, Hardeeville, S C, University of Georgia Medical Department, Augusta, 1894, member of the South Carolina Medical Association president and formerly secretary of the Beaufort County Medical Society, aged 63, died, June 9, in a hospital at Savannah, Ga, of leukemia

Sands Carr Maxson, Utica, N Y, University of the City of New York Medical Department, 1871, member of the Medical Society of the State of New York, for many years on the staff of St Elizabeth's Hospital, aged 85, died, May 13, of strangulated hernia and peritonitis

John B May, New Holland, Ohio, Cincinnati College of Medicine and Surgery, 1873, past president of the Pickaway County Medical Society, for many years member of the board of education, aged 92, died, May 22, of arteriosclerosis and diabetes mellitus

Calvin Carlin Montgomery, Lincoln, Ill, Washington School of Medicine, St Louis, 1900, past president of the Logan County Medical Society served during the World War aged 65, died, May 15, of myocarditis, bronchial asthma and diabetes mellitus

George Andrew Morrison, Bradshaw, Neb, University of Nebraska College of Medicine, Omaha, 1905 member of the Nebraska State Medical Association aged 57 died May 30 in a hospital at York, of cerebral embolism and chronic endocarditis

Rolly Ray Hogue, Linton, N D, Rush Medical College Chicago 1899 member of the North Dakota State Medical Association, served during the World War, aged 58 died June 12, in a hospital at Bismarck, of erysipelas and heart disease

Alexander Tullis, Chicago Jenner Medical College, Chicago 1909 College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois 1911, aged 78, died June 28 of lobar pneumonia and benign prostatic hypertrophy

Franklin Francis Carter, Centraha, Kan, Ensworth Medical College St Joseph, 1900 formerly county health officer served during the World War, aged 60 died June 8 in a hospital at Topeka of cerebral hemorrhage and pneumonia

William Elden Casey, Spokane Wash, Beaumont Hospital Medical College, St Louis 1901, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905, aged 65, died, June 9, of cerebral hemorrhage

John Thomas Whitty, Seattle, Marquette University School of Medicine Milwaukee, 1913, member of the American Urological Association served during the World War, aged 48, died suddenly June 4, of angina pectoris

George Thomas Cooke Adams, St Joseph, Mich Queen's University Faculty of Medicine, Kingston, Ont, 1892, F R C P, Edinburgh L R C S, Edinburgh, L R F P & S, Glasgow, 1892, aged 68 died, June 23 of ruptured gastric ulcer

Laban Benjamin Underwood, Andalusia Ala University of Alabama School of Medicine, 1918 member of the Medical Association of the State of Alabama, aged 39, died, May 13, of injuries received in an automobile accident

Moses O Kupelian, New Britain, Conn, American University of Beirut School of Medicine Beirut Lebanon, Syria 1918 formerly police surgeon aged 37 died, May 13, of chronic endocarditis and pulmonary embolism

James A Davis, Little Rock, Ark, American Eclectic Medical College Cincinnati 1890 Hospital College of Medicine Louisville Ky, 1895 aged 64, died, May 19, of diabetic gangrene and chronic interstitial nephritis

John Irwin Ferguson, London, Ont, Canada Western University Faculty of Medicine, London, 1900 assistant professor of medicine at his alma mater aged 56 died, May 10, in the Toronto General Hospital

## Deaths

Gregorio Maria Guiteras, Senior Surgeon, U S Public Health Service, retired, Yeaddon, Pa, University of Pennsylvania School of Medicine, Philadelphia 1885 entered the U S Marine Hospital Service, now the U S Public Health Service, in 1888 as an assistant surgeon advancing through the various grades to that of senior surgeon, retiring in 1927 with rank of lieutenant colonel, delegate to the Pan-American Medical Congress in Havana in 1902, Guatemala in 1920, Santiago de Chile in 1911 and Montevideo, Uruguay, in 1920, quarantine officer during the intervention of the United States in Cuba from 1899 to 1902, served as sanitation officer of the Seventh Naval District during the World War, aided in the suppression of all the yellow fever epidemics occurring in this country during his career, aged 71 died, July 5, in the Philadelphia General Hospital, of cerebral thrombosis

Charles Aubrey Parker, Chicago, Rush Medical College, Chicago, 1891, member of the Clinical Orthopedic Society, associate clinical professor of orthopedic surgery at his alma mater, past president and secretary of the alumni association of Rush Medical College, chairman of the committee on after-care and study of infantile paralysis he prepared a pamphlet on 'Infantile Paralysis for Parents and Patients' for many years on the staffs of the Home for Destitute Crippled Children, Cook County Hospital and the Presbyterian Hospital aged 66 died July 16 of pseudobulbar paralysis

Charles Moore Strong, Charlotte, N C, University of Maryland School of Medicine Baltimore 1888, member of the Medical Society of the State of North Carolina, past president of the Mecklenburg County Medical Society, fellow of the American College of Surgeons on the staffs of the Good Samaritan, St Peter's, and Presbyterian hospitals and the Charlotte Sanatorium, aged 72, died, June 14, of heart disease

John W Moore, Houghton, Mich, Detroit College of Medicine, 1895, member of the Michigan State Medical Society, formerly member of the state legislature, aged 62 on the staff of St Joseph's Hospital Hancock, where he died, June 10, of uremia, which developed following an emergency operation to remove a chicken bone which punctured the peritoneum

Henry Brewster Minton, Brooklyn New York Homeopathic Medical College and Hospital 1887, at one time professor of anatomy and medicine at his alma mater for many years member of the state board of medical examiners formerly on the staff of the Cumberland Street Hospital for stomach

William Darrow Runyon, Sioux City Iowa State University of Iowa College of Medicine Iowa City, 1909, member of the American Psychiatric Association served during the World War on the staffs of St Joseph's Mercy, St Vincent's Methodist and Lutheran hospitals, aged 47, died, June 23, of metastatic carcinoma

Harold Samuel Boquist, Minneapolis University of Minnesota Medical School, Minneapolis, 1921, instructor in the department of medicine at his alma mater, on the staffs of the Asbury, Fairview and St Andrew's hospitals aged 45 died June 12, in the University Hospital, of subacute bacterial endocarditis

Edwin Harrington Musson, Norborne Mo, University of Michigan Medical School Ann Arbor, 1900 member of the

⊕ Indicates Fellow of the American Medical Association

**William McKinley Ison**, Edmonton, Ky., University of Louisville School of Medicine, 1926, member of the Kentucky State Medical Association, aged 34, died, May 13, of a self inflicted bullet wound

**Frank D. Thompson**, Fort Worth, Texas, Louisville (Ky) Medical College 1875, aged 82, died, May 18, in the Cook Memorial Hospital of myocardial insufficiency, hypertension and diabetes mellitus

**Edgar William Guilford**, Newell, W. Va., Western Pennsylvania Medical College, Pittsburgh, 1900, veteran of the Spanish-American and World wars, aged 60, died, May 2, of cerebral hemorrhage

**William Paul Owen Thomason** ♂ Easton, Pa., Jefferson Medical College of Philadelphia, 1897 on the staff of the Easton Hospital aged 62, died, April 28, of carcinoma of the sigmoid

**Muret Napoleon Leland** ♂ Minneapolis, College of Physicians and Surgeons of Chicago 1896 on the staff of the Deaconess Hospital, aged 60 died, May 28, of coronary thrombosis

**Louis Ignatius Turner**, Baltimore University of Maryland School of Medicine, Baltimore, 1877, aged 77, died suddenly, May 9, in Govans, of lobar pneumonia and myocarditis

**Howard Iszard**, Glassboro N. J. Hahnemann Medical College and Hospital of Philadelphia, 1886, formerly member of the board of education, aged 77, died, May 31, of myocarditis

**Stephen Elud Griggs**, Seattle, College of Physicians and Surgeons of San Francisco, 1904 aged 50, died, May 5, of pancreatitis, chronic myocarditis and arteriosclerosis

**Granville Lesnar Oldham**, Columbus, Ind. Central College of Physicians and Surgeons Indianapolis, 1898 aged 84, died, March 5 of hemorrhage of the stomach

**Archie E. Ray**, Tullahoma, Tenn., Chattanooga Medical College, 1900, member of the Tennessee State Medical Association, aged 60 died June 4 of heart block

**Angela L. Ford Warren**, Portland Ore., Willamette University Medical Department Salem, 1877 aged 79 died, May 21 of myocarditis and coronary thrombosis

**David Cunningham Blake**, Lewiston, Idaho Bennett College of Eclectic Medicine and Surgery, Chicago 1884 aged 81, died, March 27, of lobar pneumonia

**Anna Jacobs Green**, Chicago, Hahnemann Medical College and Hospital Chicago 1900, aged 62, died suddenly, June 14, of myocarditis and arteriosclerosis

**William Addy Oxner**, New Brookland S. C. University of Georgia Medical Department Augusta, 1908, aged 64 died, March 22 of influenza and uremia

**Arthur J. Griffith**, Comer, Ga., University of Georgia Medical Department Augusta 1904 aged 57, died, May 29, of acute dilatation of the heart

**Edward Lee Roy Wallace** ♂ Los Angeles, California Medical College, San Francisco, 1897, aged 59, died suddenly, June 8, of coronary sclerosis

**Thomas John Clayton Tindle**, Flinton, Ont., Canada Trinity Medical College Toronto, 1903 died, May 21, in the General Hospital, Belleville

**John Patrick Gallagher** ♂ Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1909, aged 49, died, June 1 of carcinoma

**G. Arthur Ferron**, Grand Mere, Que., Canada, School of Medicine and Surgery of Montreal, 1900, aged 56, died, April 23 in New York

**Lawrence P. A. Magilligan**, Brooklyn, Bellevue Hospital Medical College New York, 1893 aged 67, died May 12, of coronary sclerosis

**Meyer Jackson**, New York, Eclectic Medical College of the city of New York 1887 aged 73 died, April 17 of heart disease

**William Van Korb** ♂ Philadelphia, Medico-Chirurgical College of Philadelphia, 1898 aged 66, died, April 17, of brain tumor

**William A. Miller**, Bristol Tenn., Kentucky School of Medicine Louisville 1893 aged 65 died May 4 of pneumonia

**William Henry Reader**, New Amsterdam Ind. Kentucky School of Medicine Louisville 1878, aged 83 died May 25

**Louis A. Genest**, Legal Alta Canada School of Medicine and Surgery of Montreal Que. 1893 died February 10

**Charles E. Gosnell**, Bingen Ark. (licensed in Arkansas in 1903) aged 64 died May 28 of nephritis

## Correspondence

### YAWS AND SYPHILIS

*To the Editor*—The communication of Professor Blacklock of the Liverpool School of Tropical Medicine in *THE JOURNAL*, June 16, page 2043, gives opportunity to correct a typographic error that occurred in my communication referred to by Blacklock in *THE JOURNAL*, January 13, page 148. In this article the second paragraph ends with the sentence "Blacklock proves the proposition that yaws and syphilis are the same thing but quotes the *army* writers." What I actually said was "quotes the *wrong* writers." This error has caused me no little embarrassment and has been the occasion of numerous letters to army friends in explanation. I therefore welcome this opportunity to broadcast a disclaimer and also to correct several inaccuracies in Professor Blacklock's communication. In order properly to do this it will be necessary to go back a little in point of time.

During April 1932 I received a letter from Dr. N. Hamilton Fairley, joint secretary of the Section on Tropical Medicine of the British Medical Association, of which Sir Leonard Rogers was president, in which I was told that Sir Leonard Rogers was particularly anxious to have me take part in the "discussions on the relationship of yaws and syphilis which is to be opened by Professor Blacklock of Liverpool." This was the centenary meeting of the British Medical Association in July 1932. It was impossible for me to accept this invitation, but I was flattered by this request from so high an authority. This was the first intimation I had that Professor Blacklock was interested in this relationship.

Dr. Blacklock first embraced the hutchinsonian point of view regarding yaws and syphilis so far as I can determine, in 1932, for he first published an article on it in the *Annals of Tropical Medicine and Parasitology*, Oct. 29, 1932. Practically identical material came out in the issue of the *British Medical Journal* for Jan. 21, 1933, and in the November 1933 issue of the *Tropical Diseases Bulletin*. The second publication was devoid of a bibliography.

Properly conducted controversy has a definite place in medical literature. It stops the little publicity seeker in his tracks just as a dum dum bullet stops a savage. It is the ruin of the pseudoscientist trying to get away with his pet fetish. It conserves the best of the forebears. Medicine owes it much. In controversial publications I have always found English physicians generous foemen ready to give and take without malice or misrepresentation.

There is nothing remarkable about the fact that different men when confronted with a given set of premises and thinking logically on them should come to the same conclusions. So it was no surprise as I looked at it that Dr. Blacklock, applying logical thinking to the table of points purporting to differentiate yaws and syphilis, should come to the same conclusions that many physicians before him had arrived at, in trying to explain this intricate question. Sir Jonathan Hutchinson threw the weight of his marvelous intellect and experience on the side of unity and is justly entitled to be called its greatest champion. As pointed out in my editorial, however, this view was held by Thomas Sydenham in the seventeenth century and has been held by many physicians since.

In the early part of 1933 I received several letters from friends stating that Dr. Blacklock had apparently assumed proprietorship of the unity idea. At that time I had seen only the second article by him in which no references were used. When I saw the other two articles I then published the communication in *THE JOURNAL* as a mild protest, not that he had failed to quote me but that most of the authorities whom he



did quote represented the duality idea, which, judged from his three papers, he was opposing. There was no "misapprehension" on my part as to what he had done.

The writer puts an incorrect and wholly unjust interpretation on a quotation he uses from an editorial of mine published in the *American Journal of Clinical Pathology* (2 239 [March] 1934). "Professor Blacklock quotes many more or less important writers along the line of the yaws-syphilis investigations but has little to say about his own countrymen who have borne the brunt of it in defense of what they know to be true. Nor ought but silence has he for the group of Americans, principally U S naval medical officers, who have, by research and writing, defended Hutchinson's view for the past thirty years." He then makes it appear that I had said he had ignored the work of Americans in the yaws-syphilis investigation. Quoting the names of some twenty distinguished American physicians, many of whom I am proud to call my friendly antagonists, and with practically all of whom I have exchanged reprints, he asks for the impossible interpretation he chooses to place on it.

The American authors Professor Blacklock names have, some in their textbooks, some in special researches, either frankly described yaws and syphilis as distinct or have interpreted their investigations as opposed to the views of Hutchinson. I never said that Professor Blacklock has "entirely ignored" Americans. He would have been disingenuous indeed had he failed at this point. What I did imply was that he had no generous reference to the work of those Americans who by research and writing had defended for some thirty years the views of Dr Blacklock's distinguished fellow countryman the late Sir Jonathan Hutchinson, that yaws and syphilis are identical. I intimated too that most of the Americans sharing the unity view are members of the U S Naval Medical Corps. This also is correct. Professor Blacklock's charge of "a very definite misrepresentation" is boomeranged back at him by an unbiased reading of the very sentence he quotes from my editorial.

I believe that those who read this will not be led to the prejudiced verdict that "Dr Butler's remarks are not justifiable," which Dr Blacklock seeks in his final paragraph.

C S BUTLER, M D, Brooklyn

Captain, M C, U S Navy, Commanding  
U S Naval Hospital, Brooklyn

### SIMPLE TOURNIQUET FOR THE KIDNEY PEDICLE

*To the Editor* — Competition among the professional gadgeteers seems to continue heatedly.

Anticipating all manner of distress and apprehension from hemorrhage, when one has to perform some evacuating or plastic operation on a kidney, he is beset with the thought "Can I control bleeding, after incision into the kidney by the simple measure of a finger scissor hold about the blood vessels, or shall I apply a cushioned clamp or string a catheter about that pedicle and fix the pressure and its retention by a pair of forceps?" He may have to employ all of them.

I offer this suggestion. Use the simple commercial block, double groove and catheter tourniquet, which can be boiled. After the kidney has been disembedded and the pedicle made free, pass the loop of rubber tubing about it, either under vision or by faith, draw an end of the tubing to such a point as will yet permit a long piece or fluff of gauze to be interposed at the block and on its opposite side as well. Then draw the tubing taut until pulsation in the renal artery is no longer felt. The two pieces of gauze both serve as cushions, and the one remote from the grooved block may be used as a tractor for counterextension when release of the instrument may be indicated.

GIDEON TIMBERLAKE, M D, St Petersburg, Fla

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### TYPHOID IMMUNIZATION AND GASTRO INTESTINAL SYMPTOMS

*To the Editor* — 1 Is it desirable to vaccinate a nurse with typhoid (paratyphoid?) vaccine while she is in daily contact with a typhoid (paratyphoid?) patient? 2 Would the fact that such a nurse was suffering from gastritis and possibly had a gastric or duodenal ulcer contraindicate such vaccination even though it might be otherwise desirable? 3 Would such vaccination accentuate a stomach or duodenal lesion to such an extent as to make a gastro-enterostomy necessary? 4 Would it be ethical for a surgeon to state to a patient on whom he had performed a gastro-enterostomy that it was the result of typhoid immunization and was the basis for legal action against the physician who had vaccinated the patient? Please omit name and address.

M D Kansas

ANSWER — 1 If the vaccination can be completed before the nurse goes on duty, the answer is yes without any qualification. If the nurse is already on duty, two possibilities should be considered. First, the vaccination might make the nurse too ill, at least for a day or two, to care for her patient and, secondly, the vaccination might not be completed until after the recovery of the patient. Perhaps it would be best either to secure a vaccinated nurse or, if that is impossible, to redouble the usual precautionary measures.

2 and 3 The possibility that retching and vomiting following the vaccination, although exceptional, might affect the ulcer disastrously cannot be denied, under such circumstances, gastro-enterostomy or other operation might be necessary.

4 No, it would not be justifiable for a surgeon to state positively that gastro-enterostomy was made necessary by typhoid immunization, because the surgeon cannot know for sure that the condition requiring operation did not develop spontaneously and independently of the immunization. Finally, the surgeon had no right to tell the patient that the immunization was a fair basis for action against the physician who had vaccinated the patient because it may fairly be assumed that the physician in vaccinating the patient acted according to his best judgment in the case.

### SENSITIVITY TO MILK AND CREAM

*To the Editor* — The inability to tolerate milk and cream by undernourished individuals is a serious problem. A common cause of this is an allergic state. In 1912 at the age of 28 I substituted milk for coffee which I had been drinking three times daily. Almost immediately a marked diarrhea developed. This persisted for weeks before the cause was understood. Since that time even small amounts of milk or cream have invariably caused allergic headaches and symptoms of colitis. I had to give up even mashed potatoes because of the milk they contained. Several weeks ago I started taking 4 ounces of cream with one raw egg at night and with my noon meal and in addition three 2 grain tablets of adrenal substance (Parke Davis) daily. The cream is now perfectly tolerated none of the symptoms having manifested themselves. Whether the raw egg, the adrenal substance or sudden change in allergic reaction is responsible for the tolerance future experimentation will clear up.

LOUIS K GUGGENHEIM M D St Louis

ANSWER — Cow's milk is an important antigenic substance (allergen or atopen) in the first few years of life, but its importance rapidly diminishes in later years. So true is this that it is rather uncommon to find any allergic symptoms from milk after the age of 15 to 20, whereas in infancy and early childhood milk is the cause of eczema, asthma, vasomotor rhinitis and gastro-intestinal disorders in a large percentage of cases, the statistics varying from 10 to 37 per cent of all cases. It is also well known that hypersensitiveness to other foods as well as to milk diminishes in most cases as the child grows older.

In this particular patient the milk sensitivity has apparently lasted at least to the age of 28 and brought on gastro-intestinal symptoms, especially diarrhea and allergic headaches (probably migraine). Then milk was stopped (from about 1912 to the present year about twenty-two years) and now cream is well tolerated, no mention is made as to whether milk is now tolerated. It may well be that, after such a long abstinence, both milk and cream may now be taken in moderate amounts. Excessive volumes would probably bring on symptoms again, as the spontaneous "desensitization" that so commonly occurs when such foods are omitted from the diet for long periods is really a "hyposensitization" rather than a total and permanent "desensitization."

**GIANT CELL TUMOR OR SARCOMA**

**GIANT CELL TUMOR OR SARCOMA**

*To the Editor*—A white woman aged 20 fell in the subway injuring her right knee. Two months later a roentgenogram of the right lower extremity disclosed a sarcoma of the right tibia in its upper portion but outside the knee joint. Biopsy revealed a giant cell sarcoma. The tumor was presumably removed in toto by an operation. This was followed by two series of roentgen exposures—five treatments in each series— which caused considerable swelling and redness of the knee involved. Coley's serum has been recommended to prevent a recurrence. I should like to know if the present opinion concerning the use of Coley's serum in such a case is recommended. I should be glad to hear from you. Kindly omit name.

**ANSWER**—The age of the patient, the location of the tumor, the thoroughness of the operation, the histological diagnosis have an important bearing on the prognosis. In a giant cell sarcoma of the tibia, the prognosis is usually good. In a giant cell tumor of the knee joint, the prognosis is usually poor. In a giant cell sarcoma of the tibia, the prognosis is usually good. In a giant cell tumor of the knee joint, the prognosis is usually poor.

M D New York

of the patient, the location of the operation and the location of the tumor.

ANSWER—The age of the patient, the location of the tumor, the thoroughness of the operation and the accuracy of the diagnosis have an important bearing on the recurrence of the giant cell sarcoma or benign giant cell tumor.

In a series of about 250 cases of tumors of the jaws or curretage following conservative operation, the recurrence has averaged less than 10 per cent.

Although the less extensive the operation, the more likely is the recurrence, the use of the operation in the treatment of these tumors is still justified.

MD New York

conservative operation such as excision of tumors of this type, the average around 30 per cent. Recurrences are less than 16 per cent in patients under 21. Although the upper tibia is one of the most frequent locations for this form of tumor, it is rarely the site of recurrences, and only 8 per cent of recurrences take place in this location. If the operation was complete leaving a bare shell of bone, there should not in all probability be a recurrence at this age and site. If there is a recurrence, the first thing to do is to check the diagnosis by submitting sections or tissue to a competent pathologist. The swelling and redness following irradiation is not unusual and soon subsides. It does not portend a recurrence. Irradiation is not as effective after operation as before operation in curing these tumors.

1 The value of Coley's toxins if any is another question. Giant cell tumor is no longer a life threatening disease. Those who have made a careful study of the literature are of the opinion that 2 Further treatment is not indicated as before.

Further treatment would not seem to be indicated unless recurrence takes place. Should this happen, further excision and thorough cauterization and filling of the cavity with bone chips would be the method of choice.

The most important safeguard against recurrence in this case is to check the microscopic diagnosis. Occasionally a sarcoma with giant cells is mistaken for benign giant cell tumor microscopically. The history in this case resembles that of a typical benign giant cell tumor.

To the Editor—In case of GIARDIA INFESTANS

GIARDIA INFESTATION

**GIARDIA INFESTATION**

*To the Editor*—In case of infestation of the biliary tract with Giardia does the infestation extend up into the smaller bile ducts and radicles or is it essentially a gallbladder infestation? Will the removal of the gallbladder eliminate the infestation from the bile tract? How frequently in vivo does Giardia undergo division? What is the most successful treatment? Please omit name

**ANSWER**—There is insufficient evidence to give answers to any of these questions. The gallbladder, in a few cases, has been shown to harbor Giardia. The gallbladder, but just as often, does not. Similar cases have been reported from M D Indiana

M D Indiana

ANSWER—There is insufficient evidence to give satisfactory answers to any of these questions. The surgical removal of the gallbladder in a few cases has demonstrated infection of the gallbladder, but just how far the infection extends is not known. Similarly the effect of removal of the gallbladder in such infections is not known. There are no data on the rate of division of *Giardia* within the body. In fact, although division of the flagellates in the intestine must occur and although the process of longitudinal division may take place, no one has described it. It has been seen only a few times. Division within the cysts is of course common and some investigators have suggested that the increase of such cysts before they leave the body be due to the hatching of the parasites in the intestine may be due to the increase of such cysts before they leave the body.

—A condition that would be quite unlike other intestinal protozoa. A large number of drugs have been used in giardiasis, including bismuth compounds, emetine, thymol and various arsenicals but none of these have found general acceptance and most workers believe that there is no satisfactory treatment. The apparent disappearance of the organisms after such treatments may be due to the tendency of the flagellates to disappear spontaneously from the stools at intervals. Furthermore the improvement in symptoms that are ascribed to the treatment may be due to nonspecific effects of the drugs used and to

### INJECTION METHOD FOR HEMORRHOIDS

INJECTION METHOD FOR HEMORRHOIDS

To the Editor—I have seen mention of the use of phenol in vegetable oil for the treatment of hemorrhoids and in view of the following recent observation I am naturally prejudiced against it I should like to know whether it is an accepted form of treatment Mr S took his wife to an irregular practitioner for treatment for piles She was given an injection of phenol (5 per cent) in vegetable oil She gave him a serious local disturbance and was taken to a neighboring clinic where it was found that a large slough was developing Mr S persuaded a neighbor Mr E still incontinent At the same time Mr S served another neighbor Mr E to go to the same place for treatment and on returning to the office was stepath states that not more than 5 cc was given to the patient In a few hours serious symptoms developed and on returning to the office was told that he would be all right and to go on home The next day he was brought in to the local hospital with a good deal of cough much expectoration of frank bloody sputum (bright red) and moderate albuminuria Later abdominal symptoms developed extremely suggestive of mesenteric embolism The entire time he was in a state of severe shock Death occurred in about forty eight hours Autopsy was not obtained It would seem that the injection treatment of hemorrhoids could be limited to drugs with low toxicity Would not the oil in itself involve a good deal of danger from the standpoint of embolism?

A C EITZEN MD HULL

ANSWER—The treatments of hemorrhoids with 5 per cent phenol in vegetable oil is a very common procedure carried out by many proctologists

A C EITZEN M D Hillsboro Kan

ANSWER—The treatments of hemorrhoids with the injection of 5 per cent phenol in vegetable oil is a procedure accepted by many proctologists. Obviously the injection method, whether carried out with phenol quinine or sodium morrhuate, requires as much skill and experience as any operative procedure. One would hardly imagine that an osteopath would have adequate training and experience to realize that external hemorrhoids must never be treated by the injection method, that injections are not made beneath the submucosa or below the papillary line that internal hemorrhoids are injected only in the absence of fissures or fistulas or that sometimes weeks of conservative treatment together with the dilation of the sphincter may be necessary before injections are undertaken.

The second point must have died of an embolism. This may have been a fat embolism as the correspondent suggests but in the absence of an autopsy a differentiation between a fat embolism and thrombo embolism is not possible. Rectal operations and even a gentle manual dilation of the sphincter may set up in ascending thrombophlebitis from which a thrombus can be mobilized into either the portal or the caval circulation.

general hygienic measures associated with treatment. As an example of the many treatments that have been used, the following is that of McClendon (*California & West Med* 34 266 [April] 1931), who worked with children. Bismuth salicylate was given by mouth in doses of from 0.3 to 0.65 Gm daily for ten days and was followed by a rest period of one week. Then treparsol was given by mouth in doses of from 2 to 4 grains (0.125 to 0.25 Gm) twice daily for ten days. A second or even as many as four courses of treatment were sometimes given, with rest periods of a week after each course. Presson reports successful clearing of stools in two out of three cases of *Giardia* infestation by the oral administration of carbarsone, 0.25 Gm twice a day for ten days. The unsuccessful case was a boy of 13 who retained the organisms despite several courses of carbarsone with intervening rest periods. Of the two arsenicals, treparsol has not been accepted by the Council on Pharmacy and Chemistry and carbarsone stands accepted for New and Nonofficial Remedies.

#### WATER BALANCE AND CONVULSIONS

To the Editor—I have recently received a Mosenthal report on a patient as follows:

Time	Volume	Specific Gravity	Urea		Chlorides	
			Per Cent	Gm	Per Cent	Gm
8 to 10	82	1.030				
10 to 12	75	1.035				
12 to 2	89	1.042				
2 to 4	84	1.044				
4 to 6	45	1.037				
6 to 8	48	1.037				
Total day	423 cc		2.6	11.0	1.22	5.2
Total night	337 cc	1.031	2.58	8.6	0.4	1.3
Total	760			19.6		6.5

I assume that the usual twenty-four diet of about 1,500 cc of fluid was given. A phenolsulphophthalein test was done as follows:

First hour	82%
Second hour	15%
Total	97%

(The dye was given intravenously.)

Blood urea nitrogen was 14.2

Blood cholesterol was 200

Blood phosphorus was 3.4

Blood sugar 96

Blood chlorides 485

Blood carbon dioxide 72

I have never seen a Mosenthal test show such a fixed high specific gravity. Also I do not think there is enough urine in the day total or sufficient chlorides excreted. I may add that the routine urinalysis showed a specific gravity of 1.036 but otherwise was negative. Clinically there are no urinary symptoms or signs of edema. The only disorder is occasional signs of cerebral irritation (convulsive movements). Do you think this case could substantiate the water balance theory of convulsions that water and chlorides are being retained and so cause convulsions and the diminished output of necessity has high specific gravity? Or could an early preedema stage of nephritis be present? The laboratory calls these reports all normal. Please comment on them as I think there is some significance present. Please omit name.

M D, New York

ANSWER—The fact that the laboratory data are normal with the exception of the low daytime water excretion and low chloride output is inconsistent with renal changes, since albuminuria and edema are presumably absent. It might therefore be wise to investigate the possibility of other routes by which water and chlorides may be lost, namely, excessive perspiration, vomiting and diarrhea.

#### FEVER REACTION AFTER OPERATION

To the Editor—What fever reaction should be expected in class A hospitals following abdominal operations in which the infection has not extended beyond the organ removed? What is the upper limitation of fever before one should consider it an infected case due to contamination? What percentage of abdominal operations become infected because of contamination in well regulated hospitals? Please omit name.

M D, Texas

ANSWER—Following an abdominal operation without infection there may be a fever of 100 F for three or four days. If the fever persists or increases, one may suspect serum retention or infection. If the fever reaches 101 for more than one day with local symptoms of inflammation, some infection would be expected. It is rare for infection to develop in the abdomen even with the opening of the stomach or small intestine.

Infection of the subcutaneous tissues occurs in about 5 per cent of all abdominal operations, in most hospitals. It may occur from contamination, through opening the intestinal tract or removing infected organs, by spread of skin bacteria, from mouth or nasal droplets or dust, or from dust in the air in the operating room. Good surgical technic will largely eliminate

the first two, and the wearing of nose and mouth masks the third, while the last will be a rare source in a good hospital.

The peritoneum is more resistant than the subcutaneous tissues, and some lack of proper technic should be expected as the cause of infection unless the operation has opened up grossly infected tissues, when contamination would be difficult to avoid.

Naturally, a bacteriologic study should be made of all infections. It will help to determine the cause and frequently aid in the treatment.

It is assumed that all sterilization of supplies should be checked bacteriologically as indicated.

#### ACTINOMYCOSIS OF TONGUE

To the Editor—A farmer consulted me in March for a sore on the tip of his tongue. This little sore was somewhat alarming as about eight years ago I had performed a rather radical operation for a carcinoma of the lower lip. But as this sore was only of two weeks' duration it was cauterized with silver nitrate. According to the patient's report it healed in a few days. April 1 he consulted me for an enormous swelling of the tongue which made speech and swallowing quite difficult. It did not interfere with respiration. He had previously made the correct diagnosis of his illness. He was suffering from what he called wooden tongue. About six months before he had lost a valuable bull from this disease so he was familiar with the symptoms and the contagious character of the spores or actinomycosis. Iodine potassium was prescribed in heroic doses with marked diminution in the size of the tongue after the prescription had been taken for a few days. April 5 he had a severe chill accompanied by extreme prostration; the pulse was 130, temperature 103 and respiration 30. A marked consolidation was found in the apex of the right lung. He rallied that day. In the forenoon of the following day he expressed himself as feeling extremely well and both pulse and temperature were near normal. He persisted in reading the newspaper which was permitted. In the afternoon of that day he suddenly died while the nurse was changing his pillows. There was no autopsy. No blood count was made at the time of the office examination or during the acute illness. I will be pleased if you could send me any information concerning this disease.

J E. ENGSTADT, M.D. Grand Forks, N. D.

ANSWER—Undoubtedly the patient had actinomycosis of the tongue, but the exact nature of the acute febrile condition that developed April 5 with marked consolidation in the apex of the lung obviously cannot be determined at this time. Usually actinomycosis of the lung does not develop so acutely; the clinical picture suggests lobar pneumonia.

#### UTERINE SUSPENSION OPERATION

To the Editor—What is the statistical evidence regarding the success or failure of the uterine suspension operation? Kindly omit name.

M D Missouri

ANSWER—In a narrow sense, the "uterine suspension operation" refers to the Olshausen round ligament suspension and kindred procedures. The Olshausen operation has not enjoyed great popularity, but it was the favorite of Graves in cases presenting retrodisplacement and almost invariably gave excellent results in his hands.

Uterine displacement operations, as ordinarily done, have been credited with recurrence of the displacement in 50 per cent of the cases. During recent years, however, it has been realized that this operation must be performed with painstaking care and that suturing of the uterosacral ligaments for additional support is an essential feature of the repair in most cases. A carefully performed uterine displacement operation, together with suturing of the uterosacral ligaments and posterior leaves of the broad ligaments, gives a permanently satisfactory result in nearly all cases, even in women who undergo pregnancy and labor thereafter.

#### BRONCHIECTASIS AND CONTINUOUS EXPOSURE TO SULPHUR DIOXIDE

To the Editor—I have under my care a man who is suffering from a moderate degree of bronchiectasis in both lungs. He is a service man for a mechanical refrigerating company and is frequently exposed to sulphur dioxide fumes. Could such fumes independent of any other cause produce such a bronchial condition? There is a possibility that this patient would be eligible for industrial insurance compensation if it could be proved that his lung condition came from the gas. What is the effect on pulmonary tissue including the bronchi of long continued intermittent exposure to the different gases used in mechanical refrigerators? Please omit name and address.

M D Ohio

ANSWER—Whatever answer is made to this query, there will be many who will stoutly hold opinions to the contrary. The conditions under which exposure is provided to irritant gases in warfare have led to a wide belief that these gases act intensely during a period of acute injury but that sustained

damage is unlikely. In industry the form of exposure may be quite dissimilar. There the concentrations are (or may be) so low as to attract little attention except among new workers and visitors. These low concentrations, however, are continuous or oft repeated. The respiratory tract protects itself by increased secretions, but low grade inflammation continues. In the case of sulphur dioxide, more damage is done to the upper portions of the respiratory tract, but the lower tract does not wholly escape. Bronchitis and bronchiolitis may occur. The action of bacterial agents appears to be facilitated by long exposure to irritant gases in the respired atmosphere. Asthma is known to have arisen. In short, long continued or oft repeated exposures to various irritant gases, including sulphur dioxide, are credited with the possibility of harm to the pulmonary tract. Bronchiectasis ensuing on this chronic inflammation along the air passages within the lungs is within reason. It is most difficult to procure exact proof distinguishing a bronchiectasis proximately caused by sulphur dioxide from one caused by the ordinary sources of this condition.

#### USE OF ARTIFICIAL EYE

*To the Editor*—A man, aged 24 had a corneal ulcer of the right eye when he was an infant aged 6 months. As a result of negligence the sight of the eye was destroyed and a repulsive scar appeared. The eye also sunk in a bit and a strabismus developed. Two years ago an eye specialist operated on him in an effort to straighten the eye and to tattoo the scar. The operation was a failure. The eye doctor then advised him to wear a shell (a glass eye). The glass eye he got is thin and it moves well from the center to the left but it does not move from the center to the right. This makes him appear cross eyed when he looks toward the right. I may mention here that the natural eye although sightless, does move freely in all directions. The optometrist who made the glass eye says that it is impossible to make the glass eye move more freely. Do you agree with him? (I cannot see why a glass eye if properly made should move freely from the center to the left and not move freely from the center to the right.) The glass eye often causes irritation. An eye wash consisting of boric acid sodium borate, camphor water and distilled water is used three times daily and it does not help much. What can be done here? Kindly omit name.

M D, Pennsylvania

**ANSWER**—Possibly the temporal half of the artificial eye is so large that motion toward the right of the center line is impossible. Again it is possible that the shell does not fit accurately enough over the shrunken eye to follow it in all directions, in other words the eye rotates underneath the shell. An expert artificial eye maker could in all probability make a shell that would fit accurately and overcome that difficulty. If not, it might be wise to enucleate or eviscerate the eye and thus provide a smaller stump for the shell to rest on.

If the shell causes irritation, it is an indication that (1) the shell is cracked, (2) that the conjunctiva is infected or (3) that the shell strikes the sensitive cornea and causes an erosion. A better fitting shell would probably eliminate that difficulty.

#### PERIODIC PAIN IN THE EYE

*To the Editor*—Please send me information in regard to treatment of periodic pain in the eyeball (right). The patient says that the pain is cramplike in character and wakes him from a deep sleep. It is not aggravated by writing or reading and the eye is perfectly normal as soon as the pain leaves. The pains are now more frequent than they used to be and they prevent him from working. Morphine and heat are the only things that relieve him. The patient referred to is a man aged 44. Physical examination gives negative results. The eyes are corrected with glasses and no focus of infection can be located. This trouble has been bothering him for five years and he has visited eye specialists with no results except that they tell him it is eye strain and give him new glasses. Please do not publish my name.

M D Georgetown, S C

**ANSWER**—If the patient has had a careful examination of the fields and a study of intra-ocular tension so that glaucoma can be definitely ruled out, the most probable cause of the condition is a ciliary spasm. This condition produces all the symptoms mentioned and is relieved by the instillation of 1 per cent atropine sulphate four times a day for four or five days. If the patient's work will not permit the use of atropine in the two eyes at the same time the treatment can be used in one eye at a time, an interval of two and one-half or three weeks being allowed to elapse before the atropinization of the second eye. This treatment may have to be repeated. While the patient is under complete cycloplegia refraction should be done and the full correction prescribed. Ciliary spasm is frequently provoked or aggravated by a vertical phoria and this condition should be either ruled out or corrected with a lens. In the transactions of the Pan American Medical Association Section of Ophthalmology, 1933 appears an article on this subject by Louis Bothman.

## Council on Medical Education and Hospitals

### COMING EXAMINATIONS

ALASKA Juneau Sept 4 Sec Dr W W Council Juneau  
AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written (Group B candidates)* The examination will be held in various centers throughout the country Oct 1 *Oral (Group A and Group B candidates)*  
San Antonio Texas Nov 13 16 Sec Dr C Guy Lane 416 Marlborough St Boston  
AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written (Group B candidates)* The examination will be held in various cities of the United States and Canada, Nov 3 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh  
AMERICAN BOARD OF OPHTHALMOLOGY Chicago Sept 8 Sec Dr William H Wilder 122 S Michigan Blvd Chicago  
AMERICAN BOARD OF OTOLARYNGOLOGY Chicago Sept 8 and San Antonio Texas, Nov 16 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha  
NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia  
NEVADA *Reciprocity* Carson City Aug 6 Sec Dr Edward E Hamer, Carson City  
NEW HAMPSHIRE Concord Sept 13 14 Sec Board of Registration in Medicine Dr Charles Duncan State House Concord  
OKLAHOMA Oklahoma City Sept 11 12 Sec Dr J M Byrum, Mammoth Building Shawnee  
PUERTO RICO San Juan Sept 4 Sec Dr O Costa Mandry Box 536 San Juan  
WISCONSIN *Medical Reciprocity* Green Bay Sept 11 Sec Dr Robert E Flynn 401 Main St La Crosse *Basic Science* Madison Sept 22 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee

### Idaho April Examination

Hon Emmett Pfost, commissioner of law enforcement, reports the oral and written examination held in Boise, April 3-4, 1934. The examination covered 13 subjects and included 130 questions. An average of 75 per cent was required to pass. Five candidates were examined, all of whom passed. Seven physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad	Per Cent
College of Medical Evangelists	(1925) 80	(1931)	88
Northwestern University Medical School		(1934)	87
University of Nebraska College of Medicine		(1933)	87
University of Pennsylvania School of Medicine		(1931)	90

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
College of Medical Evangelists	(1932) California	(1933)	Oregon
Northwestern University Medical School		(1925)	Penna
Kansas City Medical College Missouri		(1905)	Washington
University of Oregon Medical School		(1932)	California
University of Pennsylvania School of Medicine		(1931)	Utah
Marquette University School of Medicine		(1932)	Wisconsin

### Nevada May Report

Dr Edward E Hamer, secretary, Nevada State Board of Medical Examiners, reports the written examination held in Carson City, May 7, 1934. The examination covered 11 subjects and included 110 questions. An average of 75 per cent was required to pass. Two candidates were examined, both of whom passed. Two physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad	Per Cent
University of Nebraska College of Medicine		(1933)	81 3
Hahnemann Med College and Hospital of Philadelphia		(1902)	82 7

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
College of Medical Evangelists		(1933)	California
University of California Medical School		(1932)	California

### Puerto Rico March Examination

Dr O Costa Mandry, secretary, Board of Medical Examiners, reports the written and practical examination held in San Juan, March 6 1934. The examination covered 15 subjects and included 80 questions. Two candidates were examined, both of whom passed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Tulane University of Louisiana School of Medicine		(1929)	80 1
Tufts College Medical School		(1933)	83 5

## Book Notices

**Studies on the Possible Intoxicating Action of 32 Per Cent Beer** By A J Carlson N Kleitman C W Muehlberger F C McLean H Gullicksen and R B Carlson Paper Price 75 cents Pp 85, with 10 illustrations Chicago University of Chicago Press 1934

Is beer containing 32 per cent of alcohol by weight intoxicating in fact? The answer can be predicted yes or no as soon as the definition of "intoxicating in fact" is declared. Carlson and his five associates accepted as a definition of "intoxicating in fact" a beverage which contains alcohol in such proportion that, when consumed in the quantity which may practically be drunk by the ordinary man, it will produce a condition commonly known as intoxication or drunkenness. The answer is quite obviously yes, and one wonders at the reasons for going to such pains to demonstrate the obvious. Even in the exquisite work of Benedict and Dodge, and of Miles, one will find no more sincere effort to make observations of an objective character and well controlled after the best scientific manner than are those reported by Carlson and his co workers. These results confirm the 1922 observations of Miles in the matter of the relation of urine alcohol to blood alcohol. The authors record an excellent chemical and statistical technique, on the whole superior to the psychologic aspects of the study.

One is readily convinced of the truth of the finding that the consumption of two bottles of beer (275 cc of alcohol) on an empty stomach in fifteen minutes did not cause intoxication as defined, and in the adults tested. Also the reader will readily admit that twice the amount (546 cc of alcohol) in twice that time did not produce intoxication as defined. Furthermore, the drinking of a bottle of beer each hour for sixteen consecutive hours (208 cc of alcohol), or one bottle every forty minutes for eight consecutive hours (164 cc of alcohol), or even a bottle every thirty minutes for eight consecutive hours (208 cc of alcohol), did not in the adults tested cause alcoholic intoxication, as defined. Finally, one is not surprised to learn that five of the twenty-nine persons tested did comply with the definition of intoxication proposed by a committee of the U S Senate when the beer was drunk at the rate of from four to six bottles an hour for three and one-half hours (from 109 to 191 cc of alcohol), and that vomiting occurred when 32 per cent beer or "near beer" was drunk at this rate. The question which the physiologists and their associated scientists put to themselves is answered unequivocally. It is well to have such meticulous honesty of purpose and method presented in so straightforward a manner.

The hope expressed in the preface by the senior and much respected author is not likely to be answered since any definition of alcoholic intoxication for practical convenience today must be as far removed as to threshold of occurrence and delicacy of criteria as the driving of a 1934 Ford differs in personal and public responsibility from buggy riding in 1834. We are not concerned except as a matter of decency and public manner with the kind of intoxication the Senators defined. Persons as drunk as that are obviously and soon disqualified from participation in the responsibilities and privileges of the public way. The question that is in process of being answered in the public courts of Sweden and Germany is how the intoxicating effects of alcohol which slows the reaction time of the commonly trusted neuromuscular mechanisms of sight, hearing, touch, to hand and foot, can be recognized in time, and before they have progressed to the advanced and crude state of general muscular incoordination and emotional irresponsibility, commonly known as intoxication or drunkenness.

Miles in his classic Carnegie Institution Bulletin 333 "Alcohol and Human Efficiency" did in fact ten years ago test the effects of smaller amounts of alcohol than Carlson and his co workers have just reported on, and he revealed with a conclusiveness equal to that of the Carlson study that the depressant, i e, toxic, effects of alcohol could be demonstrated in the absence of the state of drunkenness as commonly known and as defined by the committee of the Senate.

It cannot but be a matter of regret to those who look up to university departments of physiology that so much time and skill were spent to make observations that can hardly apply as

guides to human conduct in this day of speed and power, when the machine easily masters the man if the man is not completely master of himself. Avoiding the drunkenness of earlier decades by the evidence of Carlson's thirty six subjects will not suffice for the motorists of today.

The moderate impairment of function accompanying the low blood and urine alcohol reported in this study is not always, or necessarily different from behavior mismanagement which comes from illness or loss of sleep. That fact no more excuses us if we describe the effects of small amounts of alcohol as normal or nontoxic than if we declined to consider behavior disturbances of fatigue and fever as abnormal.

It can be predicted with reasonable certainty that the generations which follow us will continue the tendency of our contemporaries and predecessors to be more critical in the use of the term "alcoholic intoxication" and define it more in terms of blood content than in ability to "navigate."

**Die pathologisch histologischen Untersuchungsmethoden** Von Professor Dr C Schmorl Lehr Medizinalrat und Direktor den patholog anatom. Abteilung am Stadtkrankenhaus Dresden Friedrichstadt Herausgegeben von Professor Dr P Geipel Sixteenth edition Paper Price 30 marks Pp 469 Berlin F C W Vogel 1934

This marks the last of a series begun by the author in 1897. The task of revising and bringing all the material down to date was practically complete, when the author contracted a wound infection in his laboratory, which caused his untimely death. This edition was issued under the editorship of Professor Geipel, one of Schmorl's oldest students. The work has been and still is the most authoritative and well written on the subject in any language. It is unusually complete and is written in a clear and concise manner. It has been so practical and helpful that few technicians or pathologic laboratories even in this country have been without a copy. There are few books on methods of pathologic histology in which practically all the desirable information is as available as in this short treatise. It is hoped that Professor Geipel will perpetuate this book as a memorial to his illustrious teacher.

**Obstetric Medicine The Diagnosis and Management of the Commoner Diseases in Relation to Pregnancy** Edited by Fred L Adair MA MD FACS Mary Campau Byerson Professor of Obstetrics and Gynecology University of Chicago and Edward J Stieglitz MS MD FACP Assistant Clinical Professor of Medicine Rush Medical College of the University of Chicago Cloth Price \$8 Pp 743 with 24 illustrations Philadelphia Lea & Febiger 1934

The two authorities who present this book, Adair, an obstetrician and Stieglitz, an internist who has had extensive experience with obstetric patients, secured the assistance of a large number of other specialists to help in its preparation. An attempt was made to select individuals who had had an opportunity to acquire some of their special knowledge in connection with pregnant women. The contributions, which cover almost every form of medical complication, show evidence of careful preparation and skilful editing. It is difficult to discuss in particular any of the thirty-seven chapters, because they are all excellent and present both the obstetric and the medical point of view. It is unfortunate that there was not included a chapter on cancer of the cervix complicating pregnancy, especially because such cases are more common than the rare tropical diseases to which a chapter is devoted. The book should be in the library of every physician who either practices obstetrics or sees pregnant women in consultation. It will be of inestimable assistance to the practitioner whose patients cannot afford the services of a specialist or who practices in sparsely settled districts where there are no specialists.

**Nauchnaya literatura SSSR Sistematicheskii ukazatel knig i zhurnalnykh statey 1928 Meditsina** Komitet po zavedeniyu uchenym i uchebnym uchrezhdeniyam pri Ts I K S S R Komissiya po sostavleniyu i izdaniyu indeksov nauchnoy literatury [Scientific Literature of Russia Systematic Index of Books and Periodicals for 1928 Medicine Commission for Compiling and Editing Indices of Scientific Literature for Central Executive Committee of Russia] Cloth Price 15 rubles Pp 1478 Moscow Gosudarstvennoe slovarno entsiklopedicheskoe izdatelstvo Sovetskaya entsiklopediya 1931

The preface informs the reader that in May 1928 the Soviet of Peoples Commissars of the Union of Socialist Soviet Republics decided, in the interests of systematization of information in scientific matters to issue an annual index embracing all

branches of knowledge. The publication is to consist of five volumes (1) Social Sciences, (2) Natural History, (3) Agriculture, (4) Technic and (5) Medicine. The first volume, on Medicine, appeared in 1931. The material is selected from the entire literary output of the Soviet Union. A brief annotation appears below the book or the article quoted stating as briefly as possible the problem, the method, the results achieved and the main conclusions. The use of the volume is facilitated by a subject and author appendix. The text is in Russian and in German. The paper is of good quality, the print is clear, and the general appearance of the volume is attractive even when judged by our standards. The value of a publication of this sort is too self-evident to call for special comment.

*Die Abwehrkräfte des menschlichen Körpers und die Möglichkeit der therapeutischen Beeinflussung.* Von Dr. med. Andreas Wertheimann, a. o. Prof. und Prosektor der pathologischen Anatomie der Universität Basel. Paper. Price 8.80 marks. Pp. 128. Leipzig: Curt Kabitzsch, 1934.

This book aims to give the practicing physician and the student an introductory summary of present knowledge of the reactions of the body to infections and injuries. Phagocytosis, natural resistance, acquired immunity, allergic phenomena, local reactions to injuries, and the possibility of therapeutically influencing the protective reactions are the main topics. The book is based on certain selected works, mainly by teachers of the author, and the presentation is rather hurried and more or less fragmentary, but in the main it follows the current teachings.

*The Chances of Morbid Inheritance.* Edited by C. P. Blacker, M.C. M.A. M.D., General Secretary of the Eugenics Society. Cloth. Price 5s. Pp. 449 with illustrations. Baltimore: William Wood & Company, 1934.

This compilation by eighteen English writers, is a distinctly valuable condensed reference book which should be highly useful to physicians confronted with problems in genetics and faced with the necessity for giving advice as to marriage and procreation under circumstances that may well prove disastrous for adviser and advised alike if the advice given is not based on demonstrated scientific facts as well as on common sense. The book contains a chapter on genetic principles and separate chapters on the hereditary nervous diseases, epilepsy, mental disease, heredity in diseases of the eye and of the ear, heredity and allergy, blood diseases, disease of the cardiovascular system, kidneys, skin and digestive tract, disorders of the thyroid gland, diabetes and renal glycosuria, tuberculosis, neoplastic diseases and congenital abnormalities of the skeleton. An appendix is devoted to methods of analysis of pedigrees. There is a glossary of genetic and psychiatric terms, especially useful to the lay reader who may seek this book for information. A schedule for recording pathologic pedigrees is shown. The book is well written. The judicial approach of the writers to disputed or obscure questions is notable throughout. Excellent bibliographies follow the several chapters. It is a serviceable and constructive contribution to the literature of applied genetics.

*Essentials of Medical Electricity.* By Elkin P. Cumberbatch, M.A. B.M. D.M.R.E., Medical Officer in Charge, Electrical Department and Lecturer on Medical Electricity, St. Bartholomew's Hospital. Seventh edition. Cloth. Price 10/6. Pp. 508 with 147 illustrations. London: Henry Kimpton, 1933.

The book does not deal with all the medical uses to which the electric current has been put but limits itself to a consideration of the galvanic (direct) current and its modifications, the high frequency currents (medical and surgical diathermy) and the static currents. The author covers these fields with a thoroughness developed by many years of practical experience in the electrical department of St. Bartholomew's Hospital, London. The issuance of a seventh edition of this authoritative work permits the author to elaborate on the enlarged field of usefulness of the high frequency currents. This book, like others covering the same subject, indicates clearly the need for the establishment of a nomenclature that is agreed on universally. Many workers, for example, would prefer to see the term dispersive applied to describe the less active of two electrodes rather than the term indifferent, which is used in the book. The volume can well be recommended for the beginner and for the more advanced student in medical electricity.

It is an excellent effort to combine the therapeutic data gleaned from the empirical observations of many years with scientific explanations of the physics of medical electricity and with the limited existing knowledge of its physiologic responses when applied to the animal organism.

*Chronic Nasal Sinusitis and Its Relation to General Medicine (Chronic Sinusitis and Systemic Sepsis).* By Patrick Watson Williams, Hon. Consulting Surgeon in Diseases of the Ear, Nose and Throat, Bristol Royal Infirmary. With a foreword by Sir Humphry Davy Rolleston, Bart. G.C.I.O. F.R.C.S. Physician Extraordinary to H.M. the King. Second edition. Cloth. Price \$5. Pp. 262 with 122 illustrations. Baltimore: William Wood & Company, 1933.

This work is interesting and will well repay reading, though the reader will hardly agree with many of the author's ideas. In the first place there are a good many rhinologists who do not believe that the nose acts as a focus of infection often if at all. Infections of the nasal sinus mucosa are usually on the surface. They differ in this respect from infections deep in tonsillar crypts or at the roots of teeth. Furthermore, it is difficult to believe that the fewer the symptoms an infected sinus produces the more likely it is to act as a focus for serious diseases.

The normal nasal mucosa has bacteria which dwell there as their constant habitat. This is, as every one knows, just as true of the pharynx and the nasopharynx. Their presence should not be wrongfully construed. Not only are bacteria found here at all times but there has been no serious study made as to the normal density of the bacteria present in these portions of the anatomy. As it is not known in what numbers they are present in conditions of health, the puncturing of a sinus and the recovery of clear or only slightly cloudy fluid, producing on culture a certain number of bacterial colonies, should not be taken as proof that these sinuses are acting as a focus for disease in distant parts of the body. The accessory nasal sinuses, no different from the nasal mucosa, are on good authority thought to contain bacteria at all times, even though their number may not be large. It would, indeed, be strange if bacteria could not wander from the nose where they dwell normally into the sinuses from time to time.

No one has suggested the widespread removal of pharyngeal mucosa or of that of the septum and turbinates because these places harbor bacteria. The mucosa of the nose reacts precisely as does that of the sinuses to repeated or constant infections and in the same manner. Yet the mucosa of the nose has never been considered a source of disease in far distant parts of the body.

The enthusiasm with which the idea of focal infection was greeted several years ago appears to be waning to some extent, at least in this country. Every one recognizes the truth behind the notion, but the original furor is surely dying down. One of the most prominent exponents of the theory of focal infection in this country in recent years was heard to lament the unnecessary slaughter of tonsils and teeth occasioned by his pioneer work in this respect.

An interesting revision of opinion seems to be taking place regarding retrobulbar neuritis, a condition commonly ascribed to a focus of infection. Herein on slight provocation, and with bacteriologic and roentgenologic evidence, none of them often of the strongest character, radical operations have frequently been performed. From the Mayo Clinic come figures that are highly interesting. In more than 500 definitely proved cases of multiple sclerosis, 60 per cent of the patients presented themselves with a history of nasal sinus operations because of visual disturbances, the largest number of which fell in the class of retrobulbar neuritides. In other words, a patient suffering from early multiple sclerosis, who has visual disturbances, has an excellent chance of having a nasal operation.

Credit must be given the author for his conservative surgical treatment at least in cases which to some would present disputed evidence of sinusitis. He does not engage in the widespread extirpations of bone and mucous membrane that some have seen. A logical follow up of the focus of infection idea with respect to nasal sinusitis would be at least an attempt to remove every vestige of diseased mucous membrane and bone, and here many fine workers are of the opinion that even in



those instances in which radical surgery is fully justified one cannot expect to cure a proportion of one's cases

The author's careful description of methods of examination are to be commended, and he does well to call attention to the need for careful technic in the determination of the presence of nasal infections

**Persons One and Three A Study in Multiple Personalities** By Shepherd Ivory Franz Cloth Price \$2 Pp 188 New York & London Whittlesey House McGraw Hill Book Company Inc 1933

This book is a record of an interesting case of dual or triple personality in a man mentally affected by war experiences and subsequent excitations. As is to be expected in a recital of this kind there are some repetitions but they do not become tedious or impair the general action because they are necessary in the presentation of the history of the patient to connect the different episodes into a presentable sequence. Franz does not pretend to offer any psychologic or psychoanalytic explanation of his case and does not aim at making any dramatic impression, but he presents a faithful relation of the history as he uncovered it in a contact of two years with the man he studied, during which time he succeeded in restoring almost completely his patient's original personality. The book makes agreeable reading and is worthy of notice by those interested in such subjects

**Une nouvelle syphilis nerveuse Ses formes cliniquement inapparentes** Par Paul Ravaut médecin de l'Hôpital St-Louis Paper Price 45 francs Pp 203 with 3 illustrations Paris Masson & Cie 1934

The title of this book will prove disappointing to readers familiar with the modern conception of neurosyphilis. What Ravaut presents is an excellent account of the evolution of this conception during the past thirty years, with almost exclusive reference to the work of the brilliant group of Parisian investigators, chief of whom were Ravaut himself, Fournier and Vidal. By the "new" neurosyphilis he means the condition generally designated "asymptomatic neurosyphilis," the existence of which is revealed and its course determinable only by detailed study of spinal fluid reactions over a period of years. In 1903 Vidal and Ravaut found such hidden involvement of the spinal fluid in 68 per cent of cases of secondary syphilis. Ever since, Ravaut has occupied himself assiduously with the study of this spinal fluid infection, which may remain permanently latent, may disappear or may evolve with manifest disease. It calls for energetic treatment from the beginning.

**Survey of Public Health Nursing Administration and Practice** By the National Organization for Public Health Nursing Katharine Tucker General Director Hortense Hilbert Assistant Director for the Survey Cloth Price \$2 Pp 262 New York The Commonwealth Fund London Oxford University Press 1934

This survey is a storehouse of information about public health nursing. It is symptomatic of the most important force now working in public health fields, namely, self appraisal. An evaluation of one's own virtues and faults can be either a complacent and self-satisfied glorification of one's own profession or specialty, or it can be a searching probe into the shortcomings of that profession, together with a fair acknowledgment of its accomplishments. Happily, this is the latter. Based on a sampling of the nation-wide field, conclusions are presented from a study of public health nursing in twenty-eight urban and rural communities, in which were found twenty-one public health nursing organizations of a private character, eighteen departments of health, eighteen boards of education, four industrial nursing services, three insurance company nursing services, two tuberculosis associations, one university teaching district and one children's clinic. The conclusions in brief are that effective public health nursing service requires efficient administrative direction, better qualifications of field personnel, crystallization of organization policies through written guides or manuals, adequate provision for the health of the staff, student affiliation, adequate financing, satisfactory community relationships especially medical, and improvement of performance in certain types of field service. The recognition of the necessity for medical advice to the nursing organization as such is important, this must be distinguished from medical advice to clients of the organization, which has always been recognized as a prerequisite before any

nursing service could be rendered by a properly constituted organization for public health nursing. The attitude of physicians is described as usually friendly or at least tolerant but in some instances antagonistic. When the nursing profession succeeds in getting more of its field work into the hands of better prepared public health nurses and when the principles set forth in this survey are practiced as universally as they should be, the attitude of the medical profession will tend to grow more and more friendly. In the meantime, all nursing organizations working ethically with physicians should be encouraged by the friendly cooperation of the medical profession. This book should be valuable in placing the public health nurses, as a group, on record again in favor of well conceived and ethically practiced public health nursing.

**Seeing and Human Welfare** By Matthew Luckiesh D.Sc. Director Lighting Research Laboratory General Electric Company, Nela Park Cleveland Cloth Price \$2.50 Pp 193 with illustrations Baltimore William & Wilkins Company 1934

Here is a complete sketch of seeing, presented in a non technical manner and well presented. The author has been working and writing on the psychology of vision for years basing his writings on elaborate investigative work of a most ingenious character. Much of this is touched on lightly in this book and there are ample references to the original publications for those who are interested. The book is divided into eight chapters of some twenty pages each. Wisely but little space is devoted to the technicalities of the eye and the diseases of that organ that interfere with full vision. The factors that influence the visual perception of the surrounding world are discussed at length and the necessity of proper illumination is stressed. The illustrations are for the most part photographic and many are extremely ingenious in their concept. The ophthalmologist will not find much new in this book, but the public at large can benefit definitely by a careful study of this account of "the new science of seeing."

**Die parasagittalen Meningeome** Von Dr. H. Olivecrona Paper Price 24 marks Pp 144 with 145 illustrations Leipzig Georg Thieme 1934

The author has presented his experience with thirty-four cases of intracranial meningioma arising along the sagittal sinus. The material is presented in an interesting, clear and concise manner. Following a brief introductory chapter in which the frequency of meningiomas in general and their incidence in different portions of the cranial cavity, particularly along the superior longitudinal sinus, is discussed, the author presents a summary of each of his thirty-four cases. He describes each case briefly, pointing out its peculiarities, any clinical, pathologic or physiologic points of particular significance, and any errors of diagnosis or treatment that might have been made. The sixth chapter is concerned with the gross pathology of these particular tumors, the author having intentionally omitted any discussion of the cellular pathology of the tumors themselves, apparently leaving that for a future report to be made by the pathologists. The seventh and eighth chapters are concerned with the symptomatology and differential diagnosis. In the last chapter the author presents his operative technic, which is comparable to that seen in the better neurosurgical clinics of this country, a discussion of the post operative complications that occurred in his cases, and the results of his treatment, 15 per cent died following operation, 10 per cent died later of recurrence, 50 per cent were completely recovered, and 25 per cent recovered with some neurologic defect. Olivecrona feels that these figures can be greatly improved and that the operative mortality should be reduced to 5 per cent or less. It is a pleasure to read a monograph such as this, in which the author, who has had extensive experience in his field, discusses in a lucid manner all phases of tumors of one particular type, in one location. As the author states in the preface there are in neurologic literature numerous studies concerned with the symptomatology of tumors of various parts of the brain but all too few that take into consideration the nature of the neoplasm whereas the picture produced by a brain tumor is as much a matter of the type of tumor as of its location. Such studies as this advance our knowledge in this field and will always find a welcome with every one interested in the subject of intracranial neoplasms.

## Medicolegal

**Revocation of License to Practice Medicine**—The Illinois Department of Registration and Education instituted proceedings to revoke Schireson's license to practice medicine.

The department charged that Schireson was not a man of good moral character when he obtained his license, that he employed fraud, deception and unlawful means in applying for and obtaining it, and that he was guilty of gross malpractice, resulting in the permanent injury of a patient. After a lengthy hearing, the record of which includes 2,000 pages of evidence, the department revoked the license. The superior court, Cook County, quashed a writ of certiorari to review the order of revocation. Schireson appealed to the Supreme Court of Illinois.

The Illinois civil administrative code, as amended,<sup>1</sup> defines the procedure to be followed in revoking a license. So does the Illinois medical practice act.<sup>1</sup> Only the medical practice act, however, states the causes for which a license may be revoked. The civil administrative code leaves to the Department of Registration and Education the determination of the causes for revocation. The department proceeded in this case under the code, apparently assuming that the causes for revocation named in the medical practice act were applicable in proceedings under the code. The Illinois Supreme Court, however, held otherwise.

The legislature said the Supreme Court, cannot delegate to any department, officer or commission the power to legislate or to invade the province of the judicial department. It cannot vest in officers not constituting a part of the judicial system the power, at their discretion, without rules or standards for the exercise of such discretion, to determine what the law shall be. That portion of the act which attempts to confer on the Department of Registration and Education authority to determine what constitutes a *prima facie* case against a licensee, without laying down any code of ethics, rules or regulations, violation of which shall be legal cause for the revocation or suspension of a physician's license, is an unwarranted delegation of legislative authority. It gives the department no jurisdiction or authority to determine what complaint, together with evidence, documentary or otherwise, constitutes a *prima facie* case.

In justification of the action of the Department of Registration and Education, it was apparently contended that the causes for which the department might suspend or revoke a physician's license were set forth in the medical practice act of 1923 and that the amendment to the civil administrative code under which the department proceeded should be read in connection with the medical practice act. The medical practice act of 1923, said the court, is a complete act and provides a complete code of procedure for the institution, hearing and determination of charges against a physician, looking toward

the revocation or suspension of his license. The act of 1927 purports to amend the civil administrative code, it in no way purports to amend or repeal the medical practice act of 1923. If in order to proceed under the act amendatory of the civil administrative code the department had to refer to the medical practice act of 1923, then the act amendatory of the civil administrative code would be an act to amend also the medical practice act. The title of the act amendatory of the civil administrative code contains, however, no suggestion or intimation that its purpose is to amend the medical practice act. But section 13 of article 4 of the constitution of the state of Illinois provides that no act shall embrace more than one subject and that that subject shall be expressed in the title. As applied to physicians, therefore, said the court, the act of 1927, purporting to amend the civil administrative code, is unconstitutional.

Although the Supreme Court held that the act of 1927, under which the Department of Registration and Education had proceeded, was unconstitutional so far as related to the practice of medicine it discussed at some length the charges that had been preferred against Schireson.

The charge that he was not, when he obtained his license, a man of good moral character, could not stand. The medical practice act, said the court, definitely states the causes for which a physician or surgeon may be deprived of his license, and the fact that a man is not of good moral character is not stated among them. Furthermore, the medical committee, reporting to the Department of Registration and Education, defined good moral character as follows: "The term 'good moral character' as used in this connection is assumed to pertain to the entire sphere of human conduct as coming within the description of right and wrong, the obligation of duty and ethics." There is no human frailty or weakness which is not covered by this definition, adopted by the committee as one of the basic principles of law under which Schireson was tried. We are of the opinion, said the court, that this standard of good moral character as applied to a proceeding of this nature is entirely too broad and sweeping to be made the basis of a conviction founded on the charge of a lack of good moral character and requires a much higher test than is usually applied to the ordinary accepted meaning of the term.

The medical committee adopted this same definition of good moral character in passing on the charge that Schireson was guilty of the employment of fraud, deception and unlawful means in applying for and securing his license to practice medicine. It is apparent, said the court, that the legislative intent, as expressed in the medical practice act, contemplated some positive, wilful or intentional act to be committed on the part of the registrant, which actively induced the issuance of his license. It must have been some overt act in the way (1) of wilfully making false answers to material questions affecting his qualifications for the practice of his profession, or (2) of unlawfully concealing from the department the fact, if it was a fact, that he had theretofore been guilty of conduct stated in the statute as grounds for the suspension or revocation of a license, or (3) of some wilful misconduct in taking an examination, such as having some one else write his examination for him, or wilfully cheating in an examination. The proposition of law adopted by the medical committee as the basis of what constitutes good moral character and the alleged fact that Schireson, when he applied for a license, was not a man of good moral character and was therefore guilty of fraud and deception in obtaining his license are unique. In the opinion of the court, however they could not rightly be classed as fraud or deceptive practice on the department in obtaining the license, within the meaning of the law.

Schireson was charged with gross malpractice, resulting in the permanent injury of a patient. No question was raised, the court points out, as to the constitutionality of conferring on the Department of Registration and Education authority to decide what constitutes gross malpractice, and the court therefore did not pass on its constitutionality. Mere malpractice is not a ground under the medical practice act for the revocation of a physician's license. Before his license can be legally suspended or revoked he must be found guilty of gross malpractice. It is clear, said the court, that the report of the medical committee was based on the legal proposition that the law demanded of Schireson by reason of some statement or advertising on

<sup>1</sup> The Illinois civil administrative code of 1917 created a Department of Registration and Education (Smith Hurd's Rev. Stat. 1933 ch. 127 sec. 4) and transferred to it the rights, powers and duties theretofore vested in the state board of health relating to the practice of medicine (ibid. ch. 127 sec. 58). The department was thus charged with the duty of issuing licenses to practice medicine. By an act approved July 7, 1927 (ibid. ch. 127 sec. 60c Laws 1927 p. 858) the code was amended so as to provide that "Certificates may be revoked or suspended in the manner provided by this Act and not otherwise. The Department may upon its own motion and shall upon the verified complaint in writing of any person provided such complaint or such complaint together with evidence documentary or otherwise presented in connection wherewith shall make a *prima facie* case investigate the actions of any person holding or claiming to hold a certificate. The word 'certificate' as defined by the act (ibid. ch. 127 sec. 60b) covers licenses to practice medicine. Under this amendatory act a licensee against whom proceedings are instituted is entitled to a hearing after due notice before a medical committee made up of five medical practitioners designated by the director of registration and education (ibid. ch. 127 sec. 60a) constituting a permanent medical advisory and examining board for the department. On the basis of the findings of this committee (ibid. ch. 127 sec. 60a) the department was authorized to revoke licenses. As to the causes for which licenses might be revoked the civil administrative code as amended by the act of 1927 was and is silent. The medical practice act however (Smith Hurd's Rev. Stat. 1933 ch. 91 sec. 116c Laws 1923 p. 426) four years before the amendment to the civil administrative code discussed above authorized the suspension and revocation of licenses to practice medicine and defined the procedure to be followed to that end. Under that act no person can be cited for such a hearing except on a sworn complaint setting forth the particular act or acts charged against him (ibid. ch. 91 sec. 16b). A person so cited is entitled to a hearing before the Department of Registration and Education. The act contains no provision for the appointment of a medical committee to conduct such hearings. The grounds on which licenses may be suspended or revoked are stated in the act and include gross malpractice resulting in permanent injury or death of a patient, and the employment of fraud, deception or any unlawful means in applying for or securing a license or certificate or in passing an examination (ibid. ch. 91 sec. 16a).

his part, a much higher degree of skill and ability than is expected of the average physician. If this is a correct rule we would have varying degrees of skill required when a charge of malpractice is made either in a civil suit for damages or in a proceeding to revoke or suspend his license. Under such rule, a specialist treating a patient professionally might do or omit to do some act the doing or omission of which would constitute gross malpractice on his part, which would not even be deemed negligence on the part of the average, ordinary physician in the same community. The degree of professional skill required of a physician might be made to depend on the extravagance or boastfulness of his statements as to his skill and ability. We do not believe said the court that it can be seriously contended that such is the law in the state of Illinois.<sup>2</sup> The law in Illinois is that a physician is required to possess, and in his practice to use reasonable skill—not perhaps, the highest degree of skill that one learned in the profession may acquire, but reasonable skill such as physicians in good practice ordinarily use and would bring to a similar case in that locality. The standard adopted by the medical committee and the department with respect to gross malpractice, the court held to be erroneous.

The principles and procedure that must be followed in the suspension and revocation of licenses were summarized by the Supreme Court as follows:

The power to revoke the license of any professional man is not arbitrary or despotic to be exercised by any board, commission or department according to its pleasure or whim. A license to practice medicine in this state strictly speaking is not a property right yet it is a privilege or right which is of great property value to the holder thereof. To qualify in the first instance for the obtaining of such license has cost any applicant years of arduous study and work and the outlay of a considerable sum of money. A license having been obtained according to the provisions of the statute the holder of a license can only be deprived of it in accordance with the law of the land not at the mere discretion of some department or board. The license being a valuable right the owner before he can be deprived of such right is entitled to a full and complete hearing held in accordance with the statute. Where the hearing to revoke a license of any professional man is not before a court judicially convened it may be more or less informal. The niceties and refinements of the procedure or the forms of questions to and the answers of witnesses are not so strictly applied as on a hearing before a judicial body but the substance of the law must be at all times regarded as well as the competency and materiality of the evidence. The correct rules of law applicable to the issues must be observed and followed at the hearing before the commission or body hearing the cause. No higher legal tests are permitted to be adopted by the body trying the case than the law of the state recognizes as the correct tests to be applied to the issues being tried. The burden of proof never shifts to the license holder but the burden remains throughout the hearing upon the department or body making the charge. The necessity for the strict enforcement of these salutary rules is particularly required where the charges often originate with the board, department or commission sitting as the tribunal upon the trial of the charges. The guilt of any defendant of the charges made in the complaint against him must be established clearly and conclusively by competent evidence before the license of any defendant may be legally revoked. The body hearing the case should be a qualified body without prejudice and strictly impartial as to the issues to be tried. Not to apply these rules of law to hearings of this character would be to deprive a defendant of the due process of law guaranteed to him by our State and Federal Constitutions. Const Ill art 2 §2 Const U S Amend 14. The proceeding must be an orderly one conducted in accordance with established rules which do not violate the fundamental rights of the defendant. It is a well recognized fact that to deprive a professional man of his license to practice his chosen profession is generally the death of his professional life.

The judgment of the superior court was reversed and the cause remanded with directions to enter judgment for the defendant, *Schireson—Schireson v Walsh (Ill)* 187 N E 921.

**Malpractice Death of Child and Infection During Childbirth**—The plaintiff sued the defendant physician, alleging that through his negligence in treating her during confinement and delivery she was lacerated and infected and her baby was killed. From a judgment for the patient, the defendant appealed to the Supreme Court of Alabama. Pending the submission of the appeal she died and her personal representative was substituted as plaintiff.

The defendant contended that damages were not recoverable for the prenatal injury or death of an infant. As we con-

strue the complaint, said the Supreme Court, the plaintiff asks damages not for the death of the child or for prenatal injury to it but only for the mother's pain and anguish caused by such death or injury. If the mother suffered physical or mental pain because of the death of her unborn child, and that death resulted from the negligence of the defendant, the plaintiff is entitled to damages. Moreover, as long as a child is in its mother's womb it is a part of the mother, and for any injury to the unborn child, damages are recoverable by the mother. *Deutrich Admr v Inhabitants of Northampton* 138 Mass 14 52 Am Rep 242, *Stanford v St Louis San F R Co* 214 Ala 611, 108 So 566.

The trial court refused to instruct the jury that there was no duty on the part of the defendant physician to send his patient to the hospital, either before or after the delivery of the child, that the law presumes the exercise of a reasonable degree of care and skill by a physician, and that the issue before the jury was not whether the mother was injured, but whether the defendant possessed reasonable skill and was reasonably diligent, and not negligent, in treating his patient. The refusal of the trial court to give such instructions, the Supreme Court held to be correct.

Malpractice cases, said the Supreme Court, must be determined largely on expert testimony. The burden of proving negligence is on the plaintiff. Proof that the mother sustained injury in the birth of her child does not prove that that injury was the result of negligence. Nor does the fact that infection followed the delivery of a child warrant an inference of negligence, when it appears from expert testimony that medical science has found no way absolutely to prevent infection. The doctrine of *res ipsa loquitur*, said the court, does not apply to cases such as this one. A physician, in the absence of a contract to the contrary, does not insure a successful operation or a cure. Reasonable and ordinary care, skill and diligence are required of him, such as physicians in the same general neighborhood, in the same general line of practice ordinarily have and exercise in like cases and under like conditions. When a physician has fulfilled these requirements he has discharged his duty, and the fact that good results do not follow cannot be made the basis for recovery of damages.

The Supreme Court held the verdict of the jury to be contrary to the weight of the evidence, reversed the judgment of the trial court, and remanded the case for a new trial—*Snow v Allen (Ala)*, 151 So 468.

## Society Proceedings

### COMING MEETINGS

- American Academy of Ophthalmology and Otolaryngology Chicago Sept 9-14 Dr William P Wherry 107 South 17th Street Omaha Executive Secretary
- American Association of Railway Surgeons Chicago August 20-22 Dr Louis J Mitchell 21 East Van Buren Street Chicago Secretary
- American Congress of Physical Therapy Philadelphia Sept 10-13 Dr Nathan H Polmer 921 Canal Street New Orleans Secretary
- American Hospital Association Philadelphia Sept 24-28 Dr Bert W Caldwell 18 East Division Street Chicago Executive Secretary
- American Public Health Association Pasadena Calif Sept 3-6 Dr Kendall Emerson 50 West 50th Street New York Executive Secretary
- Colorado State Medical Society Colorado Springs Sept 19-22 Mr Harvey T Sethman 537 Republic Bldg Denver Executive Secretary
- Idaho State Medical Association Lewiston Sept 7-8 Dr Harold W Stone 105 North Eighth Street Boise Secretary
- Michigan State Medical Society Battle Creek Sept 12-14 Dr F C Warnshuis 148 Monroe Avenue Grand Rapids Secretary
- National Medical Association Nashville Tenn August 13-18 Dr C A Lanon 431 Green Street South Brownsville Pennsylvania General Secretary
- Nevada State Medical Association Reno Sept 21-22 Dr Horace J Brown 120 North Virginia Street Reno Secretary
- Northern Minnesota Medical Association Brainerd Sept 10-11 Dr Oscar O Larsen Detroit Lakes Secretary
- Oregon State Medical Society Corvallis Sept 27-29 Dr L Howard Smith Medical Arts Building Portland Secretary
- Pacific Northwest Orthopedic Association Seattle Sept 1 Dr J C Brugman 1215 Fourth Avenue Seattle Secretary
- Washington State Medical Association Spokane Sept 10-13 Dr Curtis H Thomson 1305 Fourth Avenue Seattle Secretary
- Western Branch of American Public Health Association Pasadena Calif Sept 3-6 Dr W P Shepard 600 Stockton Street San Francisco Secretary
- Wisconsin State Medical Society of Green Bay Sept 12-14 Mr J G Crownhart 119 East Washington Avenue Madison Secretary

<sup>2</sup> The rule here announced seems to be contrary to the rule followed by the courts of last resort in every other State in which this question has arisen. A note in the American Law Reports Vol 59 page 1071 cites cases in eleven jurisdictions holding that a physician who holds himself out as having special knowledge and skill in the treatment of some particular organ or disease is required to exercise that degree of skill and care ordinarily possessed and used by similar specialists and that his duty to his patient is measured by a higher standard of skill than that of a general practitioner but cites no cases to the contrary.

## Current Medical Literature

### AMERICAN

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Titles marked with an asterisk (\*) are abstracted below.

### American Heart Journal, St. Louis

9 557 696 (June) 1934

Coronary Arteries in Rheumatic Fever H T Karsner and F Bayless Cleveland—p 557

Incidence and Significance of Active Infection in Cases of Rheumatic Cardiovalvular Disease During the Various Age Periods. Clinical and Pathologic Study M A Rothschild M A Kugel and L Gross New York—p 586

Form of Electrocardiogram in Experimental Myocardial Infarction I Septal Infarcts and Origin of Preliminary Deflections of Canine Levocardiogram F N Wilson I G W Hill and F D Johnston Ann Arbor Mich—p 596

\*Initial Complex of Electrocardiogram After Infarction of Human Heart M Winternitz Prague Czechoslovakia—p 616

Duration of the QRS Complex in Normal and in Abnormal Electrocardiogram Study of Five Hundred Cases with a Note on Nomenclature S McGinn and P D White Boston—p 642

Dynamic Dilatation of the Thoracic Aorta W K Purks Boston—p 655

Electrocardiographic Study of Viscerocardiac Reflexes During Major Operations C C Maher P J Crittenden and P F Shapiro Chicago—p 664

**Infection in Rheumatic Cardiovalvular Disease**—Rothschild and his associates made a study of 161 persons dying with evidence of rheumatic heart disease past or present. Of the 161 cases studied 106 showed evidence of an active infection and of these 103 ended fatally as the result of circulatory failure. The occurrence of heart failure in the first five decades of life in persons who have a valvular defect can be attributed in the majority of instances to an active infection of the myocardium rather than to the degree of the mechanical defect. It is striking to note the high grade of mechanical defect existing in persons living even to the fifth and sixth decade with little or no evidence of congestive failure. In a few instances complete quiescence of the rheumatic myocarditis was present as early as the second decade of life. The number of the quiescent cases increased considerably in the later age periods. Circulatory failure in the later decades of life in persons presenting valvular defects was found in the majority of cases to be precipitated by the expected contributory causes occurring at this time of life viz hypertension either in the systematic or pulmonary circuit atherosclerosis of the coronary arteries, coronary thrombosis myocardial degeneration and fibrosis.

**The Electrocardiogram in Experimental Myocardial Infarction**—According to the studies of Wilson and his associates, ligation of the septal branch of the left coronary artery in the dog is usually followed by infarction of a large part of the ventricular septum. Immediately after this vessel is obstructed the electrocardiogram shows displacement of the RST segment of the ventricular complex. Later disturbances of intraventricular or atrioventricular conduction develop. Right bundle-branch block occurred in all three experiments. In one instance the right branch block complexes were not strikingly different from the complexes usually obtained after the right branch of the bundle of His has been cut in spite of the fact that a large part of the septal muscle was dead. In right bundle-branch block the precordial electrocardiograms may be characteristic in every respect when the standard electrocardiograms are not. Under these circumstances precordial leads are of great value in locating the conduction defect. When the potential variations of the precordium are small the precordial electrodes should not be paired with a single electrode but with a central terminal connected through like resistances of 5000 ohms or more to all three extremity electrodes. The R deflection of the levocardiogram is not abolished by infarction of the septum but is frequently absent in lead I after

ligation of the anterior descending and in lead III after the ligation of the circumflex branch of the left coronary. This deflection is not of septal origin. The muscle responsible for the preliminary deflections of the levocardiogram is widely distributed, and it is probable that most of the endocardial surface of the left ventricle is active before the first summit of the levocardiogram is written.

**Initial Complex of Electrocardiogram After Cardiac Infarction**—Winternitz reports fifteen cases and cites twenty-six from the literature in which characteristic changes appeared in the initial complex following a coronary closure. The changes may be classed in three groups. In the first one finds a modified form of left axis deviation with small R<sub>1</sub> and deep S<sub>2</sub> and S<sub>3</sub>. The characteristic of group two is the negativity of the principal deflection of all leads whether this is S or Q. The third group is recognized by the shrinking of all the main waves while smaller deflections may persist unchanged. The anatomic basis for the first two groups is an extensive necrosis of the anterior wall of the heart. For the third group it is necrosis of anterior and posterior walls as a result of two thromboses. Controlled by a series of 1460 electrocardiograms chosen at random, these changes were found to be not pathognomonic but most suggestive of the presence of infarct of the heart. They occur less frequently than do the heretofore recognized signs of coronary thrombosis, but they may be present in those cases in which there are no characteristic changes in the final complex. As interpretation of the QRS changes a disturbance of the muscular balance of the two sides of the heart caused by the cutting out of a large mass of muscle is brought forward but the possibility remains that for each group there is a localized disturbance of intraventricular conduction.

### American Journal of Medical Sciences, Philadelphia

157 737 876 (June) 1934

Medical Treatment of the Thyrocardiac C Eggleston New York—p 737

Hodgkin's Disease Mistaken for Thyroid Tumor L M Goldman and J Newman Newark N J—p 744

Clinical Comparison of a Purified Glucoside and Whole Leaf Preparations of Digitalis W D Stroud A W Bromer J R Gallagher and J B Vander Veer Philadelphia—p 746

\*Mechanism of Early Relief of Pain in Patients with Angina Pectoris and Congestive Failure After Total Ablation of Normal Thyroid Gland A A Weinstein D Davis D D Berlin and H L Blumgart Boston—p 753

Rheumatic Heart Disease. Clinical Data as Observed in Louisville, Ky S T Simmons Louisville Ky—p 773

Clinical Significance of Low T Waves in the Electrocardiogram J Edeiken and C C Wolferth Philadelphia—p 778

Electrocardiogram in Acute Experimental Distention of the Right Heart W C Buchbinder and L N Katz Chicago—p 785

Electrocardiographic Changes Accompanying Acutely Increased Pressure Following Pulmonary Artery Ligation Note E B Krumpholtz Philadelphia—p 792

\*Arteriosclerosis of the Lumbar Segmental Arteries Producing Ischemia of the Spinal Cord and Consequent Claudication of the Thighs. Clinical Syndrome with Experimental Confirmation F L Reichert D A Rytand and E L Bruck San Francisco—p 794

Treatment of Arterial Hypertension with Crystalline Ovarian Hormone (Theelin) D Ayman Boston—p 806

Errors of Surgical Diagnosis. Study of the Records of the First Surgical Division of the Roosevelt Hospital Covering a Period of Three Years C W Cutler Jr New York—p 810

Bacillary Dysentery in California A C Reed San Francisco—p 819

Agranulocytosis and Acute Leukemia M M Strumia Philadelphia—p 826

\*Neutropenia Developing During Amidopyrine Medication. Report of Two Cases W B Rawls New York—p 837

Nomograph for Simplifying Computation of the Urine Sediment Count (Addis) D C Hines San Francisco—p 841

Pneumococcus Antibody Solution in Treatment of Lobar Pneumonia. Results in One Hundred and Thirty Cases W P Belk Ardmore Pa and J S Sharpe Haverford Pa—p 844

**Ablation of Normal Thyroid in Angina Pectoris**—Weinstein and his associates observed the immediate post-operative relief of pain in the chest after total thyroidectomy in nineteen patients. Data were collected before and during several weeks after operation in patients showing changes in nonanginal precordial pain changes in areas of skin hyperesthesia and muscular and periosteal hyperalgesia of the chest wall and changes in the character and distribution of pain of angina pectoris. Within a few hours after operation nonanginal precordial pain, hyperalgesia and hyperesthesia disappeared and remained absent from two to four weeks but then usually reappeared if the basal metabolic rate had not

declined significantly. Only after the basal metabolic rate had dropped appreciably did the foregoing signs and symptoms disappear permanently. Studies were made on the distribution of the pain of angina pectoris produced under standard conditions in three cases before and after hemithyroidectomy. The remaining half of the thyroid was removed at a later date. Exercise within two weeks after hemithyroidectomy produced no pain in the arm and the side of the chest corresponding to the side of operation. The pain of angina pectoris was experienced only on the unoperated side and usually stopped at the midline of the sternum. The authors discuss the similarity of these observations to those after cervical sympathectomy and alcohol injection. The basal metabolic rate did not change appreciably after the first hemithyroidectomy. From two to eight weeks after operation, pain on exercise was again experienced on the operated side. Only after removal of the other half of the thyroid and after an appreciable drop in the basal metabolic rate was the pain of angina pectoris relieved permanently. From these observations the authors conclude that the immediate relief of pain after total thyroidectomy is due to the interruption of afferent nerve impulses from the heart at the time of operation, that relief by this mechanism is only temporary, and that permanent relief is related to the lessened work of the heart attendant on the development of the hypothyroid state. Complete rest in bed should be enforced after total ablation of the thyroid despite the early subjective relief experienced by the patient, until the basal metabolic rate is lowered significantly.

### Arteriosclerosis of the Lumbar Segmental Arteries

—According to Reichert and his associates, the ordinary intermittent claudication in the arteriosclerotic patient is characterized by pain, which is attributed to physiologic processes developing in the working muscles easily fatigued as the result of impaired blood supply. It is associated with a lack of arterial pulsation in the feet and ankles, color alterations in the skin of the extremities on change of posture and roentgenographic evidence of calcification in the arteries of the legs. Intermittent claudication because of weakness in the thighs and hips was the chief complaint of four nonsyphilitic arteriosclerotic patients, who exhibited a spastic gait resembling that of a tabetic patient, who had no positive neurologic signs and whose roentgenograms revealed calcification in the lower abdominal aorta. The claudication of the thighs in these four patients was attributed to ischemia of the spinal cord produced by alterations in spinal branches of the arteriosclerotic lumbar segmental arteries arising from the abdominal aorta. This hypothesis was strengthened by roentgenographic evidence of calcification in the terminal portion of the abdominal aorta and by experimentally produced claudication in the thighs of adult dogs after occlusion of the lumbar segmental arteries without interference with the blood supply to the thighs or remainder of the lower extremities, as shown roentgenographically by complete arterial injections of the animals. Unilateral claudication developing after ipsilateral occlusion of one or more lumbar arteries in the dog afforded further proof that ischemia of the spinal cord was the cause of the claudication.

### Neutropenia Developing During Amidopyrine Medication

—Rawls presents two instances of neutropenia developing while the patients were taking amidopyrine. One patient returned to normal nine days after the drug was omitted without any other form of treatment. After a period of rest the amidopyrine was resumed. This was followed by neutropenia after the patient had received about the same amount of the drug as on the previous occasion (280 grains [182 Gm]). The leukocyte count returned to normal in eight days, or about the same time as after the first attack. The rapid recovery after the omission of the drug, in one instance without therapy and in the other with only four injections of 10 cc each of pentnucleotide would seem to indicate that the neutropenia was probably produced by the amidopyrine. Although the second patient was taking a combination of magnesium carbonate and amidopyrine, the fact that the first patient had two attacks of neutropenia after the use of amidopyrine alone eliminates any probability that magnesium might have played any part in the condition. A predisposition to neutropenia may have existed in these patients, or the onset may have been

due to the inability of the bone marrow to cope with any additional strain that may have been brought on by the amidopyrine. Neutropenia is frequently periodic in character and may be produced by several factors, as pointed out by Beck. Farley reviewed thirty-nine cases appearing in the literature in which the function of the bone marrow was depressed following the use of various preparations of arsphenamine. Taking these into consideration and recognizing that benzene is a powerful leukocytic depressant, it is possible that amidopyrine, a benzene derivative, could be an etiologic factor. The authors, two cases occurred in a series of 200 patients receiving the drug. In two other patients, the polymorphonuclear counts were reduced from 55 and 60 per cent to 35 and 40 per cent, respectively, while amidopyrine was being taken, but the counts promptly returned to normal when the drug was omitted. Two others in the series had nausea, vomiting, exhaustion and pyrexia, but blood counts were not obtained. It is possible that these cases may have been similar to the two reported cases and that recovery may have occurred spontaneously when the drug was omitted.

### American Journal of Physiology, Baltimore

108 509 720 (June 1) 1934

- \*Experimental Production of Edema and Elephantiasis as a Result of Lymphatic Obstruction C. K. Drinker, Madeleine E. Field and J. Homans Boston—p. 509
- Role of Phosphocreatine in the Fundamental Chemical Changes in Contracting Mammalian Muscle J. Sacks and Wilma C. Sacks Ann Arbor Mich—p. 521
- Effect of Intravenous Administration of the Pregnancy Urine Factor on Ovaries of Rhesus Monkeys E. T. Engle New York—p. 528
- Chloride, Carbohydrate and Water Metabolism in Adrenal Insufficiency and Other Conditions H. Silvette Charlottesville Va—p. 535
- Hematopoietic Effect of Cobalt and Cobalt Manganese Compounds in Rabbits W. Kleinberg, New York—p. 545
- Water Absorption and Elimination of Frogs During Ether, Nitrous Oxide, Chloroform and Ethylene Anesthesia H. W. Neild and A. F. Serritella, Urbana Ill—p. 550
- Hemoglobin and Erythrocyte Differences According to Sex and Season in Doves and Pigeons O. Riddle and P. F. Braucher Cold Spring Harbor N. Y.—p. 554
- Diurnal Changes in the Liver During Pregnancy T. W. Goodwin and G. M. Higgins Rochester Minn—p. 567
- Electrical Measurements Concerning Muscular Contraction (Tonus) and Cultivation of Relaxation in Man Relaxation Times of Individuals E. Jacobson Chicago—p. 573
- Collateral Respiration Chemical Composition and Volume of the Col laterally Respired Gases G. E. Lindskog and H. H. Bradshaw Boston—p. 581
- Effect on Weight of Offspring of Administration of Antutrin G to the Pregnant Rat L. W. Sontag and P. L. Munson, Yellow Springs Ohio—p. 593
- Further Study of Vasodilators in Sympathectomized Animals A. Rosenbluth and W. B. Cannon, with assistance of D. McK. Riech B. Cannon and M. McK. Sawyer Boston—p. 599
- Failure to Confirm Pavlov's Hypothesis of External Inhibition A. R. Miller—p. 608
- Effect of Thyroxine Ingestion on the Toxicity of Certain Bile Salts L. H. Schmidt Cincinnati—p. 613
- Effect of Digestion on Blood Flow in Certain Blood Vessels of the Dog J. F. Herrick, H. E. Essex, F. C. Mann and E. J. Baldes, Rochester Minn—p. 621
- Action Potentials from Single Motor Units in Voluntary Contraction Olive C. Smith Boston—p. 629
- Glucose Tolerance and the Glycogen Storage Capacity of the Dog W. L. Butsch Rochester Minn—p. 639
- Analysis of the Factors Involved in Gastric Motor Inhibition by Fats J. P. Quigley, H. J. Zettelman and A. C. Ivy Chicago—p. 643
- Role of Carbon Dioxide in Producing the Symptoms of Oxygen Poisoning L. A. Shaw, A. R. Behnke and Anne C. Messer, Boston—p. 652
- Experimental Sodium Loss Analogous to Adrenal Insufficiency Resulting in Water Shift and Sensitivity to Hemorrhage A. Gilman New Haven Conn—p. 662
- Observations on the Alterations of Blood Platelets as a Factor in Coagulation of the Blood J. H. Ferguson New Haven Conn—p. 670
- Study of Reflexes Involving the Pyloric Sphincter and Antrum and Their Role in Gastric Evacuation J. E. Thomas, J. O. Crider and C. J. Mogan Philadelphia—p. 683
- Depression of the Activity Aroused by a Flash of Light by Applying a Second Flash Immediately Afterwards to Adjacent Areas of the Retina G. A. Fry St. Louis—p. 701
- Effect of Diet on the Distribution of Glycogen in the Skeletal Muscle of the Rat M. Sahyun, R. Simmonds and H. Working Stanford University Calif—p. 708

**Experimental Production of Edema and Elephantiasis**  
—Drinker and his co-workers describe three typical instances of lymphatic obstruction in the hind leg of the dog. Similar changes have been produced in four other animals. Obstruction has been brought about by repeated central cannulation of

lymphatic trunks with injection of a suspension of crystalline silica and a 25 per cent solution of guinine hydrochloride. Lymphedema developed after such injections and eventually became pronounced. The protein content of the edema fluid rose slowly to above 4 per cent. With the establishment of lymphedema the subcutaneous connective tissue increased and the leg gradually became elephantiac. In the presence of chronic lymphatic obstruction the part became susceptible to attacks of acute infection. A hemolytic streptococcus has been isolated from the edema fluid early in these attacks. The seizures were exactly like the attacks that occur in human cases of lymphedema and elephantiasis.

## American Journal of Surgery, Chicago

24 547 886 (June) 1934

- \*Sterilization of Females L E Burch, Nashville Tenn.—p 550
- Incidence of Pregnancy Following Ovarian Implantation W L Estes Jr Bethlehem Pa and P L Heitmeyer Portland Ore.—p 563
- \*Vaginal Hysterectomy with Especial Reference to Its Employment in Cancer of Fundus of Uterus J S Horsley Richmond Va.—p 582
- Granulosa Cell Carcinoma of Ovary as a Cause of Postmenopausal Bleeding with Discussion of Pathologic Physiology of These Tumors E Novak Baltimore—p 595
- Aneurysm Review of Sixty Two Cases D C Elkin and J L Campbell Atlanta Ga.—p 611
- So Called Primary Thrombosis of Axillary Vein Caused by Strain. Report of Case with Comments on Diagnosis Pathogeny and Treatment of This Lesion in Its Medicolegal Relations R Matas New Orleans—p 642
- \*Mycotic Aneurysm of Common Iliac Artery Sympathetic Ganglion Block as an Aid in the Development of Collateral Circulation in Arterial Aneurysm of Peripheral Arteries Report of Case M Gage New Orleans—p 667
- Surgery as Applied to Lymph Nodes of the Neck in Cancer of Lip and Buccal Cavity Statistical Study E Fischel St Louis—p 711
- Pharyngeal or Pharyngo Esophageal Diverticulum New Operation Inversion and Suture R D McClure Detroit—p 732
- Results of Subtotal Gastrectomy for Carcinoma C W Flynn and J W Duckett Dallas Texas—p 746
- Choice of Operations for Cancer of the Rectosigmoid and Rectum F W Rankin Lexington Ky.—p 759
- Uretersigmoidal Transplantation for Exstrophy of the Bladder and Complete Epispadias with Absent Urinary Sphincters W Walters Rochester, Minn.—p 776
- \*Diagnosis and Treatment of Purpura Hemorrhagica J deJ Pember ton Rochester, Minn.—p 793
- Present Status of Transurethral Prostatic Resection O Grant Louisville Ky.—p 807
- Gastric Ulcers in the Premature New Born Report of Two Cases F W Smythe Memphis Tenn.—p 818
- Imperforate Anus Suggested Mode of Handling R L Rhodes Augusta Ga.—p 828
- Syphilis of Gastro Intestinal Tract C Williams Richmond Va.—p 834
- Primary Carcinoma of Vermiform Appendix C A Vance Lexington Ky.—p 854
- Anastomoses of the Gastro-Intestinal Tract Employing a Pile Clamp A G Bremizer Charlotte N C.—p 863

**Sterilization of Females**—Burch advocates a method for the sterilization of women that is not a major surgical procedure. It is preferable to cesarean section when the chief indication for cesarean section is sterilization. Under these circumstances the operation for sterility is carried out from two to three months after normal labor. The patient is placed in the exaggerated lithotomy position. The cervix is exposed and seized with a cervical hook or forceps. A semicircular incision is made behind the cervix from 1 to 1½ inches in length and the peritoneum is opened. A crushing forceps is placed across the tube three-fourths inch from the fimbriated extremity. The tube external to the crushing forceps is removed and a silk ligature is tied securely in the groove made by the crushing forceps. The same procedure is carried out on the opposite side. This procedure leaves the tubes in good shape for a plastic operation for restoration of their lumen provided the patient's condition improves to the point at which pregnancy would not be a menace to life. Should the disease for which the sterilization is carried out be incurable, the author advises the method of Mediener which consists of applying a crushing clamp to a loop of the tube the application of a silk ligature in the groove and excision of the tube distal to the ligature. In cases in which the uterus is high lying and with little mobility the approach may be made through the anterior fornix. The patient is propped up in bed at the end of twenty-four hours placed in a chair at the end of forty-eight and allowed to leave the hospital within from

four to five days from the time of operation. A Rubin inflation test of the tubes should be carried out annually for the first two years following any operation for sterility. Sterilization as an operation alone should not be carried out unless birth control methods are not applicable.

**Vaginal Hysterectomy in Cancer of Fundus of Uterus**—Horsley believes that the strongest indication for vaginal hysterectomy is cancer of the fundus of the uterus. He gives a technic combining several features from other operations. The vagina is painted with a 50 per cent solution of tincture of iodine and the uterus is packed with a strip of iodoform gauze soaked in the same solution. The cervix is closed with stout silk, so burying the iodoform gauze in the uterus. Since adopting this precaution the author has had only one case of peritonitis in 148 vaginal hysterectomies. This precaution also lessens the chances of implantation of cancer cells in the vault of the vagina. An incision is made around the cervix, and from the middle of the anterior portion of this incision a straight incision is carried down the anterior vaginal wall for about 2 inches. The bladder is dissected up with blunt or gauze dissection from the anterior vaginal wall and from the anterior surface of the uterus. The anterior peritoneum is opened and then the posterior peritoneum, though in retroversion this may be reversed, and both broad ligaments are clamped in sections and divided. Usually the division of the left broad ligament is completed first, the fundus is delivered into the vagina, and the remaining portion of the right broad ligament is clamped and divided from above downward. The tubes and ovaries are removed if indicated. The clamped sections of the broad ligaments are controlled by transfixing and tying them with plain catgut. These knots should be secure, no double hitch is made, and the first loop of the knot is held with mosquito forceps while the second loop is run down. Each ligature is tied three times and two ligatures are placed on top of the broad ligament. All ligatures are left long and are brought together on each side in a cable. The peritoneum over the bladder is sutured to the peritoneum over the rectum with a continuous mattress suture of 00 tanned catgut. The incision in the vaginal mucous membrane is closed with a continuous suture of number 1 tanned catgut, the ligatures should emerge from each end of the incision. Three or four strips of iodoform gauze are packed in the vault of the vagina, and the two cables of the ligatures are tied over them. At the end of twenty-four hours the cables are cut, and in forty-eight hours the gauze is removed.

**Sympathetic Ganglion Block in Arterial Aneurysm**—Gage states that blocking the sympathetic ganglions preliminary to the treatment of aneurysms of the peripheral arteries is valuable. The development of a collateral circulation by other methods is rather tedious is not without danger, and requires time for the development of the collateral circulation. He does not believe that the compression method should be neglected. Therefore he advises that in the treatment of all aneurysms of the peripheral vessels one of the first surgical procedures that should be performed in preparation for direct attack on the aneurysm is interruption of the vasoconstrictor fibers supplying the blood vessels of the extremity involved. As this can be done by the method advocated by Flothow, by the use of alcohol to destroy the ganglion, he believes that this procedure is without danger. In conjunction with block of the lumbar sympathetics or cervical sympathetics he advocates the use of the Matas compressor, which would facilitate the development of a collateral circulation. He reports a case of mycotic aneurysm of the common iliac artery in which there was a rapid development of the collateral circulation by blocking of the lumbar sympathetics and in which ligation of the common iliac artery was done near its origin from the aorta, the internal and external iliac arteries were involved and there was a high degree of endocarditis. The patient made a complete recovery without any complications.

**Diagnosis and Treatment of Hemorrhagic Purpura**—Pemberton points out that a study of the morphology of the formed elements of the blood film, by a competent hematologist is essential to accurate diagnosis of hemorrhagic purpura. Griffin's classification of hemorrhagic purpura permits of accurate designation of the stage as well as of the severity of the disease and therefore fulfils the requirements of a practical



method of grouping the cases for clinical consideration Splenectomy often has proved a life saving measure by initiating almost immediate remission of the disease which in 63 per cent of the cases has been permanent In 35 per cent the remission has been followed by one or more episodes of mild bleeding In only one case has the disease recurred in the acute form The operative hazard in the chronic form of moderate severity is nominal and in the acute incipient and in the acute recrudescence form the mortality rate is 18 per cent The indications for splenectomy vary according to the stage and severity of the disease In cases of incipient and chronic hemorrhagic purpura of mild degree splenectomy is rarely indicated Splenectomy is definitely indicated in practically all chronic cases of moderate severity For all acute incipient and acute recrudescence cases, splenectomy should be performed as soon as it is apparent that the course of the disease cannot be checked immediately by medical treatment for delay of operation may prove disastrous

### Archives of Dermatology and Syphilology, Chicago

29 805 974 (June) 1934

- \*Systematized Amyloidosis of Skin and Muscles H F Michelson and F W Lynch Minneapolis—p 805
- Myeloid Leukemia with Cutaneous Manifestations L Hollander G J Kastlin H H Permar and C L Schmitt Pittsburgh—p 821
- \*Practical Clinical and Laboratory Aspects of Precipitation Tests for Syphilis E B Ritchie San Antonio Texas Ruth Herrick Grand Rapids Mich and J M Van de Frie Chicago—p 835
- \*Sensitization Tests Their Value in Dermatology H V Mendelsohn New York—p 945
- Neroderma Pigmentosum Study in Sensitivity to Light I W Lynch St Paul—p 859
- Rosacea Complex and Demodex Folliculorum H Beerman and J H Stokes Philadelphia—p 874
- Pemphigus Effect of Pemphigus Serum on Leukocytic Picture of Rb bits A W Grace with technical assistance of Edith Ross New York—p 885
- Disorders of Feet as Cause of Resistant Eczematoid Ringworm Their Influence on Amount of Sweating of Feet T Cornblet, Chicago—p 887
- Ringworm of Scalp Report of Three Cases Due to Microsporon Lanosum with Tendency to Spontaneous Recovery G M Lewis and Helen C Miller New York—p 890
- Multiple Benign Tumor Like New Growths of Skin Report of Case T Butterworth Reading Pa—p 893

**Amyloidosis of the Skin and Muscles**—Reviewing some cases Michelson and Lynch emphasize the age of the patients—from 46 to 66 years The initial symptom is progressive weakness, which went on to prostration in their patient Purpuric lesions, especially at points of frequent minor trauma are common This is probably due to injury of the small walls of arterioles by the amyloid deposit In their patient purpuric spots were constantly present on the hands and the tongue and they believe that the severe intestinal hemorrhage may be accounted for in the same way The marked constipation and fecal incontinence toward the end may be explained by the fact that the intestinal musculature was involved in this type of amyloidosis as in almost every patient examined after death Tuberculosis and syphilis were excluded, as was malaria The significance of Bence-Jones proteinuria in the authors' case is not entirely clear to them Bence-Jones protein is rarely found in diseases other than multiple myelomas In comparing the Bloch and Glaus case with theirs, they found no resemblance in the cutaneous observations but could conceive of the condition which they described as being the form of amyloidosis cutis observed in Koenigstein's second case in which atrophic changes followed involution of a papular eruption As in their case, Bloch was unable to demonstrate multiple myelomas during life although in both cases careful roentgen studies were made because of the finding of Bence-Jones proteinuria The amyloid deposits observed at necropsy in the earlier case were similar to those usually present in systematized amyloidosis and were probably similar to those in the authors' case The important difference was Glaus's opportunity to examine bone marrow at necropsy and demonstrate myelomatous changes He regarded the amyloid deposits as the results of toxic changes brought about by the myelomas, and that was the conception of most investigators who observed amyloid in patients with myelomas This theory is reasonable in that other blastomas (and leukemia carcinoma and Hodgkin's disease) occasionally produce amyloidosis The difference lies in the fact that the latter processes are associated with

the usual form of generalized amyloidosis, while the myelomas are associated with amyloid deposits of the nature of those observed in systematized amyloidosis, the resemblance being most striking in Bloch's case More accurate studies on the relationship of myelomas, Bence-Jones proteinuria and systematized amyloidosis may lead to a demonstration of the essential differences between generalized and systematized amyloidosis or toward an understanding of the basic principles of the entire problem of amyloidosis

**Precipitation Tests for Syphilis**—Ritchie and his associates performed the Hinton tube precipitation test and the Kline and Rosenthal microscopic precipitation tests with careful clinical control and found all three tests to be satisfactory They do not believe that their advantages would justify substitution of one of them for the Kahn test which is performed on all serums in their clinic They believe that the Kolmer test gives information not obtainable by any precipitation test On the other hand, the precipitation reaction will often be positive when the complement fixation reaction is negative The precipitation test is especially useful in cases in which the serum is anticomplementary by the complement fixation test It is not merely advisable, but imperative, that a complement fixation test and a precipitation test be performed on each serum

**Value of Sensitization Tests in Dermatology**—Mendelsohn presents the results of an allergic study of 262 cases of various dermatoses—eczema, urticaria and dermatitis venenata (80 per cent of the cases) and prurigo, erythema multiforme, angioneurotic edema and neurodermatitis—in which sensitization tests were performed so that their value could be determined The results indicate that 1 Intradermal tests are of little value in demonstrating the cause of cutaneous diseases 2 A great number of positive intradermal reactions are obtained, but they are rarely of practical significance 3 Positive reactions to food substances or inhalants administered intradermally in patients with cutaneous diseases are far less specific than similar reactions to pollens in patients with hay fever 4 The indiscriminate subsection of patients with dermatoses to a large number of skin tests is not justifiable Far greater etiologic help can be obtained by securing a proper history and making a correct dermatologic survey 5 Patch tests are of decided value, especially in cutaneous diseases that are due to external irritants

### Archives of Otolaryngology, Chicago

19 653 752 (June) 1934

- Carcinoma of the Larynx Analysis of Fifty Eight Cases with Treatment by Laryngofissure L H Clerf Philadelphia—p 653
- Temperature After Mastoidectomy Study of One Hundred Cases H P Johnson Portland Me—p 660
- Labyrinthitis and Sinus Thrombosis Complicating Suppuration of the Middle Ear J G Druss New York—p 671
- Treatment and Management of Nontuberculous Pulmonary Abscesses with Especial Reference to a Series of Twenty Five Consecutive Cases G O Cummings Portland Me—p 684
- \*Improved Operative Technique for Suppuration of Petrous Apex M C Myerson H W Rubin and J G Gilbert New York—p 699

**Operative Technique for Suppuration of Petrous Apex**—Myerson and his associates outline an improved operative technique for the approach to the apex of the petrous portion of the temporal bone by way of the middle fossa The preexisting mastoid wound is enlarged A vertical cutaneous incision is made from the uppermost attachment of the auricle about 2½ inches (6.35 cm) upward A large section of the squamous bone is removed This removal of the bone extends down to the zygoma anteriorly and to the knee of the sigmoid sinus posteriorly The area removed is approximately 4 cm in diameter In addition, the tegmen of the mastoid is removed and also a part of the tegmen tympani as far as the prominence of the superior semicircular canal Elevation of the temporal lobe is first carried out along the anterior surface, hugging the superior border of the pyramid In the process of separation some resistance is encountered along the superior border from the prominence of the superior canal inward as far as the internal margin of the internal auditory meatus The resistance is lessened as this point in the separation is reached At the same time this point marks the beginning of the apical area The exposure permits inspection of the epi tympanic space and of the region of the external and superior

semicircular canals posteriorly for the presence of fistulas. After the inspection and search for a fistula a gouge of appropriate size with a squarely cut off end, beveled on the inside and with the distal end at an angle of 135 degrees from the shaft is placed at a point slightly external to the beginning of the second depression and on the anterior surface as close to the superior border as possible. The direction is parallel to the superior border. A slight tap with the mallet or firm pressure with the hand and a downward motion of the handle will uncap a portion of the roof of the apex. The remainder of the apical area is uncapped and excavated by means of specially designed curets. The posterior lip of the cavity, all of which lies internal to the internal auditory meatus can then be shaved down with a special curet. A large curved suction tube is used after the curetting is completed. This tube serves to remove the contents of the cavity and also any spicules of bone that may have been left behind. Suction is applied to the external wall of the cavity of the petrous apex so as to evacuate pus that might be retained in any of the groups of cells leading to it. The end result of this procedure is a cavity consisting of everything in the petrous portion of the bone beyond the labyrinth and the internal auditory meatus. A rubber drain is inserted and the temporal lobe is permitted to drop back into place. The wound is closed and the drain is allowed to protrude through the lower end of the wound.

### California and Western Medicine, San Francisco

40 393 480 (June) 1934

- Some Present Day Medical Organization Problems G G Reinle Oakland—p 393  
Focal Infection Some Modern Aspects R L Cecil New York—p 397  
Septic Plague Its Present Status in California K F Meyer San Francisco—p 407  
Present Status of Epidemic Poliomyelitis J D Dunshee San Francisco—p 410  
Compulsory Health Insurance F L Hoffman Philadelphia—p 411

### Canadian Medical Association Journal, Montreal

30 589 704 (June) 1934

- Influence of Diencephalon and Hypophysis on General Autonomic Function W Penfield Montreal—p 589  
Aponeurotic Suture Repair of Femoral Hernia W G Carscadden Toronto—p 598  
Staphylococcus Antitoxic Serum in Treatment of Acute Staphylococcal Infections and Toxemias C E Dolman Toronto—p 601  
Treatment of Congestive Heart Failure and Angina Pectoris by the Complete Removal of the Normal Thyroid Gland Review of Literature with Report of Two Additional Cases W R Kennedy Montreal—p 610  
Resistance to Rous Sarcoma F G Banting and S Garms Toronto—p 615  
Treatment of Ringworm of the Scalp by Thallium Acetate and Detection of Carriers by the Fluorescence Test A M Davidson P H Gregory and A R Birt Winnipeg Manit.—p 620  
Two Unusual Cases of Primary Anemia E S Mills Montreal—p 624  
Problem of Hemorrhage in Obstetric Practice W B Hendry Toronto—p 629  
Endotracheal Anesthesia in Surgery of the Head and Neck R Hargrave Toronto—p 633  
Thrombopenic Purpura Report of Case with Recovery Following Splenectomy L J Solovay Toronto—p 637  
Early Diagnosis of Cancer of the Intestine B J Brandson Winnipeg Manit.—p 639  
Survey of Diabetic Deaths in Alberta H C Jamieson Edmonton Alta.—p 642  
Open Safety Pin in the Stomach Regurgitated Into the Esophagus and Removed by Esophagoscopy J N Roy Montreal—p 646  
Mastitis Adolescentium A E Harbeson Kingston Ont.—p 648

**Staphylococcus Antitoxic Serum**—Dolman presents the results obtained from using antitoxic horse serum in the treatment of certain well known types of acute staphylococcal infection of human skin bone meninges and blood. The evidence reveals the probability that the severity of certain types of staphylococcal infections is due to the formation of exotoxin in vivo by the infecting micro organisms. An account is given of the preparation of staphylococcus antitoxic horse serum and of those of its properties which are probably of therapeutic value. Among the 104 patients there were twenty-four with various types of staphylococcal infection of the skin and subcutaneous tissues all of whom made remarkably rapid recoveries following serum therapy. thirty-two patients with severe staphylococcemia secondary to osteomyelitis in children, of whom twenty-two recovered and twenty-two apparently hope-

less cases of staphylococcemia in adults and adolescents, in five of which recovery occurred. Clinical improvement seemed to date in many serious cases from the time when the amount of circulating staphylococcus antitoxin reached a maximal high value. As the titer of circulating antitoxin rose, from absorption of the serum administered, an increasing leukocytosis was often detectable. Earlier diagnosis of staphylococcal infections and toxemias are necessary and more prompt institution of specific antitoxin therapy is important, particularly when a positive blood culture has been obtained. Although further improvements in its preparation and in methods of administration must be sought, the conclusion is reached that, when supported by adequate surgical drainage of such pyogenic foci as may be present staphylococcus antitoxic serum is a specific therapeutic agent of considerable usefulness.

**Treatment of Ringworm of the Scalp**—Davidson and his associates treated thirty-eight patients having microsporon ringworm of the scalp with thallium acetate, using the method advocated by Ingram. Thirty-six were infected by *Microsporon audouinii* and the other two by *M. felineum*. Of 170 children who either had the disease or had been exposed to it, seven showed no clinical signs of ringworm of the scalp and yet had bright green fluorescent hairs under Wood's light. This, and other tests, showed them to be infected by microsporon and probably carriers of the disease. Thallium acetate served a useful purpose in this series of cases. Of the thirty-eight patients treated, only one developed slightly toxic symptoms. Patients were always clinically cured before they ceased to show fluorescent hairs under the fluorescence lamp. It was noted during epilation that infected hairs were retained in the scalp longer than normal ones. It is suggested that this retention is purely mechanical owing to the increase in diameter of the hair surrounded by fungal spores. The authors suggest a triad for the diagnosis of the presence and absence of microsporon ringworm of the scalp: clinical examination, fluorescence test, and microscopic examination of hairs. The examination of contacts of and convalescents from ringworm of the scalp with the fluorescence lamp should become a routine procedure.

**Mastitis Adolescentium**—Harbeson's conception of the etiology of the mastitis of adolescents is that it is caused by a disturbance in the physiologic balance between the follicular and luteal ovarian hormones. These hormones are the stimuli that cause development of the mammary gland, the follicular hormone acting on the ducts and the luteal on the acini of the gland. Theoretically a preponderance of the luteal hormone would result in overstimulation of the acini and their rapid development before the development of the ducts. There may also be a stimulation from the anterior pituitary hormone and a resulting secretion from the lobules. Since the ducts have not developed as yet, there will be engorgement and tumor formation. In a normal gland a slight secretion at puberty may occur but it is either unnoticed or may be taken care of by the lymph nodes. The author reports a case in which the condition appeared to be due to mechanical obstruction of a lactiferous duct. There were no signs of inflammation, and an infectious origin seemed doubtful. The three tumors noted were due to blocking of three separate ducts, perhaps because of underdevelopment. The condition would give rise to a moderate degree of pain and tenderness, due to tension of the secretions within the gland lobule. The course of this complaint was prolonged over some months. The diagnosis of mastitis of adolescents was made. A biopsy was thought unnecessary. The treatment in a patient with this condition is chiefly prophylactic. Cleanliness is of first importance. The breast should be protected and supported. Pain may be relieved by the application of lead and opium lotion and small amounts of salicylates. If suppuration occurs, incision and drainage are necessary.

### Delaware State Medical Journal, Wilmington

G 131 152 (June) 1934

- Treatment of Perforative Appendicitis W E Burnett Philadelphia—p 131  
Clinical Significance of Achlorhydria T G Miller Philadelphia—p 136  
Pyelitis and Ureteral Stricture R W Te Linde Baltimore—p 140

**Illinois Medical Journal, Chicago**

65 477 570 (June) 1934

- The Doctor and His Community P H Kreuscher Chicago—p 493  
 Amebiasis Diagnosis and Treatment J A Conner, Chicago—p 498  
 Treatment of Hypotension in Arteriosclerosis D C Sutton and H C Lueth Chicago—p 500  
 Hyperglycemic States and Insulin Resistance Case Report of Sclerosis of Pancreas with Persistent Glycemia of Over 300 Mg G A Wiltrakis Elgin—p 502  
 The Status of Medicine Under the New Deal P T Swanish Chicago—p 505  
 Methyl Chloride Poisoning A Van Der Kloot Chicago—p 508  
 Ewentration Case Report with Review of Literature F M Dry Chicago—p 509  
 The Sex Hormones A A Werner St Louis—p 511  
 Total Gastrectomy (Esophageojejunostomy Unusual Case) M H Streicher Chicago—p 520  
 The Early Diagnosis of Pulmonary Tuberculosis M Lewison Chicago—p 521  
 Five Year Follow Up Report of an Infant Welfare Clinic, with Especial Reference to Dental Caries G F Munns Winnetka—p 523  
 Rheumatic Diseases and Sore Throat with Reference to Hemolytic Streptococci I Pilot and D J Davis Chicago—p 529  
 Friedlander's Bacillus Meningitis Secondary to Bilateral Acute Otitis Media Case G H Gowen Chicago—p 533  
 Visualization of the Liver and Spleen D C McCool Jr Kankakee—p 535  
 Nongonorrheal Urethritis A McNally Chicago—p 536  
 Mechanical Injuries of the Brain W T Coughlin St Louis—p 538  
 Management of Sterility in General Practice M Field Chicago—p 543  
 Treatment of Varicose Veins H C Wallace Chicago—p 545  
 Eclampsia Cooperation of Groups of Physicians D J Ladd Chicago—p 548  
 The Value of Stovarsol in the Treatment of Syphilis W Wilhelm East St Louis—p 553  
 Treatment for Chorea by Means of Typhoid Vaccine Injections E T Hoverson Kankakee—p 556  
 Acquired External Fecal Fistulas Involving the Anterior or Lateral Abdominal Wall A P Heineck Chicago—p 559  
 Gas Bacillus Infection of Extremities Report of Two Cases E W Telford De Kalb—p 564

**Indiana State Medical Assn Journal, Indianapolis**

27 239 280 (June 1) 1934

- The Proctologist Looks at Focal Infection L J Hirschman, Detroit—p 239  
 Differential Diagnosis of Biliary Diseases C L Rudesill, Indianapolis—p 245  
 Gaucher's Disease and Its Surgical Treatment F A Loop Lafayette—p 249  
 Palmar anesthesia A Ellison, South Bend and W V MacGilvra Worcester Mass—p 253  
 Heart Disease Complicating Pregnancy Diagnosis and Treatment D L Smith Indianapolis—p 254  
 Value of Radiation Therapy in Malignancy D Y Keith, Louisville Ky—p 259

**Journal of Experimental Medicine, New York**

59 687 812 (June 1) 1934

- Effect of Carrot Feeding on Serum Protein Concentration of the Rat A L Bloomfield San Francisco—p 687  
 Effect of Growth Promoting Extract of Anterior Pituitary on Early Growth of the Albino Rat A M Targow Chicago—p 699  
 \*Observations on Blood Cytology in Experimental Syphilis I Period of Disease Activity P D Rosahn Louise Pearce and A E Casey New York—p 711  
 \*Id II Period of Disease Latency P D Rosahn New York—p 721  
 Studies on Pseudorabies (Infectious Bulbar Paralysis Mad Itch) II Routes of Infection in Rabbit with Remarks on Relation of Virus to Other Viruses Affecting the Nervous System E W Hurst Princeton N J—p 729  
 Serologic Studies on Azoproteins Antigens Containing Azocomponents with Aliphatic Side Chains K Landsteiner and J Van Der Scheer New York—p 751  
 Serologic Specificity of Peptides II K Landsteiner and J Van Der Scheer, New York—p 769  
 Epidemic Tremor an Encephalomyelitis Affecting Young Chickens E Elizabeth Jones Boston—p 781

**Blood Cytology in Experimental Syphilis I Period of Disease Activity**—Rosahn and his associates made weekly observations on the blood cytology of seven syphilitic and nine normal control rabbits. Each animal was examined seven times prior to and fifteen times after inoculation of the experimental group. Comparisons were made between the mean blood cell values obtained from all counts on the experimental and control groups in the preinoculation and postinoculation periods. The mean blood cell formula of the syphilitic group for a period of three and a half months after inoculation was significantly different from the preinoculation mean values observed in the same group in the following respects: higher total white cell, platelet, neutrophil and monocyte counts and lower lymphocyte count. The mean blood cell formula of the syphilitic group for a period of three and a half months after

inoculation was significantly different from the mean blood cell formula of the normal control group in the same interval of time in the following respects: higher total white cell count, platelet count, neutrophil and monocyte counts, and lower lymphocyte count. The authors' conclusion is that the blood cytology of rabbits infected with *Spirochaeta pallida* is characterized by an increase in the total white cell, platelet, neutrophil and monocyte counts and a decrease in the lymphocyte count from normal values. These changes were statistically significant.

**Blood Cytology in Experimental Syphilis II Period of Disease Latency**—Rosahn compared the mean blood cell levels of thirty-five latent syphilitic rabbits in which all lesions had undergone spontaneous regression and complete healing with weighted values for normal rabbits. The only differences that he noted were in the red cell count and hemoglobin content, both of which were significantly lower in the experimental group than the normal values. He observed a parallelism between the blood cell changes of the experimental disease after spontaneous regression of lesions and the cell changes in the human disease after treatment. This parallelism lends additional weight to deductions drawn from the experimental disease as applied to human syphilis.

**Journal of Nervous and Mental Disease, New York**

80 1 124 (July) 1934

- The Migrainous Patient Constitutional Study Grace A Touraine and G Draper New York—p 1  
 Psychoanalysis of Manic Depressive Psychosis C A Neymann Chicago—p 24  
 Psychiatric Mechanisms in Child Murderers Lauretta Bender New York—p 32  
 Ocular Paroxysms and Palidalia L Van Bogaert Antwerp Belgium—p 48

**Journal of Nutrition, Philadelphia**

7 523 704 (June 10) 1934

- Endocrine Studies XLIII Gaseous Metabolism of Some Dwarfs and Giants A W Rowe Boston—p 573  
 Toxemias of Pregnancy III Respiratory Metabolism A W Rowe Mary A McManus and Gertrude A Riley Boston—p 591  
 Effect of Mineral Oil Administration on Nutritional Economy of Fat Soluble Vitamins II Studies with Vitamin A Factor of Yellow Corn R W Jackson New Haven Conn—p 607  
 Id III Studies with Vitamin D of Irradiated Ergosterol R W Jackson, New Haven Conn—p 617  
 Chemistry of the Blood of Normal Chickens Helen M Dyer and J H Roe Washington D C—p 623  
 Relation of Food to Alimentary Fill in the Albino Rat R C Miller and M Kriss State College Pa—p 627  
 Comparison of Extraction Methods Used for Vitamin A Depletion Diets for Rats M L Giddings and Hazel C Swim Iowa City—p 633  
 Vitamin C in Delicious Apples Before and After Storage Esther L Batchelder Pullman Wash—p 647  
 Studies in Control of Dental Caries II Martha Koehne and R W Bunting in cooperation with Mary Crowley P Jay Dorothy G Hard and Kathryn Hensey Ann Arbor Mich—p 657  
 \*Urinary Excretion of Citric Acid I Effect of Ingestion of Large Amounts of Orange Juice and Grape Juice Cecilia Schuck, Chicago—p 679  
 \*Id II Effect of Ingestion of Citric Acid Sodium Citrate and Sodium Bicarbonate Cecilia Schuck, Chicago—p 691

**Effect of Orange Juice and Grape Juice on Urinary Excretion of Citric Acid**—Schuck reports studies made with eight women subjects on the effect of orange juice and grape juice on the urinary excretion of citric acid. The effect on urinary  $pH$ , titratable acidity and excretion of total organic acids was also observed. When 1,000 cc of orange juice or 1,000 cc of grape juice was added to a basal diet, the  $pH$  was increased and the titratable acidity was decreased. Organic acid excretion as a whole was increased. Citric acid excretion was increased. The increase produced by the orange juice was slightly greater than that produced by the grape juice, but the ratio of the amount of citric acid excreted to the amount ingested was much higher for the grape juice. With one subject, the increase represented 20 per cent more than the citric acid contained in the grape juice. The latter result indicates a metabolic source of citric acid. The increase in citric acid with the orange juice represented only from 40 to 60 per cent of the total organic acid increase. Other organic acids must have been formed in the body. From 35 to 40 per cent of the total organic acid increase with the grape juice was due to citric acid. Only a small part of this could have come from the citric acid of the grape juice and therefore most of

it can be accounted for only on the basis of having a metabolic origin. The organic acids representing products of metabolism may arise as a result of the alkalizing effect of the fruit juices.

**Effect of Citric Acid and Sodium Bicarbonate on Urinary Excretion of Citric Acid.**—In a study made with six women subjects given citric acid, sodium citrate and sodium bicarbonate, Schuck observed that the citric acid produced little or no change in the  $pH$  of the urine, but that the sodium citrate brought about a marked increase. The titratable acidity was slightly decreased as a result of the ingestion of citric acid, while the sodium citrate brought about a marked decrease. Total organic acid excretion was decreased by the citric acid but greatly increased by the sodium citrate. Citric acid excretion was decreased in some cases and increased in others as a result of the citric acid ingestion, while the sodium citrate brought about a marked increase in every case. The results are in agreement with those obtained by Östberg. The total organic acids and citric acid excreted as a result of the ingestion of sodium citrate amounted from two to three times the excretion on the basal diet. The increase in  $pH$  and the decrease in titratable acidity brought about when sodium bicarbonate was fed were accompanied by a small increase in total organic acids and a considerable increase in citric acid excretion. Apparently, citric acid excretion is not dependent on citric acid ingestion. The author believes that citric acid is one of the organic acids which play a part in acid base balance regulation.

### Journal of Thoracic Surgery, St. Louis

3 441 552 (June) 1934

- One Hundred and Seventy Cases of Thoracoplasty (Three Hundred and Seven Operations) for Pulmonary Tuberculosis Operated on from 1931 to 1933. Clinical Study and Results. P. N. Coryllos. New York—p. 441.  
Phrenicectomy as a Test Operation. J. R. Head. Chicago—p. 501.  
Unsuccessful Phrenic Exeresis. Report of Fifteen Cases. H. Schwatt. Spink, Colo.—p. 503.  
Thrombosis of Main Branches of the Pulmonary Artery. Case Report and Review of the Literature. R. H. Kampmeier. New Orleans—p. 513.  
Retractor for Elevation of Scapula During Thoracoplastic Operations. W. A. Hudson, Detroit—p. 525.

### Laryngoscope, St. Louis

44 431 514 (June) 1934

- Otolaryngologic Problems in Sepsis. I. Parapharyngeal Infections and Internal Jugular Vein Thrombosis. Diagnosis and Treatment. A. L. Beck. New Rochelle, N. Y.—p. 431.  
Id. II. Newer Conceptions in the Management of Septic Sinus Thrombosis. O. J. Dixon. Kansas City, Mo.—p. 448.  
Id. III. Discussion of the Basis for the Selection of the Type of Procedure in Sinus Thrombosis. R. Almour. New York—p. 454.  
Id. IV. Summation of Treatment of Sepsis from the Medical Standpoint. M. A. Rothschild. New York—p. 465.  
Pathology of the Spread of Osteomyelitis of the Skull. A. C. Furstenberg. Ann Arbor, Mich.—p. 470.  
Latent Osteomyelitis of the Sphenoid Bone Reactivated by Trauma with Death from Meningitis. A. Kaufman and S. J. Hartmere. Boston—p. 477.  
Recent Experimental Work on Physiology of Hearing. Its Significance to the Otologist. M. H. Lurie. Boston—p. 488.  
Regression Theory of Otosclerosis. L. K. Guggenheim. St. Louis—p. 499.

### Minnesota Medicine, St. Paul

17 301 366 (June) 1934

- Hemochromatosis. Its Relation to Metabolism of Iron and Copper. T. J. Dry. Rochester—p. 301.  
Gallbladder Disease. B. S. Adams. Hibbing—p. 312.  
Acute Conditions of the Gallbladder. J. M. Hayes. Minneapolis—p. 319.  
Disillusions in Nasal Surgery. W. W. Lewis. St. Paul—p. 323.  
Treatment of Burns. J. Morrow. Austin—p. 330.  
Gunshot Wounds of the Abdomen. W. H. Valentine. Tracy—p. 332.  
Common Eye Injuries. E. W. Hansen. Minneapolis—p. 336.  
Over Five Thousand Mantoux Tests in Polk and Norman Counties. W. G. Paradis. Crookston—p. 339.

**Hemochromatosis and Metabolism of Iron and Copper.**—Dry tries to show that hemochromatosis is a definite clinical as well as pathologic entity and that the mechanism underlying the cirrhotic and pigmentary changes as well as the diabetic syndrome of hemochromatosis is not explicable on the basis of that which ordinarily leads to these conditions when they occur as separate diseases. The multiplicity of hypotheses as to the etiology of hemochromatosis, as found in a review of the literature reveals the incompleteness of knowledge of the disease. The evidence is insufficient to establish copper

as the cause of hemochromatosis, although it may conceivably cause hepatic cirrhosis under certain conditions. It has been shown that its presence in the body, especially in the liver, is not conclusive evidence that it is a factor in the cause of the disease. There is no evidence to show that the excess of iron in hemochromatosis is the result of excessive hemolysis or that retained food iron is itself the cause of the disease, since it occurs without the accompanying pathologic characteristics of bronze diabetes. The author presents the study of a case of hemochromatosis, together with its iron balance with an evaluation of the results of such studies, and considers certain aspects of the normal metabolism of iron in relation to its possible perversion in hemochromatosis. He believes that hemochromatosis is due to faulty elimination of iron and not to simple retention of food or hemoglobin iron. There is an inborn error of metabolism, expressing itself as a disturbed intracellular circulation of iron leading to injury and death of the cell and its replacement by fibrous tissue.

### Public Health Reports, Washington, D. C.

49 697 722 (June 15) 1934

- Fumigation Deaths as Compared with Deaths from Other Poisonous Gases. C. L. Williams—p. 697.  
Life Span of Fleas Without a Host Under Normal Atmospheric Conditions Occurring in Manila. R. W. Hart and E. R. Pelikan—p. 699.

49 723 748 (June 22) 1934

- Endemic Typhus Fever. Susceptibility of Woodchucks, House Mice, Meadow Mice and White Footed Mice. R. E. Dyer—p. 723.  
Effect of Inhaled Marble Dust as Observed in Vermont Marble Finishers. W. C. Dreesen—p. 724.  
\*Pellagra Preventive Value of Green Onions, Lettuce Leaves, Pork Shoulder and Peanut Meal. G. A. Wheeler and D. J. Hunt—p. 732.

**Pellagra-Preventive Value of Canned Green Onions.**—In their studies on the pellagra-preventive value of green onions, lettuce leaves, pork shoulder and peanut meal, Wheeler and Hunt found that 1. Canned green onions contain the pellagra-preventive factor, but in small amount. 2. Canned lettuce leaves are poor in the pellagra-preventive factor. 3. Lean pork, shoulder and peanut meal are a good source of the pellagra-preventive factor.

### Texas State Journal of Medicine, Fort Worth

30 61 176 (June) 1934

- Stepping Stones in the Scientific and Social Progress of Medicine in Texas. A. A. Ross. Lockhart—p. 70.  
The Present Day Drift Toward Overprotection and Its Harmful Results. S. E. Thompson. Kerrville—p. 75.  
What the Wife Means to the Physician. Mrs. Frank N. Haggard. San Antonio—p. 78.

### Western J. Surg., Obst. & Gynecology, Portland, Ore.

42 309 372 (June) 1934

- \*Coronary Disease with Reference to the Acute Abdomen. W. A. Morrison. Los Angeles—p. 309.  
Hemangioma of the Breast. Report of Case. L. B. Sherry. Pasadena, Calif.—p. 318.  
Development of the Treatment of Perforated Peptic Ulcer in the San Francisco Emergency Hospital During the Past Fifteen Years. E. Butler. San Francisco—p. 326.  
Operability of Gastric Lesions. V. C. Hunt. Los Angeles—p. 330.  
Liver Deaths Following Operation of the Biliary Tract. C. W. Sharples. Seattle—p. 337.  
Abdominal Pain and Other Symptoms Interrelating the Surgical Abdomen with the Urinary Tract. W. A. Taylor. Ellensburg, Wash.—p. 344.  
The Doctor on the Witness Stand. P. W. Willis. Seattle—p. 356.

**Coronary Disease, with Reference to Acute Conditions of the Abdomen.**—In studying a series of 141 cases Morrison found two cases in which a diagnosis of cholelithiasis was made roentgenologically. The gallbladder was removed and later the patient returned with a recurrent attack of pain and a typical electrocardiographic tracing of coronary disease. A chart is presented in which pain, in the entire series is graphically shown, from which it is seen that almost 13 per cent of coronary cases show epigastric pain only, and if seen early are apt to present a problem in diagnosis. One can easily be placed in the embarrassing position of waiting for the heart to show some signs of injury and in the meantime allow some serious acute abdominal condition to wait too long. The reverse may be quite as disastrous. The heart should always be carefully investigated in any suspected lesion in the upper part of the abdomen.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Children's Diseases, London

31 85 166 (April June) 1934

- Tonsillectomy Before During and After R. F. Guymer—p. 85  
Further Remarks on Cystic Dilatation of the Common Bile Duct F. P. Weber—p. 113  
\*Median Nerve Palsy Produced by Attempted Intravenous Injections of Calcium Chloride Cases H. Stevens—p. 117  
Some Pediatric Eponyms V. Young's Rule W. R. Bett—p. 121

**Median Nerve Palsy Produced by Intravenous Injections**—Stevens reports three cases in which the median nerve has been injured as the result of intravenous injections of calcium chloride when the median basilic vein was utilized. Either because the aperture of the needle is not completely within the lumen of the vein when the injection is made or because of a leak from the puncture in a sclerotic vessel, some of the solution escapes into the surrounding tissues. The amount may be insufficient to show any local swelling but pain is felt locally during the operation and in the distribution of the median nerve or the median cutaneous nerve of the forearm. Zutt believes that the effect of the calcium solution is not produced by any contact of the needle with the nerve but is due to a spread of the solution (with its precipitant action on tissue proteins) from the site of puncture.

## British Journal of Dermatology and Syphilis, London

46 257 302 (June) 1934

- Some Notes on Acne Vulgaris A. Whitfield—p. 257  
Multiple Primary Squamous Celled Carcinomas of the Skin in a Young Man with Spontaneous Healing Case J. F. Smith—p. 267  
Monilethrix J. T. Ingram—p. 272  
Presumptive Kahn Test E. J. Fitzgerald—p. 277

## British Journal of Experimental Pathology, London

15 143 192 (June) 1934

- Oxytocic Property of the Blood and Its Relation to Milk Fever in Cows G. H. Bell and S. Morris—p. 143  
Relation of the Electric Charge of the Red Cells to Phagocytosis in Avian Malária G. M. Findlay and H. C. Brown—p. 148  
\*Some Factors Predisposing to Infection by Vibrio Septique from the Alimentary Tract: An Experimental Study G. R. Borthwick—p. 153  
Immunizing Action of Extracts of Pneumococci (Types I and II) in Mice and Rabbits D. Harley—p. 161  
Experiments with the O Antigen of Clostridium Edematis Maligni (Vibrio Septique) D. W. Henderson—p. 166  
Treatment of Septicemia in Rabbits with Lymph Gland Fixation Abscesses A. C. Alport—p. 175  
\*Influence of Temperature on Survival of Pure Suspensions of the Elementary Bodies of Vaccinia C. R. Amies—p. 180  
Attempted Cultivation of Vaccinia Virus in Conjunction with Non-pathogenic Micro-organisms C. R. Amies—p. 185

**Infection by Vibrio Septique from the Alimentary Tract**—Borthwick states that hydrogen ion concentrations from pH 5 to 6 are most favorable for the maintenance of activity of Vibrio septique toxin. The hydrogen ion concentration of the gastric contents is of little importance in determining the production of a Vibrio septique infection from the alimentary canal. Animals in which alimentary activity has been reduced by the drug narcotine frequently show evidence of infection by Vibrio septique after intragastric administration of culture. The exposure of guinea-pigs to a low temperature before the administration of culture, predisposes to infection by Vibrio septique. Culture at approximately 0°C, introduced into the stomach of normal animals, does not readily cause infection. The general character of the changes found in the internal organs on postmortem examination indicates the presence of a toxemic condition in animals infected by Vibrio septique. The intragastric administration of toxin alone to guinea-pigs, whether normal, with the gastric contents adjusted to pH 5 or 7.6, or treated with narcotine, does not produce intoxication. The toxin is apparently not absorbed from the lumen of the stomach.

**Influence of Temperature on Vaccinia Virus**—The experiments of Amies demonstrate that pure vaccinia virus suspended in a simple broth medium can withstand a temperature of 37°C for several weeks, while at room temperature the potency remains at a high level for a considerable period. No attempt was made to obtain by selection a heat-resistant strain

of virus. It seems more likely that the capacity to withstand heat depends entirely on the initial virulence of the strain employed. Whether individual elementary bodies may increase their virulence or whether it is only a question of the number of elementary bodies present it is as yet impossible to say. The possibility of employing pure suspensions of vaccinia elementary bodies for jennerrian prophylaxis has been under consideration for some time. The observations regarding the heat resistance of these bodies, and their viability when maintained at 0°C, strengthens the belief that these bacteria free suspensions may be found of value in the practice of vaccination.

## British Medical Journal, London

1 973 1016 (June 2) 1934

- Diverticulitis Clinical Review H. C. Edwards—p. 973  
Ephedrine and Pseudoephedrine in Asthma B. Onchial Asthma and Furciss J. B. Christopherson and Marjorie Broadbent—p. 978  
\*Treatment of Acute Infective Arthritis of the Knee Joint Note F. B. Mount—p. 980  
Renal Glycosuria Mistaken for Diabetes Mellitus R. D. Lawrence and R. A. McCance—p. 981  
Acute Bilateral Mastoiditis Case H. V. O'Shea—p. 983  
Radiotherapy of Living Anatomy J. F. Brailsford—p. 984

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- Prevention of Puerperal Sepsis in General Practice W. H. F. Orley—p. 1017  
Some Observations on the Acute Abdomen T. G. I. James—p. 1019  
Poisoning by Caustic Soda S. G. Willmott and Minnie Gosden—p. 1022  
Importance of Local Factors in the Onset of Pulmonary Tuberculosis W. Pagel—p. 1024  
Malignant Tumors of the Kidney and Testicle F. H. Scotson—p. 1026  
Crystalline Renal Calculus W. Everett—p. 1027  
Radiography of Calcification in Cardiac Valves During Life J. V. Sparks and C. Evans—p. 1028  
Contribution to the Choice of Anesthetic P. Kuhne—p. 1029

**Treatment of Acute Infective Arthritis of Knee**—Mount suggests the injection of from 2 to 3 cc of ether into the knee joint in the treatment of punctured wounds about the knee when there is doubt as to whether or not the joint cavity has been penetrated. When the wound has involved the joint the ether blows out from the external orifice, and immediate excision of the whole wound tract is indicated. The reaction set up by the ether in the synovial membrane appears to stimulate its resistance to infection. Immobilization with suspension of the limb and weight extension and, if need be, repeated aspirations of the joint exudate are carried out. When, however, acute infective arthritis of the joint develops or is already established when the patient comes under observation, further steps on the lines of the Kanavel treatment of infections spreading up the forearm from pyogenic infection of the common flexor sheath are recommended. The author reports four cases in which such treatment has been successful.

## Guy's Hospital Reports, London

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- Studies on Tumor Formation G. W. Nicholson—p. 140  
Infective Theory of Tumor Formation W. N. Mann—p. 157  
Report on Treatment by Radium at Guy's Hospital in the Years 1930, 1931 and 1932 I. Cases Treated by Radium in the Surgical Wards P. Reading—p. 160  
Id. II. Cases Treated by Radium in the Gynecologic Department J. B. Blukley—p. 171  
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Catarrhal Jaundice and Mild Hepatic Necrosis Their Pathology and Diagnosis A. F. Hurst and C. K. Simpson—p. 173  
\*Functions of the Epithelium of the Gallbladder H. E. Harding—p. 186  
Hematemesis in Peptic Ulcer G. Burger and S. J. Hartfall—p. 197  
Studies in Bright's Disease N. Tonsillectomy as a Prophylactic Measure in Postscarlatinal Nephritis A. A. Osman—p. 210  
Preliminary Observations on Erythema Nodosum L. Forman and G. P. B. Whitwell—p. 213  
\*Eosinophilia in Allergic Conditions F. A. Knott and R. S. B. Pearson—p. 230  
Congenital Auditory Imperception (Word Deafness) C. H. Rogerson—p. 237  
A Comparison of the Results Obtained with Three Different Methods of Induction of Labor at Guy's Hospital Between 1928 and 1932 L. H. deB. Crowther Smith—p. 250

**Functions of Epithelium of Gallbladder**—According to Harding, the mucosa of the gallbladder has functions both of absorption and of secretion. Since only one type of epithelial cell is present, it follows that one and the same cell can, and does, pass materials in two opposite directions. This is a

physiologic state to which attention has not been drawn before. The epithelial cells of the gallbladder mucosa both secrete into the lumen of the organ and absorb from that lumen. It is doubtful whether it can be shown that any other simple epithelium functions similarly in two opposite directions, although it may be the case in the intestine.

**Eosinophilia in Allergic Conditions**—Knott and Pearson endeavor to confirm or disprove the observations of Kline and his co-workers whether a clinical method might be developed for determining whether a patient is allergic or nonallergic by examining the mixture of wheal fluid and blood obtained by pricking the site of a histamine wheal. The authors found that the eosinophil concentration is doubled in the wheals produced by injecting appropriate proteins into sensitized patients and that the injection of proteins to which they were not sensitive into the same persons produces no eosinophil concentration. At the site of histamine wheals there is eosinophil concentration in both sensitized and nonsensitized persons, the actual number of eosinophil cells seen in the films from the wheal varying directly with the number in the circulating blood. Compared with the blood film in nonsensitized subjects the film from the histamine wheal shows on an average approximately twice as many eosinophil cells. In sensitized patients the average increase is higher from two and a half to three times. The study suggests that the occurrence of eosinophil concentration depends on the type of reaction produced in the skin. Only in actual histamine wheals or in skin reactions showing the typical triple response described by Lewis does any marked eosinophil concentration occur. Examination of films prepared as described from lesions of this type by magnifying it, certainly calls attention to any tendency to blood eosinophilia. The test appears to call attention to the class of person that has been termed a latent allergic patient. Although it is true that some eosinophil concentration occurs in the histamine wheals produced in normal controls the authors' data show it to be more marked in those presenting allergic tendencies.

### Journal of Neurology and Psychopathology, London

14 289 384 (April) 1934

Cerebral Structure and Mental Function as Illustrated by a Study of Four Defective Brains R J A Berry and R M Norman—p 289

\*Depth and Rate of Respiration in Normal and Psychotic Subjects A S Paterson—p 323

Cephalic Dysostosis C Allen—p 332

**Respiration in Psychotic Subjects**—Paterson examined sixty-two normal subjects and 121 schizophrenic patients as to the depth and rate of their respiration by means of a plethysmographic apparatus. The schizophrenic patients were found to breathe more shallowly and more rapidly than the normal subjects, the difference being significant. This difference did not apply to twenty-five melancholic patients. It was pointed out that the type of respiration employed by the schizophrenic patient was an inefficient one. The author discusses the significance of this different type in relation to oxygen consumption, and to its possible bearing on the catatonic state with its stupor and cyanosed extremities, also in connection with the relation of the schizophrenic patient to tuberculosis, and to the dozing and sleeping states.

### Journal of Physiology, London

81 283 408 (June 9) 1934

Increase of Pressure in Veins to Level of Arterial Pressure Caused by Constricting the Limb in Which the Venous Pressure Is Recorded F A Duffield and I Harris—p 283

Mechanism of the Nervous Discharge of Adrenalin W Feldberg B Minz and H Tsudimura—p 286

Chemical Transmitter at Synapses in a Sympathetic Ganglion W Feldberg and J H Gaddum—p 305

Chemical Transmitter of Vagus Effects to the Stomach H H Dale and W Feldberg—p 320

The Assay of the Ovulation Producing Substance R T Hill A S Parkes and W E White—p 335

Absolute Value of the Isometric Heat Coefficient Determined by Means of High Frequency Calibration of the Living Muscle H Rosenberg—p 361

Significance of Luteal Action on Uterine Muscle in Maintenance of Gestation and Initiation of Parturition J M Robson—p 372

Production of Cardiac Irregularities by Excitation of Hypothalamic Centers B B Dikshit—p 382

The Wever and Bray Phenomenon Study of Electrical Response in the Cochlea, with Especial Reference to Its Origin C S Hallpike and A F Rawdon Smith—p 395

### Journal of State Medicine, London

42 249 310 (May) 1934

Pulmonary Tuberculosis in Young Women F J Bentley—p 249

Dental Changes in Tuberculosis F W Broderick—p 260

Difficulties in the Early Diagnosis of Pulmonary Tuberculosis J Watt—p 274

Municipal Workshops for the Tuberculous W B Stott—p 283

Some Notes on a Vitaglass Ward J E Wood—p 294

Centralization or Otherwise of Pathologic Laboratory Service R A Glegg—p 298

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Bacterial Pseudomycoses A Castellani—p 311

Rehabilitation of the Tuberculous Cripple Agnes G Hunt—p 319

The Case for the Local Pathologic Laboratory A G Shera—p 322

The Nurse in the Factory B Shenton—p 326

Effect on Climatic Factors of the Nature of Soil and Soil Drainage D Brunt—p 333

Sea Water Bathing Some Medical Aspects of a Complete Scheme G R Bruce—p 337

Medical Indications for the Sea Coast N E Chadwick—p 343

Postmortems Their Object Time and Place E F Hoare—p 347

Veterinary Science and Public Health Florence M Holmes—p 355

\*Liquid Paraffin Cause of Loss in Weight in Children? A T Till—p 363

**Liquid Petrolatum as Cause of Loss in Weight**—Till points out that, as liquid petrolatum is not absorbed to any extent by the stomach and intestine, it seems natural that the oil when given daily in fairly large doses and for a considerable period of time will coat the mucous membranes of the stomach and intestine and so prevent the digestion and absorption of food with a consequent loss of nourishment to the body, thereby causing a loss in body weight. When the use of this laxative is discontinued the oil coating the mucous membranes of the digestive tract is gradually eliminated by the natural channels, the stomach and intestine fulfil their normal functions, and the body again receives sufficient nourishment, which is shown by a gain in weight. The author presents cases that appear to agree with this theory.

### Journal of Tropical Medicine and Hygiene, London

37 129 144 (May 1) 1934

Predators of the Culicidae (Mosquitoes) I Predators of Larvae and Pupae Exclusive of Fish E H Hinman—p 129

Micrococcus Enteroides (Castellani) Brief Note G Acanfora—p 134

British Solomon Islands Health Surveys 1933 S M Lambert—p 134

Methyl Blue and Hot Alcoholic Eosin as a Stain for Inclusive Bodies in Virus Diseases T Hamilton—p 139

### Medical Journal of Australia, Sydney

1 675 706 (May 26) 1934

\*Hypoglycemia and Ketosis Their Relationship to Chronic Antral Disease and Bronchiectasis C Sippe—p 675

Venom of the Sydney Funnel Web Spider Atrax Robustus Note C H Kellaway—p 678

Louping Ill Virus as a Possible Cause of the Disease Epidemics of 1917/1918 F M Burnet—p 679

A Serological Test for Cancer W Moppett—p 681

Rudimentary Patellae Other Skeletal Defects, and Dystrophy of the Nails M P Susman—p 685

Technic of Taking a Biopsy in Relation to the Modification of Life Span of a Tumor Bearing Animal Elinor S Hunt—p 686

Evipan Sodium Anesthesia Report on Thirty Cases J S MacMahon and E G MacMahon—p 690

**Hypoglycemia and Ketosis Their Relation to Antral Disease and Bronchiectasis**—Sippe presents evidence in support of the view that hypoglycemia and ketosis are important pointers to the etiology of some cases of chronic sinusitis and nontuberculous pulmonary fibrosis. This underlying pathologic change is probably a chronic hydration of the protein particles of the blood. He reports three early cases with complete relief of symptoms and signs, and six advanced cases. Many of the persons who develop chronic sinusitis and pulmonary fibrosis have an exudative diathesis as the basis for the development of the lesions in the respiratory tract. Frequently this inability to retain water in the tissues is due to an insufficient supply of available dextrose, as evidenced by hypoglycemia or ketosis. The author performed the blood sugar estimations by the micromethod of Hagedorn and Jensen. Rothera's test was used in the detection of acetone, and the percentages were compared with standards prepared by dilution of acetone in urine. Percentages of 0.016 and higher all gave the strongest positive reaction.



**Presse Medicale, Paris**

42 785 808 (May 16) 1934

Vitamin A and Diverse Pathologic States in Man R Debre and A Busson—p 785

\*Diagnosis and Semeiologic Value of Lengthening and Shortening of Ventricular Systole C Lian, V Golblin and Baraige—p 787

\*Bloody Discharges from Nipple J C Bloch and Renee B Wechsler—p 789

Average Intra Arterial Tension Study of Principal Factors of Its Variations A Van Bogaert J Beerens J Lequime and L Samain—p 791

Abdominal Cellulitis Clinical Importance Therapy R Leven—p 794

**Duration of Ventricular Systole**—Lian and his co-workers studied the electrocardiograms of a large number of normal persons at rest and after effort. The respective duration of the systole and the diastole was thus measured in relation to a frequency of normal cardiac contractions varying from 63 to 133 pulsations per minute. They were then able to express the systole-diastole relation in the following formula  $K = \frac{D}{C(C-41)}$ , in which  $D$  was the duration of the diastole expressed in hundredths of a second and  $C$  the entire cardiac cycle expressed similarly. The normal physiologic value of  $K$  was found to vary between 0.0040 and 0.0049. The duration of the systole is increased if  $K$  has a value below 0.0040 and is decreased if  $K$  is above 0.0049. The relative lengthening of the ventricular systole in hypertensive persons constitutes a sign of functional overburdening of the ventricular myocardium. In about two thirds of these cases this sign is added to the manifest evidence of cardiac insufficiency and constitutes a diagnostic confirmation. In one third of the cases it may be the forerunner of clinical signs of cardiac insufficiency. It is noteworthy, however, that cardiac insufficiency may exist without modifying the normal relations of systole and diastole. In primary myocardial insufficiency the lengthening of the ventricular systole is of a frequency in harmony with the degree of cardiac insufficiency. In valvular cardiopathies there are some rare cases of relative shortening of the ventricular systole. This occurs especially in mitral stenosis. In exceptional cases this is seen in cardiac insufficiency. The authors conclude that the formula given makes it easy to determine the lengthening and the shortening of the ventricular systole on the electrocardiogram, and their presence permits interesting clinical deductions.

**Bloody Discharges from Nipple**—Bloch and Wechsler describe two cases in which a persistent bloody discharge from the nipple had existed for many years. Operative intervention in both instances revealed papillomatous lesions of the galactophorous canals. The lesions appeared as black milium cysts disseminated in the subareolar portion of the gland. These small cysts occupied an absolutely central zone and did not extend beyond a radius of 2 cm. They extended about 3 cm in the depth of the gland. The technic of operation involves general anesthesia and a semicircular incision at the edge of the areola of the nipple. The gland is separated from the skin, and the galactophorous canals at the base of the nipple are resected. Drainage at the lower border of the areola of the nipple is maintained for forty-eight hours. The scar is invisible and the shape of the breast is little altered. In the rare instances when neoplastic lesions are found, radical amputation is the only logical operation.

42 809 832 (May 19) 1934

\*Gastrotherapy in Pernicious Anemia of Biermer G Etienne M Verain and P Louyot—p 809

Anesthesia with Combined Tribrom Ethanol and Nitrous Oxide Six Hundred Cases Desmarest—p 811

New Conception of Auriculoventricular Dissociation Double Impulse E Geraudel—p 814

Contribution to Study of Blood Calcium and Potassium in Asthma Mme A Drilhon R Clagne J Galup and T Debidour—p 816

Note on Syncopal Syndrome of Spinal Anesthesia Mechanism of Bradycardia and of Feeble Respiration A Schotte—p 819

**Gastrotherapy in Pernicious Anemia**—For their recent studies, Etienne and his co-workers used an extract of the gastric mucosa of the hog in powder form. This product was always taken in moderately warm meat bouillon at the beginning of a meal containing a dish of meat. The doses were from 30 to 40 Gm, depending on the intensity of the erythrocyte deficiency and representing about 200 or 300 Gm of fresh mucosa. In general the powder was acceptable enough to the

patients in spite of its slightly repellent odor. Only two of the authors' eleven cases are reported in detail. In the first case liver extract had initiated an amelioration, which was reinforced to complete erythrocyte reformation by the stomach extract. The activity of the extract was undeniable since, after the patient went home, continued administration of the preparation caused the erythrocytes eventually to exceed 8,000,000 per cubic millimeter. Gastric analysis failed to show any return of the natural antiperchloric principle. The second case involved a grave plastic pernicious anemia with neurologic signs but without hemorrhagic manifestations. In this case the neurotropic and anemic syndrome improved at the same time. In six other cases the results were likewise good. In two with the hemorrhagic form of pernicious anemia, administration of the extract failed to modify the fatal outcome. They conclude that the therapeutic action of the extract is incontestable and is more precise and constant than that of liver extract. The action by mouth is also real. The therapeutic action manifested itself in seven of nine of the cases of plastic or aplastic pernicious anemia without the hemorrhagic syndrome. Gastric extract acts especially on hematopoiesis. Achylia persists in spite of functional and erythrocyte improvement. A certain degree of mononucleosis persists even after the erythrocytes return to normal.

**Revue Française de Pédiatrie, Paris**

10 1 120 (No 1) 1934

Clinical Study of Noninfectious Allergies Their Individuality Their Classification M Pehu and P Wöringer—p 1

Postpneumonic Endarteritis Thrombosis in Childhood P Rohmer Mme G P Bellocq and E Schneegans—p 20

Nonspecific Action of Horse Serum on Meninges in State of Septic Inflammation B Tassovatz—p 38

Inquiry on Tuberculin Reaction and Tuberculosis (Pulmonary) Among Chinese Nurlings and Infants in Batavia J H de Haas—p 51

Pathogenesis of Fissures of Nipple A Jancou—p 69

\*Study of Hydrolability in Early Infancy S E Burgh—p 75

\*Early Diagnosis of Measles Sign of Semilunar Fold and Prodromal Measles Angina R Meyer—p 85

**Hydrolability in Early Infancy**—Burgh discusses the group of children whose defective organic constitution or dis-equilibrium is clinically manifested by great oscillations in weight. In these children examination of the metabolism reveals an instability in the degree of hydration and mineralization. There is some normal or physiologic hydrolability in the first three months of life, and only that which persists after the first three months must be considered pathologic. The first striking fact was the frequency of hydrolability in the infants admitted to the hospital service as compared with those seen in private practice. This led to the thought that constitutional factors are less important than exogenous ones, such as inadequate alimentation, hygienic mistakes and infections. It was remarked that 90 per cent of the nurlings who entered the hospital service were dystrophic and the majority seriously dystrophic. These children become dystrophic because of previous hydrolability, but the author attempts to show on the contrary that they are hydrolabile because they are dystrophic. It was possible to show that certain infections, particularly latent otitis and diphtheritic rhinitis, digestive disorders, prolonged qualitative and quantitative hypo-alimentation and certain intoxications of acidotic type may so profoundly alter the histologic structure and functional capacity of the tissue cells that they become unfit to fix water. In this manner the state of wasting is produced which Finkelstein mentions under the name of decomposition. These different factors not only produce the loss of water from the tissues of hydrolabile children but also change the mechanism of water metabolism. It is certain that such effects are produced more easily in physiologic or constitutional hydrolabile children, but they are also observed in simple dystrophies, which become hydrolabile under the action of the same causes.

**Early Diagnosis of Measles**—Meyer calls attention to a preeruptive sign of measles originally described by his father. It precedes Koplik's spots and consists essentially in a turges-cence with intense reddening of the semilunar folds of the eyes. It is seen in no other infectious disease. Conjunctivitis may be confusing at first, but the pronounced contrast between the redness of the fold and that of the palpebral conjunctiva and caruncle does not exist in other types of conjunctivitis.

The sign varies in frequency in different epidemics. Recently the author has been able to demonstrate it in three cases out of twenty, which allowed the diagnosis to be made before the eruption. Sometimes this sign seems to alternate with that of Koplik. Thus in the same epidemic a certain percentage of the children show the "semilunar" sign, others the Koplik sign, or more rarely the "semilunar" precedes the Koplik sign, or both may be entirely missing. It is curious that the "semilunar" sign diminishes when the others appear. Ordinarily it is during the first or second day of the fever that this sign appears. The author believes that this sign is important when one admits that measles is contagious only in the preeruptive stage.

### Schweizerische medizinische Wochenschrift, Basel

64 545 568 (June 16) 1934

- \*Constitutional Differences in Sensitivity and Their Significance for Estimation of Obscure Abdominal Symptoms. A Voegeli—p 545
- Immunization Experiments by Means of Inhalation. W Silberschmidt—p 548
- Lambliasis During Childhood. M Gross—p 551
- Compulsive Grasping and Related Phenomena in Cerebral Tumors. L Halpern—p 555
- Hypertrophy of Prostate and Steinach Ligature II in Light of Hormonology. P Niehans—p 557
- Cervical Ribs. Rare Complication. A Perrot—p 559
- Hypersensitivity to Iodine and Occult Sources of Iodine. F Blum—p 560

**Differences in Sensitivity in Abdominal Symptoms**—Voegeli determined the relations between symptomatology and individual susceptibility to pain. He employed Libman's test in which the thumb is pressed against the tip of the mastoid bone and then forward against the styloid process. Five years' experience with this test revealed that abdominal disturbances have a normal symptomatology only in sensitive patients while hyposensitive persons show rudimentary symptoms or none at all. The determination of the sensitivity is therefore highly important for the evaluation of symptoms, and it also aids in differentiating organic from neurotic signs. The author admits that there are many different degrees of sensitivity, but he maintains that for diagnostic purposes the classification of sensitive and hyposensitive is adequate because the hypersensitive person reacts in the same manner as does the normally sensitive person. He related the clinical histories of several patients, in whom the test revealed hyposensitivity and in whom only roentgenoscopy disclosed grave internal disorders, such as calculi and ulcers.

**Lambliasis During Childhood**—Gross considers it surprising that in spite of the frequent stool examinations, which are made for the detection of helminthiasis, *lamblia intestinalis* is so rarely detected. The author is unable to state the role of the World War and the presence of foreign troops in Europe in the dissemination of this originally tropical disorder. Lambliasis is now found in all social groups in persons who have never left their home district. Galli-Valerio, who first called attention to lamblia in Europe maintains that it is transmitted from man to man but considers it also likely that rats and mice are sources of infection. The general symptoms of lamblia are weakness, lack of appetite, undernourishment, headaches and pallor of skin and of mucous membranes in spite of a normal hemoglobin content. Other symptoms are dependent on the localization of the parasites. There may be spasmodic or dull abdominal pains and intermittent diarrhea. Children with lamblia frequently soil their bedclothes and underwear. The symptoms are characterized by a certain periodicity. The author stresses the absence of leukocytosis and the fact that deviation to the left is barely indicated. In one instance he observed eosinophilia. He describes the examination of the feces and points out that during the time when cysts are not eliminated the differentiation from tuberculosis may be difficult. Various chemicals (emetine, methylthionine chloride, quinine, acriflavine hydrochloride and so on) have been tried in the treatment of lamblia but most authorities now agree that the arsenic compounds, particularly acetarsone, give the best results. The latter is given by mouth in the form of tablets, each containing 0.25 Gm of acetarsone. The dosage is gradually increased. For several days the child is given one tablet and then for several days two tablets. After a pause of four days, three tablets are given daily for about

ten days, and after another pause of four days, four tablets are given daily. In another case as high as six tablets were given daily.

### Riforma Medica, Naples

12 797 836 (May 24) 1934

- Special Colic Reaction Due to Acute Cholecystitis. Cholecystocolic Reflex. U Baccarani—p 801
- \*Ketonic Curve After Ingestion of Sugar as Test of Hepatic Function. G de Flora—p 804
- Hepatic and Antisyphilitic Treatment in Anemia of Biermer with Pseudotabes (Syndrome of Lichtheim). G Matarese—p 815
- Diagnosis of Diaphragmatic Hernia of Stomach. G Molinari—p 818

**Ketonic Curve After Ingestion of Sugar as Test of Hepatic Function**—De Flora studied twenty-one patients, sixteen of whom had hepatic ailments, eight a normal liver and three diabetes. The ketonemia was determined after all patients had fasted for twenty-one hours. The author found that the ketonemia is higher in hepatic patients than in normal subjects, although in some cases the opposite occurred. This, combined with the fact that some hepatopathic patients showed a diminishing ketonemia with the aggravation of the disease, takes away much from the symptomatologic security of the dosage of sugar on a fasting stomach. The ketone bodies in persons with a normal liver increase after ingestion of sugar either in single fractions or in their entirety, after from thirty minutes to one hour and sometimes also two hours, after which lapse of time they diminish. Such an increase is most notable, rising to double or even triple the initial rate. The ketone bodies diminish after ingestion of sugar in hypohepatic patients, this diminution involves all fractions to the point of attaining at times less than half of the ketonemia on a fasting stomach. The rate of ketonemia after ingestion of sugar runs parallel to the condition of the hepatic function, good hepatic function is accompanied by high rates of ketonemia and vice versa. Such behavior is constant in the case history and is always in accord with the amino acidemic curve and also with the clinical symptomatology. The author considers this ketonic curve after ingestion of sugar a test of hepatic function. It also shows the specific function of the liver in carbohydrate metabolism and ketogenesis.

### Prensa Médica Argentina, Buenos Aires

21 779 820 (April 25) 1934

- \*Treatment of Hemoptysis by Intratracheal Injections of Hemostatics. R F Vaccarezza—p 779
- Right Pyonephrosis Associated with Left Renal Ptosis Complicated by Uropneumophrosis. Case. R Gonzalez—p 784
- \*Difficulties in Diagnosis of Micronodular Images of Lung. J Dutrey—p 787
- Diaphragmatic Hernia. Case. M J del Carril and F Arancibia—p 798
- Congenital Myxedema. Therapy by Synthetic Thyroxine. D Diehl and J C Pellerano—p 803

**Treatment of Hemoptysis by Intratracheal Injections of Hemostatics**—In the treatment of grave hemoptysis, especially of tuberculous origin, Vaccarezza reports satisfactory results from intratracheal injections of hemostatics, with the following technique. After anesthetization of the palatopharyngeal region of the patient by means of a spray with a 5 per thousand solution of nupercaine, the patient is placed in the abdominal decubitus and instructed to put his tongue out forcibly. Then with a syringe provided with a bent cannula the hemostatic solution (10 cc of coagulen or of thromboplastin, to which 0.001 Gm of epinephrine has been added) is slowly instilled at the middle of the base of the tongue so that it goes to the pharyngeal vestibule and then to the tracheobronchial tree. When the hemorrhage comes directly from the lung the patient is instructed to take a certain position in which the penetration of the solution into the lung is secured since the hemostatic action of the solution is more energetic when it is allowed to be in direct contact with the bleeding focus. To prevent the expulsion of the solution in patients with a marked cough reflex, it is advisable to give an injection of morphine or to instillate a few cubic centimeters of a 1 per cent solution of procaine hydrochloride if there are no contraindications to the administration of opiates. Hemostatic injections may be repeated every twelve, twenty-four or forty-eight hours, according to the indications of the given case and to the effects obtained. Sometimes the hemorrhage dis-

appears with a single injection, in other cases it is gradually attenuated and completely disappears in a few days. In rare cases the treatment fails. The author considers the method valuable because of its simple technique, its action to check or greatly diminish the hemorrhages and the absence of any possible complications and accidents, such as those sometimes observed after the intravenous administration of coagulum.

**Diagnosis of Roentgen Micronodular Images of Lung**—Dutrey states that the roentgen micronodular images of the tuberculous lung may be due to certain forms of fibrous tuberculosis or be caused by bronchial aspiration of blood during hemoptysis, without having in any case any relation to miliary tuberculosis. The intrapulmonary localization of blood after hemoptysis follows, as a rule, a benign evolution but some fatal cases may occur. There are cases in which the post-hemoptytic micronodular shadows instead of being reabsorbed in a few months, remain, definitely giving the impression of having been transformed into a chronic miliary tuberculosis of bronchogenic origin. The existence of chronic miliary tuberculosis cannot be denied since the presence of the disease has been proved in some necropsies. Chronic miliary tuberculosis, Benzançon nodular fibrous tuberculosis and the intrapulmonary bronchogenic repletion of hemoptytic blood have similar clinical and roentgen characteristics, which make a differential diagnosis difficult. There are many nontuberculous pulmonary diseases, such as influenza, syphilis, tumors, pneumoconiosis, miliary bronchopneumonia and cardiac diseases, capable of producing roentgen micronodular shadows of the lung so similar to those given by miliary tuberculosis that it is nearly impossible to make an exact differential diagnosis by the simple roentgen examination of the lung. Confusion arises even when the two anatomic parts are held and observed together. Writers who describe cases of this nature have noted that the shadows attributed to miliary tuberculosis which followed a favorable evolution probably were produced by the nontuberculous diseases. The author believes that, since the micronodule is the fundamental lesion which appears in the roentgenograms of all the aforementioned tuberculous and nontuberculous diseases, the term "granula" should be replaced by the term "micronodula," which includes all pulmonary micronodules of both tuberculous and nontuberculous etiology and also because the new term would not suggest any etiologic or anatomic concept as does the word "granula."

### Chirurg, Berlin

6 433 472 (June 15) 1934

Evaluation of Permanent Results of Resection for Exclusion and of Pyloric Ligation with Gastro Enterostomy in Duodenal Ulcerations. G. E. Konjetzny and H. Kastrup—p. 433.  
Osteochondritis Dissecans of Head of Humerus. N. A. Nielsen—p. 438.  
Roentgenologic Demonstration and Clinical Significance of Regurgitation of Gastric and Duodenal Contents into Bile Passages After Cholecystoduodenostomy and other Operative Anastomoses. F. Bernhard—p. 444.

\*Surgery of Facial Furuncle. W. Schmid—p. 447.

**Surgery of Facial Furuncle**—Schmid reports eighty one cases of facial furuncle treated conservatively. The mortality rate in this group was 10 per cent. The conservative method consists of absolute rest in bed. The patient is not allowed to speak and is fed a fluid diet through a tube to avoid the act of chewing. Vaccines, antitoxins, nonspecific proteins and bactericidal drugs have not proved to be of any value. The author was impressed with the beneficial effect of the administration of insulin to nondiabetic patients in doses of from 10 to 20 units daily in cases of severe suppuration. For local applications he used the gray ointment in combination with ultraviolet rays. He is opposed to hyperemia treatment because it makes it difficult to observe the progress of infection. Injection of blood about the lesion, according to the method of Lawen leads to further tissue damage and does not seem to influence the progress of a malignant furuncle. The author's later experiences led him to believe that some of the fatalities in his series could have been prevented by timely radical intervention. He therefore advocates conservative treatment for mild infections (benign furuncles) and radical treatment for grave (malignant) furuncle or carbuncle of the face or the occiput. The symptoms of a malignant infection are progressing edema spreading infiltration thrombophlebitis fever, fast

pulse, severe pain, chills and a positive blood culture. The author advocates a wide total excision of the lesion with a diathermy knife for such cases. The wound is loosely covered with iodoform gauze and is not disturbed for ten or twelve days. After this period the wound is dressed every fourth or sixth day. The resulting scars are surprisingly small and require corrective plastic operations in a small percentage of cases.

### Deutsche medizinische Wochenschrift, Leipzig

60 885 922 (June 15) 1934 Partial Index

Tasks of Clinical Medicine During Present Period. R. Siebeck—p. 835.  
\*Arc Chemical Tests Suitable for Diagnosis and Estimation of Patients with Lead Poisoning? B. Behrens—p. 890.  
Relation Between Anterior Lobe of Hypophysis and Suprarenal Cortex. H. Kalk—p. 893.  
Surgery of Cerebral Tumors. F. F. Flugel and H. Kuntzen—p. 894.  
\*Cr. Gangrene with Recovery. Wullenweber—p. 901.  
\*Sp. Prol. for Persons Suffering from Writers' Cramp. Gontermann—p. 902.

**Test for Diagnosis of Lead Poisoning**—Behrens describes how lead passes through the organism, what organs store it and what is the chemical foundation of the behavior of lead in the organism. In experiments on mice he observed the passage of lead through the gastro intestinal tract. He found that the resorption of the ingested lead is slight during the first few hours but then increases gradually. After eight hours 6 per cent, and after twenty hours about 10 per cent of the ingested lead is demonstrable in the body. Then the lead content decreases again, but even after sixty hours from 3 to 4 per cent still remains. Tests on the excreta of mice revealed that the largest portion of the lead passes through the intestine without resorption. This observation is important for the detection of deception in rendering decisions in matters of compensation, because the presence of large quantities of lead in the feces indicates that it was newly taken in and not that the organism eliminated stored lead. The resorption of the lead is dependent not only on the solubility of the administered compound but also on the nature of the other intestinal contents. For instance, the simultaneous administration of milk results in a poorer resorption of lead. The author describes blood tests on the resorption of lead which revealed that by far the largest portion is bound to the erythrocytes and that the plasma contains a comparatively small quantity. Injection of a lead compound into pregnant rats showed that the lead is primarily absorbed by the bones, the liver, the kidney and the intestine of the fetuses. The lead seems to be deposited primarily in those portions of the bones in which the mobilizable calcium depots are assumed to be. The author gained the impression that as regards resorption, storage and elimination, lead has a certain similarity to calcium. The fact that the phosphates of calcium as well as of lead are the compounds that dissolve with the greatest difficulty under the conditions that obtain in the organism may be taken as the chemical explanation of this similarity. That lead deposits may still be present in the bones years after a lead poisoning is also readily understandable on the basis of these observations. The author considers unsatisfactory most of the methods of analysis by which the presence of lead is demonstrated and suggests that it should be replaced by one that is based on the fact that diphenylthiocarbazon forms with lead complex stained compounds.

### Klinische Wochenschrift, Berlin

13 865 896 (June 16) 1934

Psittacosis. K. F. Meyer and B. Eddie—p. 865.  
Experiences with Anesthesia in Animal Experimentation. H. Rein and D. Schneider—p. 870.  
Estimation of Efficacy of Therapeutic Experiments. P. Martini—p. 872.  
Problem of Gametocidal Action of Plasmodium. W. Kikuth and F. Schonhofer—p. 875.  
Clinical Aspects of Hand Schuller Christian's Disease. Krauss and Barth—p. 876.  
\*Differentiation of Closely Related Micro-Organisms by Schultz Dale's Experiment (Studies on Brucella abortus Bang and Brucella melitensis Bruce). W. Jadassohn, L. Riedmüller and F. Schaaf—p. 879.  
\*Hemolytic Anemia with Nocturnal Hemoglobinuria. K. Iglauder and S. Frenkel—p. 880.

**Differentiation of Closely Related Micro-Organisms**—Jadassohn and his associates point out that, because of the great significance that Brucella abortus infection has assumed

in recent years, its relation to *Brucella melitensis* as well as to infections with other forms of *Brucella* has become of greater interest. Various methods have been tried in the differentiation of the different types of *Brucella*, but the difficulties that are encountered are still considerable. The authors decided to resort to the method of Schultz-Dale (anaphylaxis experiments on the surviving uterus of guinea-pigs), although up to now this method had never been used for this purpose. Past experiences on the specificity of this reaction against various antigens gave promise of success. For the preparation of the antigens the authors resorted to a method in which the C factor becomes concentrated and they designate the filtrates thus obtained "dry brucellins." They found that the use of dry brucellins in the Schultz-Dale test makes it possible to produce specific reactions. The specificity is sufficient to prevent cross reactions between human, cattle, *melitensis* and swine strains.

**Hemolytic Anemia with Nocturnal Hemoglobinuria**—Iglauer and Frenreisz relate the history of a man aged 42, who, in the course of four years gradually developed hyperchromic anemia with hemolytic icterus and nocturnal hemoglobinuria. The latter recurred every twenty-four hours. With the blood picture, the case could be differentiated from familial hemolytic icterus. The condition could not be classified with the paroxysmal hemoglobinurias. It was impossible to clarify the etiology of the disease and it proved likewise impossible to reduce the hemolysis. The authors assume that the hemolysis was probably caused by changes in the erythrocytes. The hemoglobinuria was, as regards time, closely connected with the fluctuations in the hemolysis and could not be explained on the basis of the hemolytic properties of the blood serum.

#### Munchener medizinische Wochenschrift, Munich

81 891 930 (June 15) 1934 Partial Index

\*Treatment of Stiffening of Fingers and Hand With and Without Muscular Paralysis M. Lange—p. 894

General Gymnastics in Medical Practice O. Mayr—p. 897

Death from Hemorrhage Following Perforation of After Following Head A. Doderlein—p. 901

Efficacy of Ramstedt's Operation in Pylorostenosis of Nurslings H. von Haberer—p. 903

Supporting Bandage for Sacrum G. Hohmann—p. 908

\*Demonstration of Ureteral Calculi That Do Not Produce Shadows E. Pflaumer—p. 910

Action of Acetylcholine in Scleroderma H. Rittenbruch—p. 911

**Treatment of Stiffening of Fingers and Hand**—Lange shows that by suitable, early treatment the stiffening of the fingers usually can be overcome. The reestablishment of motility deserves especial attention, when stiffness of the fingers develops as the result of prolonged immobilization or scar traction in injuries of the arm. These secondary forms are usually more amenable to treatment than those that are the direct result of an injury or of an extensive suppuration. The best treatment of the secondary forms is prophylaxis. Fracture of the radius is the injury most often followed by stiffness of the fingers. This is caused by the fact that the fingers are unnecessarily included in the bandage completely or at least partially and the author emphasizes the necessity of leaving the fingers sufficient freedom so that complete closure of the fist is possible. The second important factor is that the fingers should be used again as early as possible and the author points out that the bandage prescribed by Bohler for the fracture of the radius makes this possible. What applies to the radius applies also to other injuries of the arm. The treatment of stiffness necessitates exercises. The manual passive finger movements that are performed by the physician or the masseur are not advisable for they frequently aggravate instead of improving the condition. The movement exercises must be conducted in such a manner as to avoid pain and by the effect of a force acting for a longer period to overcome gradually and exclude the tension of the musculature. This can be accomplished by a device that employs elastic adhesive tape or by a special strap bandage both of which are described and illustrated. In more severe cases weight traction becomes necessary. As soon as improvement has been obtained by passive movements active movement exercises are instituted. In cases in which a partial muscular paralysis is responsible

for the contracture of the hand or the fingers, the treatment is more difficult. It has to be determined for each individual case how the existing muscular power can best be utilized to achieve the best possible motility of the hand. Less important movements may have to be dispensed with in order to make more important ones more effective. For instance, for the use of the hand the movement in the wrist joint is less important than the capacity to bend and stretch the fingers and particularly the movements of the thumb. Thus an operative stiffness of the wrist joint may be resorted to in order to utilize the available muscle power for the flexors and extensors of the fingers.

#### Ramstedt's Operation in Pylorostenosis of Nurslings

—On the basis of observations on 102 nurslings with pylorostenosis on whom he himself performed Ramstedt's operation, and of reports from the literature, von Haberer shows that the intervention which consists in a transverse incision through the thickened serosa and muscularis down to but not through, the mucosa, produces excellent results and that the operative mortality is low (from 2 to 35 per cent). Whenever high mortality rates are reported, they are largely the result of a belated operation that is, irreparable disturbances of the metabolism or of the stomach had already developed before the operation was resorted to. The author admits that the surgeon cannot expect every nursling with pylorospasm to be referred to him for operation. He thinks, however, that by close cooperation between the pediatrician and surgeon the results of the conservative as well as of the surgical treatment can be improved.

**Demonstration of Ureteral Calculi not Producing Shadows**—In a former report, Pflaumer showed that about 20 per cent of urinary calculi do not produce shadows in simple roentgenoscopy. Here he gives the history of a man, aged 27 in whom the ordinary roentgenogram did not reveal a calculus. Several other roentgenologic methods were employed and a calculus was finally discovered when a roentgenogram was made in the semilateral position. A pistachio-shaped calculus was detected in the oxygen-filled sacral portion of the ureter. Projection away from the vertebral column has given such satisfactory results ever since then that the author now regularly uses the semilateral position whenever a calculus is suspected in the ureter. Since this exposure is, however, not suitable for the renal pelvis, the buttock of the contralateral side is lifted slightly, but not the shoulder, thus the ureteral shadow does not fall together with that of the vertebral column, while the renal pelvis is demonstrated in the frontal plane.

#### Zentralblatt für Gynäkologie, Leipzig

58 1329 1392 (June 9) 1934 Partial Index

Rare Picture in Obstetric Roentgenologic Diagnosis J. Granzow—p. 1330

\*Experimental Studies Concerning Torsion of Pedicle of Ovarian Tumors G. Monch—p. 1338

Posterior Occipital Presentation K. Holzapfel—p. 1342

Intra Uterine Death of Fetus Caused by Rupture of Placenta R. Volbracht—p. 1350

**Torsion of Pedicle of Ovarian Tumors**—Monch, after calling attention to the fact that Küstner's law of the torsion of the pedicle of ovarian tumors is often misunderstood points out that the impulses from the intestine are directed forward and outward and that consequently the tumor is turned outward. This would also prove Thorn's theory that Küstner's law applies only to those tumors that are located on the side on which they originated. If, however, the tumor is on the opposite side, the torsion would again be outward but would be opposed to Küstner's view according to which the pedicle of the ovarian tumors of the right side undergo a left spiral turn and those of the left side a right spiral turn. Not only Thorn but also Cario and Mann assume that all tumors are turned outward. But while Thorn finds the cause of this regularity in the structure of the pelvis and of the abdomen, others consider the growth of the tumor the determining factor of a regular or irregular torsion. Monch experimented with a box, a rubber ball fastened on a band (representing the pedicled tumor) and boiled spaghetti (taking the place of the intestine) and reached

the conclusion that Thorn's opinion is correct, that every ovarian tumor, provided unusual conditions do not prevent it, is turned outward. The torsion takes place especially in case of flaccid abdominal walls. Küstner's law is valid in tumors that lie on the side of their origin. The author admits that, outside of the movements of the intestine many other factors may lead to torsion of the pedicle of ovarian tumors.

### Sovetskaya Vrachebnaya Gazeta, Leningrad

May 31 1934 number 10 pp 737-815 Partial Index

\*Symptomatology and Serotherapy of Botulism I. M. Velikanov — p 741

Results with Serum Therapy in Botulism in USSR I. M. Velikanov and M. Kh. Kolesnikova — p 743

Anaerobic Infection in Peace Time A. E. Mangeym and B. I. Tsynberg — p 749

Symptomatology of Brucella Infection of Bang's Type in Man V. S. Trefilov — p 754

Contour of Gastric Mucosa O. O. Den and E. A. Pchelina — p 760

\*Morphologic Alterations of Blood in Acute Rheumatism V. V. Pezharskaya — p 771

\*New Method of Determining Bilirubin in Blood Serum V. I. Kazakov — p 804

**Serum Therapy of Botulism**—According to Velikanov, botulism is more frequently an intoxication with the toxin of *Bacillus botulinus* than an infection with the bacillus itself. This toxin has selective action. It affects the motor nerves, while the sensory nerves are never involved. The incubation period in the author's series varied for periods of from one hour to as late as ten days in one case. The latter suggests the possibility of the development of the specific germ in the gastro-intestinal tract. The first symptoms may be those of acute gastro-enteritis. These, however, rapidly subside to be followed by symptoms of involvement of the motor nerves. The following may be observed: ptosis of the upper lid, mydriasis and rigid pupils, diplopia, impaired vision because of loss of accommodation, aphonia, difficulty in deglutition, dry mouth, and weakness of the muscles of the abdomen, the neck and the jaws and of muscles of respiration. The temperature is subnormal. The pulse is slow in the beginning, but later becomes accelerated. There are headache, noises in the ears and pronounced general weakness. Death is due to respiratory or cardiac paralysis. Consciousness remains clear. The mortality, as reported from various countries, amounts to from 52 to 67 per cent. The author prepared a specific serum from horses against the three types (A, B, C) of *Bacillus botulinus*. He states that in a group of 114 patients treated with the serum the mortality rate was 20 per cent, while in 75 patients not so treated the mortality rate amounted to 93 per cent. He concludes that the serum is the only effective means of treating botulism. The effectiveness of the serum depends on its early administration. Delayed administration of serum in rapidly progressing intoxication may still be made effective if given in large doses, preferably by the intraspinal route.

**Alterations of Blood in Acute Rheumatism**—Pezharskaya reports the morphologic alterations of the blood in 420 cases of acute rheumatism. The morphologic picture and the leukocytic formula were studied in 300 of the cases, and the morphologic picture, leukocytic formula and sedimentation reaction of the erythrocytes in 100. Anemia of a mildly hypochromic type was observed in the early stages of uncomplicated cases. A more pronounced anemia was observed in recurrences, in exacerbations of the endocarditis, and in the complications of the original process. Leukocytosis present in the early stages (from 10,000 to 15,000) is not indicative of the gravity of the disease. After the thirtieth day from the onset a leukocyte count above 8,000 was observed only in exacerbations or complications of the traumatic process. A rise of the leukocytes corresponds to a rise of the temperature in the acute stage and precedes the rise in temperature due to a complication or an exacerbation. In the early stage the leukocytic formula shows a shift to the left. In cases in which there is manifest involvement of the heart, especially myocarditis and pericarditis, as well as in the presence of complications, there was observed a relative neutrophilia and a lymphocytopenia. There is a diminution of eosinophils in the acute stage. In

cases of myocarditis and endocarditis or in severe recurrence there may be an eosinophilia and, occasionally, a mild monocytosis. During convalescence, the relative lymphocytopenia was replaced in 50 per cent of the cases by a relative lymphocytosis. In some cases a mild eosinophilia was noted. The author failed to establish either a constant or a definite relationship between the hemoglobin values and the sedimentation reaction of the erythrocytes. She concludes that the blood picture in acute rheumatism reveals nothing of the nature of the disease. The blood picture reflects a weak cellular reaction on the part of the hematopoietic system to the pathologic process present. A pronounced anemia in the beginning of the acute stage suggests the coexistence of another process or of a complication. High leukocytosis in the incipient stage with marked joint symptoms suggests either the existence of a complication or a joint infection of other than rheumatic nature, possibly of gonorrheal etiology. The sedimentation reaction of the erythrocytes is a more sensitive indicator of an approaching exacerbation or complication than the leukocytosis.

### Method of Determining Bilirubin in Blood Serum—

The disadvantages of the van den Bergh test, according to Kazakov, are the necessity for a special colorimeter and the not infrequent lack of correspondence between the shades of the tested solution and those of the standard, as well as the loss of a portion of the bilirubin through absorption by albumin in the field of reaction. In a method proposed by the author, the qualitative determination is made by the addition of a 20 per cent solution of trichloroacetic acid after the method of Vogl and Zins. The quantitative determination is made after Herzfeld's modification of the van den Bergh test. The method is recommended because of its simplicity. The technic is as follows: Five tenths cubic centimeter of physiologic solution of sodium chloride is placed into each of a series of test tubes in a rack, 1 cc of the serum to be tested is taken up in a pipet and one half is run in the first tube and one half in the second. The mixture in the second tube is well shaken and half of its contents is put in the third tube. Half of the contents of the third tube, after thorough mixing, is placed into the fourth, and so on. In the course of dilution with the physiologic solution of sodium chloride, the serum is rendered colorless. From the last tube (colorless) 0.5 cc of the contents is removed. To each tube there is now added 1 cc. of a 20 per cent solution of trichloroacetic acid. The mixture is well shaken and is poured into funnels made of filter paper and designated by fractional numbers the numerator of which is the number of the serum and the denominator is the number of the test tube. The funnels remain in the test tubes over night. The readings are made on the following morning. The sediment and the filter paper turn green in the presence of bilirubin, while in its absence both are a dirty yellow. The quantity of bilirubin is determined by multiplying the degree of solution by 156, since the bilirubin of the last dilution still having a greenish tint corresponds to 0.0156 mg per cubic centimeter of serum or to 156 mg per hundred cubic centimeters. According to this, funnels N/1, N/2 and N/3 contain 156, 313 and 625 mg per cent respectively. These quantities are considered normal. Greenish tints in greater dilutions represent pathologic bilirubinemia.

### Ugeskrift for Læger, Copenhagen

96 565-588 (May 31) 1934

\*Remarks on Relation Between Effect of Vitamins A and D and Content of Calcium Salts and Phosphates in Food H. Møllgaard — p 565  
Content of Pollen in Air in Hay Fever Season K. Baagø — p 570  
Field Dermatitis (Dermatitis Bullosa Striata Pratiensis) A. Kissmeyer — p 574

**Vitamins A and D and Calcium Salts in Food**—From experiments on animals Møllgaard concludes that the danger of tetanic and osteoporotic conditions following the administration of vitamin D or A and D is most marked when the calcium content of the diet is low. On the other hand, hypercalcemic conditions are easily produced by the administration of too abundant amounts of calcium salts and these conditions are considerably aggravated by treatment with the vitamins in question.

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## CHANGING CONCEPTS OF NUTRITION

CHAIRMAN'S ADDRESS

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The day was when, in order properly to nourish the sick person, the physician told him what he must not eat, now, he is told what he must eat. This changing concept of nutrition marks a great advance in clinical medicine.

Until a decade ago, nutrition was the stepchild of medicine. True, for generations this science has been constantly advanced by a long line of brilliant investigators from Lavoisier to Graham Lusk, but physicians have been slow to give this knowledge practical application. This lack of interest was due in no small measure, I believe, to the semicharlatanism and wild faddism which have always flourished in this field and which have led many conservative physicians to give it a wide berth. Now a reversal of feeling has taken place. The great discoveries of recent years have excited the interest of every one, laymen and physicians alike, and today medical men are keenly alive to the vastly important part which nutrition plays in the prevention and treatment of disease, a radical change in the conception of the nutritive needs of the sick person has come about. This change is explained, I believe, by the order in which, in the evolution of modern medicine, the basic sciences have developed, cellular pathology coming early and present-day physiology late. Formerly, in planning the patient's food, physicians thought solely in terms of the local pathologic condition, of the harm they might do some impaired organ, now they think chiefly in terms of general physiology, of the good they can do the patient as a whole. This transition is signally characteristic of modern thought in nutrition.

All of this was foreshadowed twenty-five years ago by a complete about face in the treatment of typhoid. As an intern I saw the soldiers ill with this disease who returned in large numbers from the Spanish-American War, and two things stand forth in my memory: the miserably small amounts of food that were given these patients, and their desperately ill state. Today one sees a different typhoid. Now the patient is seldom very ill, the carphology and subsultus tendinum of those earlier days is a thing of the past, as is the muttering delirium, the distressing abdominal distention and the so-called toxaemia, all because Warren Coleman demonstrated that the patient with typhoid must be adequately nour-

ished. No longer do physicians think chiefly of the pathologic changes in the small intestine but rather of the nutrition of the patient as a whole. Today he is given much more abundant food of relatively wide variety, and as a rule he gets well.

Witness the change that has come about in the treatment of gastric ulcer. The method that long prevailed was the semistarvation plan of von Leube, until finally Lenhartz showed that the cure of almost anything is made more difficult by starvation and pointed out the fallacy of such rigid food restriction. The regimen which he instituted and which was revised for the American stomach by Sippy is of value not merely because the more abundant food has a direct influence on the stomach but also because it keeps the patient in something like nutritive equilibrium. It promotes repair.

A grievous error of the past was the dietary limitation imposed on the patient with Bright's disease. In the treatment of all forms of nephritis the physician had in mind but one object, that of sparing the kidney, and reasoned that this could best be accomplished by drastic restriction of the protein intake. Because of limited vision the effects on the kidney of the degradation products of protein metabolism were feared, and in the interest in the local changes the patient himself was forgotten. Physicians entirely overlooked the fact that food proteins which are used for replacement purposes are not degraded to their end products and therefore can in no wise increase the burden on the kidney and, what is still more important, failed to realize that protein loss plus protein starvation must of necessity lead to a depletion of body proteins and thus eventually to a state of chronic inanition, which in turn retards all recovery.

If recovery is to be promoted, protein loss must be made good. The truth of this was first seen in the striking results obtained by Epstein when his nephrosis patients, with their heavy albuminuria, were fed large amounts of protein. Later this became still more evident through the observations of Van Slyke and his associates, who found that if the plasma protein deficit of glomerular nephritis is allowed to persist the patients fare badly, while, on the other hand, if the albumin loss is made good and the blood proteins are maintained at approximately the normal level, the patients as a rule go on to complete recovery. The accuracy of these observations has been abundantly attested by McCann in the excellent results achieved when he prescribed large amounts of protein for patients with glomerular nephritis. In some of McCann's patients the improvement was graphic. From such experiences it has been learned not only that rigid protein restriction in nephritis is bad but that if the patient is to be given the best opportunity for recovery he must be adequately nourished, and that of paramount importance is a



liberal, sometimes a large, intake of protein. Here, too, the medical profession has advanced from a consideration of local pathologic change to one of general physiologic function.

In the same category until recently was the patient with vascular hypertension. He was told that he must eat no meat, no eggs. I have no doubt that the resulting protein starvation imposed an additional handicap on many persons already suffering from heavy disabilities and that much unnecessary semi-invalidism resulted. From a better understanding of nutrition it is now known that instead of this one-sided diet the person so handicapped must have a well balanced ration, never excessive, but never lacking in any essential, such a diet as is best calculated to preserve the greatest degree of vigor for the longest period of years.

Even more recent is the change that has come about in the conception of the nutritive needs of the patient with diabetes. The earlier understanding of this disease was that it was merely a failure of carbohydrate utilization. It was thought of only in terms of carbohydrate metabolism and the patient's food was restricted accordingly. Then came insulin. This agent has helped enormously, and while it has not solved the riddle of diabetes it has pointed the way to one important truth, that is, that the entire animal economy, not merely a single metabolic fault, must be considered. In providing nourishment for the diabetic patient it has been learned that he must get adequate amounts of every class of food, particularly of carbohydrate, the very foodstuff that was formerly restricted with such rigor.

Even in tuberculosis, views have materially changed. The ability of the patient to store fat was once thought to be the best criterion of progress, and that to bring about a condition of obesity or near obesity was the acme of good treatment. Now it is known that such a condition imposes a real handicap. It is evident from a nutritional standpoint that the greatest good for the tuberculous patient can be accomplished by a diet that is liberal but not too liberal, that is, a diet that keeps him in a state of nutritive equilibrium and approximately at his ideal weight. This, infinitely more than a condition of overweight, encourages recovery.

In chronic arthritis every variation of dietary restriction has been played on, and almost everything, at one time or another, has come under the ban. Proteins were restricted because they increase the production of uric acid, fruits and tomatoes were forbidden, strange to say, because they contain acids, and sugars and starches were limited because a few students of arthritis have concluded that lowered dextrose tolerance is a salient feature of these disorders. No satisfactory clinical evidence, however, has yet been presented to show that such restrictions, even of carbohydrate, influence the course of arthritis. The feeling is gaining ground that, except for reduction of weight in the obese, most can be accomplished in a nutritive way for arthritic patients by warning against one-sided diets and by prescribing a fairly liberal ration which carries all nutritive essentials. It is coming to be realized that these unfortunate patients are destined to be sick a long time and that they should be permitted a ration which best insures against nutritive failure.

Even the nutritive needs of infancy and early childhood are today viewed with a much broader understanding. Those practitioners who were taught the elaborate milk formulas of thirty years ago marvel at the wide variety of foods given infants today, spinach,

carrots, beets, tomatoes, scraped beef, even sweet potatoes. They take almost anything and thrive.

I am tempted to hazard the prediction that this shift in the concepts of nutrition will extend to the obstetric practice of the future. That school of thought which restricts the protein quota of the pregnant woman's ration for fear of damaging the liver and thus producing eclampsia is, I believe, in error. And, too, those obstetricians who materially restrict all food in pregnancy in the effort to limit the size of the offspring and thus make labor easier are likewise, I fear, in error. During pregnancy the woman needs, more than at any other period of her life, an abundant diet which provides in adequate amounts all necessary food factors, not only carbohydrate and fat but proteins, vitamins and minerals as well. To deny her this, even in small degree, is to court disaster.

In conclusion I would call attention to the fact that these changing concepts of nutrition are not the result of vacillation or of an uncertain drift of opinion. Far from it. They express the broader understanding of man's nutritive needs that has come with the discoveries of recent years and represent the well considered application of knowledge gained, little by little, from painstaking research and careful clinical observation. This is the way of progress.

930 South Twentieth Street

## TREATMENT OF EMPHYSEMA

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AND

RONALD V. CHRISTIE, M.D.

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Chronic pulmonary emphysema is the permanent overdistention of the alveoli and the decreased elasticity of the pulmonary tissues. It is not our purpose to discuss the different factors that may produce emphysema but rather how it interferes with respiratory and circulatory function and the means whereby these deleterious effects may be overcome.

Whatever the etiologic factor, the cause of the impairment of function in emphysema evidently lies in a loss of pulmonary elasticity. As this loss of elasticity progresses, the lungs can no longer resist the traction of the chest wall and they distend until a position approaching full inspiration is reached. The lung can now no longer deflate during expiration by the normal process of passive elastic recoil but has to be actively compressed by the extrinsic muscles of expiration. In other words, the lung has to be pulled on to make it distend and then has to be actually squeezed to make it deflate. This is a highly unnatural form of respiration and one that leads to a general disruption of the mechanics of pulmonary ventilation and circulation. It is difficult to dissociate the respiratory from the circulatory readjustments since they are interactive, but for the sake of clarity this will be attempted.

### RESPIRATORY READJUSTMENTS IN EMPHYSEMA

With the loss of elasticity the lungs distend, following the traction of the chest wall and leading to a marked increase in the volume of the functional residual

From the Department of Medicine McGill University Clinic, Royal Victoria Hospital.  
Read before the Section on Practice of Medicine at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.

air This disturbs the ratio of functional residual air to the total capacity In normal people the former is between 35 and 40 per cent of the latter, but in emphysema it may be as great as from 70 to 80 per cent As a result of the same causes there is a more or less pronounced reduction in the vital capacity, and their influence is also reflected in the type of breathing At rest it may be quite similar to the normal but on exertion the volume cannot be properly increased and therefore it becomes rapid and relatively shallow In fact, in severe cases this is present at rest In other words, the resting tidal air and the vital capacity may approximate equality

Normally, expiration is a passive act accomplished by the elastic recoil of the lungs With loss of pulmonary elasticity the lung will no longer recoil but has to be compressed by an active expiratory effort with the generation of a positive intrapleural pressure, to which the thoracic cage in a man is wholly unsuited The diaphragm is a muscle of inspiration and is not constructed to resist any such increase in intrathoracic pressure, which is bound to displace it downward, with subsequent impairment of tone and range of contractility This downward displacement of the diaphragm can be prevented only by contracting the muscles of the abdominal wall, since a sufficient increase in the intra-abdominal pressure will support the dome of the diaphragm Unfortunately in emphysema the abdomen is apt to be relaxed and pendulous and this excessory aid to expiration is not present The importance of this state of affairs has not been sufficiently appreciated and must be forcibly emphasized

In addition, on account of the overexpanded and inelastic condition of the lungs, the diaphragm at the

is a difficult and fatiguing procedure, also actually leads to an interference with the primary purpose of respiration, namely, an adequate gaseous exchange between the blood and the alveolar air With the loss of elasticity there is a change in the distribution of ventilation throughout the lung No longer are the alveoli equally ventilated, but the superficial, distended, ischemic and relatively functionless alveoli are over-ventilated at the expense of the deeper and more healthy

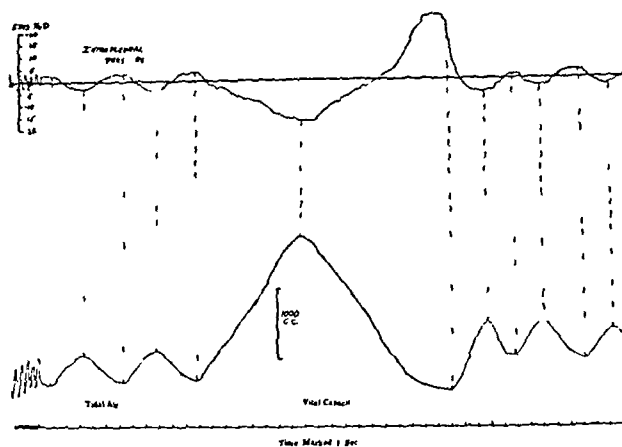


Chart 2—Pulmonary distensibility and elasticity Minimal tuberculous lesion at right apex Tracing to show that the point of maximum distention corresponds closely to the time when the intrapleural pressure is most negative

alveoli, which are underventilated In all cases of emphysema recognizable clinically, there is a definite reduction in oxygen saturation of the arterial blood This fortunately develops slowly and therefore allows the body to become accommodated to the anoxic change of its internal environment This is reflected first in the comparative comfort of many patients with a reduced arterial oxygen saturation, which if produced suddenly would give rise to the most acute dyspnea, and, secondly, in the increase of hemoglobin and polycythemia that develops These disturbances explain the cyanosis, which is a frequent occurrence in this condition There is also usually an increase in the carbon dioxide of the arterial blood, which is compensated for by an increase in the bicarbonate reserve The respiratory distress and the impairment of hemorespiratory exchange are proportionate to each other

#### CIRCULATORY READJUSTMENTS IN EMPHYSEMA

Disturbances of the circulation have always been considered important complications of emphysema They can properly be considered in two phases, namely, increased venous pressure and right heart failure, both of which are directly due to the reduced elasticity of the lungs and the increase in intrapleural pressure The influence of these two conditions on the circulation cannot be separated, as they are themselves interdependent In normal subjects there is a small but definite pressure gradient between the vena cavae and the right auricle This is largely governed by the negative intrathoracic or intrapleural pressure When this becomes positive over a greater part of the time, an increase in the venous pressure takes place during this period As the degree of emphysema and therefore the increase in intrapleural pressure becomes progressively pronounced, so will there be a rise in venous pressure and this in turn will tend to progress to right heart failure The progress is slow but in

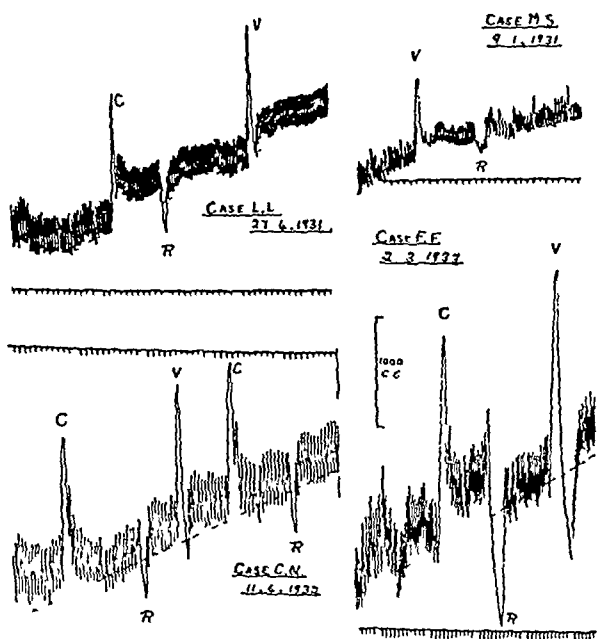


Chart 1—The vital capacity in four cases of emphysema showing the overstretching on deep inspiration and the difference between the volume of reserve air taken alone and that taken at the end of a test for vital capacity C complementary air R reserve air V vital capacity The irregularity in the resting respiratory level is also well shown

end of expiration cannot rise to its normal position, as the contents of the thorax are too voluminous to allow it to do so

Such profound disturbances in respiratory function, besides making the patient ever conscious that breathing

The heart in emphysema exhibits hypertrophy of the right ventricle *pari passu* with the pulmonary lesion. This would strongly point to an increase in pressure in the pulmonary arteries. It is conceivable that this might be brought about either by an intravascular resistance due to the anatomic changes in the lung or to diminution of the so-called pumping action of the lungs, or to an actual compression of the pulmonary circulation during the period of increased intrathoracic pressure. The first two are problematic, as they have been surmised but not proved, the last has been demonstrated

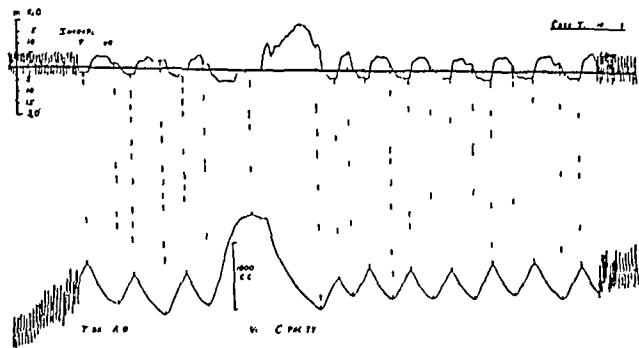


Chart 3—The intrapleural pressure in emphysema. Initial 40 cc pneumothorax on the right side. Pressure fluctuates around that of the atmosphere. With deep inspiration the negative intrapleural pressure is held rather than increased and when inspiration is complete pressure returns to atmospheric pressure to compare with normal see Christie and McIntosh (*J. Clin. Investigation* 13: 279 [March] 1934 figure 5).

It has also been found that circulatory failure, like the disturbances of hemorespiratory exchange, is parallel to the increase of intrapleural pressure.

The patient with advanced emphysema is indeed in an unfortunate position. The muscles of inspiration are already in the inspiratory position when inspiration commences. A greater amount of work is required to distend the lung, and a large proportion of the air that is inspired is wasted on the peripheral functionless alveoli. Even after this wasted effort, the lungs cannot passively relax except as the result of an unnatural expiratory effort. As respiratory compensation fails, imperfect aeration of the blood occurs and a vicious circle is established, with increasing demands for hyperventilation and decreasing ability to ventilate.

#### TREATMENT

The anatomic state of the emphysematous lung is beyond repair. Its treatment, therefore, is restricted to the amelioration of the resulting functional defects.

The difficulties of expiration and the paradoxical movement of the diaphragm can best be relieved by increasing the intra-abdominal pressure through the wearing of a tight abdominal binder.<sup>1</sup> This raises the diaphragm toward its normal expiratory position and at the same time supports it in this position during the active muscular expiration. This procedure undoubtedly gives these patients symptomatic relief of their consciousness of respiration and also seems to save them considerable respiratory fatigue. There is some difference of opinion as to how this is brought about. In the case of pregnancy reported by Gordon in which he recorded the intrapleural pressure, he found it to be

definitely and progressively increased. Alexander, on the other hand, states that in a few cases it is decreased, in fact, becomes negative during expiration. We have been hesitant to make a thorough study of this point as we considered that the dangers of pulmonary rupture were too great. Alexander also reports, giving actual amounts, pronounced increases in the vital capacity. The increase averaged 39 per cent. The largest was 77 per cent (1,800 cc without to 3,200 cc within the belt). We have not been able to corroborate this, in fact, our tracings of the vital capacity, reserve and complementary air in subjects trained in this form of respiratory gymnastics do not show any conspicuous or constant differences in these measurements with or without the belt.

It has been mentioned that in emphysema there is a reduced oxygen saturation of the arterial blood. This gives the patients the deep bluish cyanosis so characteristic of the disease. It varies greatly from time to time. Temporary relief can be afforded by the inhalation of air enriched with oxygen. It is impossible to carry this out during the daily activities, but disturbed sleep is often distressing. This can be greatly relieved by oxygen therapy for an hour or so before going to sleep. The duration of the symptomatic improvement is surprising.

Cardiac failure is to be expected in progressive cases. The usual measures for the conservation of energy should be instituted for its prevention. In the acute attacks, free venesection should be done promptly. For the rest, the treatment should be such as would be indicated in cardiac failure due to other causes.

If it is true that the intrapleural pressure is increased by an abdominal belt, its use in time may aggravate the embarrassment of the pulmonary circulation. This may explain how some patients find it impossible to tolerate the belt even though it may give them some respiratory relief.

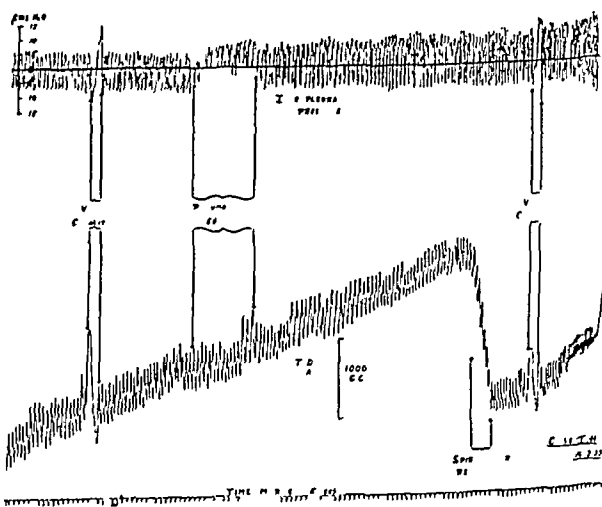


Chart 4—Spontaneous pneumothorax in emphysema. Lung evidently punctured while pneumothorax was being given with formation of valvular bronchopleural opening. No immediate change in pleural pressure or tidal air but progressive diminution in the latter and increase in the expiratory pressure can be observed until at end of tracing a pressure fluctuation of +132—90 only yielded a tidal air of 60 cc. At this point 2100 cc of air was removed from the pleural cavity with complete relief of symptoms.

Lastly, any condition such as chronic bronchitis or asthma, which tends to increase the distention of the lungs, should be treated. The treatment of cough is the treatment of its cause, but usually an abdominal

<sup>1</sup> The use of a suitable binder in such pulmonary conditions was suggested by three separate workers. Christie at the meeting of the American Society for Clinical Investigation May 8, 1933 and Alexander and Gordon at the meeting of the Association of American Physicians May 9, 11, 1933.

binder will relieve the distress that so often accompanies coughing in these cases. Most cases of emphysema present some asthmatic tendency and ephedrine is always worth a trial.

#### ABSTRACT OF DISCUSSION

DR S ADOLPHUS KNOPF, New York. The idea of an abdominal bandage for sufferers from emphysema is excellent and I am inclined to believe that it should be of equal advantage for asthmatic patients. There is, however, an exercise which I might call a physiologic adjuvant in the treatment of emphysema. It is equally helpful in asthmatic attacks. It consists of supinating the arm and forearm and pressing them against the sides of the chest along the axillary line. As is well known, it is expiration that is so difficult for the emphysematous and asthmatic patient. Of the 1,200 cc of tidal air and 500 cc of residual air, quite a quantity can be expelled by this pressure movement and thus relieve the most distressing symptoms of emphysema and asthma. If in addition to this, the patient uses diaphragmatic respiration rather than costal and is careful with his diet, he will avoid accumulations of gas in his abdominal region, and will be rendered more comfortable. The improvement of the portal circulation by diaphragmatic respiration is a decided advantage to this class of patient. Of course, he must not resort to this exercise of supinating the arms to the extent of getting overtired and must avoid all strenuous physical exertion. This precaution is one to which all emphysematous and asthmatic patients must adhere.

#### INTENSIVE LIVER EXTRACT THERAPY OF SPRUE

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The effective treatment of sprue is a problem of considerable practical importance in spite of the fact that therapeutic methods which are occasionally successful have been at hand for many years. One serious difficulty lies in the fact that different individuals, presenting an apparently identical clinical picture, manifest wide variations in the amount of specific therapy that they require to effect clinical cure. Moreover, the available information regarding the treatment of sprue is confusing, since the various therapeutic procedures in use appear to be so unrelated and the clinical results obtained from them have been so inconstant that it has seemed impossible to draw up a general rule of treatment that would be applicable to all cases.

More detailed analysis of the existing therapeutic methods in the light of present knowledge makes it clear that a general rule of treatment can be formulated and, furthermore, that from the therapeutic results an understanding of the etiologic mechanism of the disease syndrome may be obtained. Such an understanding is of importance in treatment, since without it various therapeutic procedures seem to be purely empirical, and when doubt as to the rationale of a procedure exists the determination to carry it through to the desired end is frequently wanting.

Prior to 1927 the treatment of sprue was almost entirely dietary. The accepted policy was to restrict the intake of fat and of carbohydrate and to depend on different single and apparently dissimilar food materials as the principal sources of nutrition. Thus in turn liver diets, meat diets, milk diets, banana diets and strawberry diets were all recommended and were frequently effective when employed early in the course

of the disease. Complete and permanent cure occasionally followed such treatment but early and severe exacerbations were the rule and a stage of the disease was eventually attained at which dietary measures were ineffective.

Baumgartner<sup>1</sup> showed that the feeding of these diets was specific in promoting hematopoiesis. He applied to sprue anemia a procedure devised by Minot and his associates<sup>2</sup> for evaluating the effectiveness of specific therapy in pernicious anemia. The method was based on the fact that the percentage of reticulocytes in the circulating blood increased very markedly at the onset of a true remission. Reticulocyte rises were induced by feeding to individuals with sprue anemia certain diets which were known to be effective in the treatment of that disease but which did not contain liver or other material known to be curative in pernicious anemia. This observation was evidence that some constituent of the diet was specifically required for hematopoiesis in sprue anemia and that this dietary constituent was not the liver fraction so effective in the treatment of pernicious anemia. This difference in the response to therapy was the more incomprehensible when the striking hematologic similarities between the two anemias were considered. Two problems were then at hand: first, to ascertain the presence of some common factor in the diets known to be effective in the cure of sprue and, second, to show the relationship of such a common factor to the substance effective in pernicious anemia, a disease that is symptomatically and hematologically similar to sprue.

A more detailed knowledge of nutrition makes it clear that the seemingly dissimilar diets do possess one factor in common, a relatively high content of water-soluble vitamin. Since this appears to be the only common factor, it seems probable that the effects obtained in the treatment of sprue by feeding these diets are due to the water-soluble vitamin which they contain. It is an established principle in the study of nutritional factors that, if a demonstrable physiologic effect can be induced by feeding any one of a variety of substances in which only one particular vitamin is common to all, the effect will occur only in the presence of a deficiency of that vitamin in the body of the test animal. Since several different diets are irregularly effective in the treatment of sprue and these diets contain only the water-soluble vitamin as a common factor, it seems probable that a lack of that vitamin exists in certain cases of the disease. Furthermore, the existence of such a lack suggests that it is perhaps causal, that is, that sprue is a disease due in some instances at least to a deficiency of some fraction of the water-soluble vitamin complex. Since dietary treatment is not always effective, however, it follows that in other instances one or more additional or complicating etiologic factors are involved. Studies of the factors concerned in the etiology of pernicious anemia, a disease similar in many respects to sprue, have given the clue to the nature of the complicating factors concerned in the etiology of the latter disease.

In 1925 Minot and Murphy<sup>3</sup> showed that whole liver was specifically effective in the cure of pernicious anemia. Bloomfield and Wyckoff<sup>4</sup> fed whole liver to

<sup>1</sup> Baumgartner, E. A. and Case, C. E. Clifton M. Bull. 16: 183, 1930.

<sup>2</sup> Minot, G. R., Murphy, W. P. and Stetson, R. P. Am. J. M. Sc. 175: 581 (May) 1928.

<sup>3</sup> Minot, G. R. and Murphy, W. P. Treatment of Pernicious Anemia by Special Diet. J. A. M. A. 87: 470 (Aug. 14) 1926.

<sup>4</sup> Bloomfield, A. L. and Wyckoff, H. A. California & West. Med. 27: 659 (Nov.) 1927.

individuals suffering from sprue and in 1927 published an account of clinical cures resulting from such treatment. In the following year West<sup>5</sup> reported remissions following the treatment of sprue with that fraction of liver which had been shown by Cohn, Minot and their associates<sup>6</sup> to be effective in pernicious anemia. Liver extract, then, as well as diets rich in the water-soluble vitamin, may be therapeutically effective in sprue. To

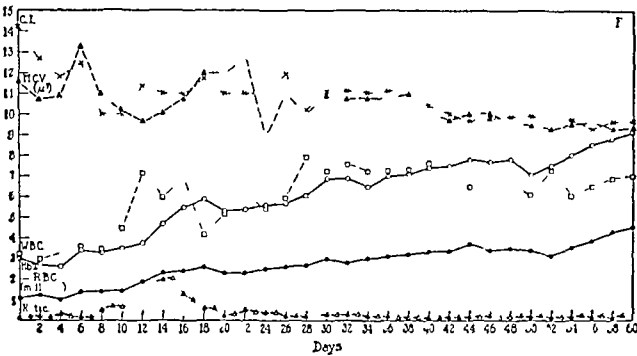


Chart 1—Hematologic changes following the intramuscular injection of 10 cc of liver extract daily. For five weeks previous to this 2 cc of the same material was administered daily by intramuscular injection without improvement.

establish the etiologic similarity between sprue and pernicious anemia, it remained only to prove that the water-soluble vitamin could induce remissions in the latter condition. Such an effect was suggested by the studies of Castle and his associates,<sup>7</sup> which showed that a dietary constituent contained in beef muscle was acted on by a substance present in normal gastric juice to produce a third substance potent in producing remissions in pernicious anemia. The gastric juice of patients with the disease was not effective in forming the hematopoietic principle by interaction with the dietary factor. Hence, a deficiency in the gastric secretion was clearly causative of pernicious anemia. Other investigators showed that the livers of patients with pernicious anemia who lacked adequate gastric secretion were devoid of the hematopoietic principle present in normal livers. It was apparent that the product of the interaction of a dietary factor and normal gastric secretion was stored in the liver, where it was available for clinical use as liver extract.

It appeared from these investigations that a dietary constituent as well as normal gastric secretion was required for hematopoiesis. In 1931 Castle and his associates<sup>7d</sup> pointed out that a disease similar to pernicious anemia should develop if there was an insufficient intake of the dietary constituent, a defect of the gastric juice or defective absorption of the product of the interaction of these factors. Sprue was similar to pernicious anemia and was due in some instances to lack of a diet rich in the water-soluble vitamin. Clearly, if the dietary factor involved in the causative mechanism of pernicious anemia could be shown to be the water-soluble vitamin, the link between pernicious anemia and sprue would be established.

The next step was to establish the dietary factor as being related to the water-soluble vitamin. Wills<sup>8</sup>

described remissions induced in cases of tropical macrocytic anemia by feeding an extract of yeast, which was rich in that vitamin. Castle and Rhoads<sup>9</sup> observed similar responses resulting from the use of the same yeast extract in cases of sprue. This was confirmatory evidence that a relatively simple preparation rich in vitamin B complex was effective in that disease. An exactly similar effect was shown by Strauss and Castle<sup>10</sup> to occur if the same yeast extract was incubated with gastric juice and fed to patients with pernicious anemia. Reticulocyte rises and improvement of blood values occurred uniformly. Neither the yeast extract nor the gastric juice was effective alone. This indicates that the dietary factor, given as meat in the original experiments of Castle, was contained in a yeast extract rich in the water-soluble vitamin and that an interaction with gastric juice was required for it to be effective in hematopoiesis in pernicious anemia. Thus the only difference between certain cases of sprue and of pernicious anemia was that a substance rich in the water-soluble vitamin was therapeutically effective per se at least in certain cases of sprue, whereas it was effective in pernicious anemia only after it had been incubated with normal gastric juice. The dietary factor in the two conditions was the same. Simple dietary lack, while apparently causative in certain instances, was clearly not the only factor involved in the production of all cases of sprue.

Since symptomatic similarities between sprue and pernicious anemia exist, and since orally administered liver extract, a material effective in pernicious anemia, was occasionally effective in cases of sprue, which had failed to respond to diet alone, it seemed probable that the lack of a gastric secretory factor might contribute at least to the causative mechanism of sprue in the way in which it had been shown to be causative in pernicious anemia. The observation by Rhoads and Castle<sup>11</sup> of the similarity between the pathologic alterations of the bone marrow in the two conditions is further evidence that they possess some etiologic factor in common. The study by Castle and Rhoads<sup>9</sup> of a large number of cases of sprue in Puerto Rico showed that the gastric dysfunction obtaining in per-

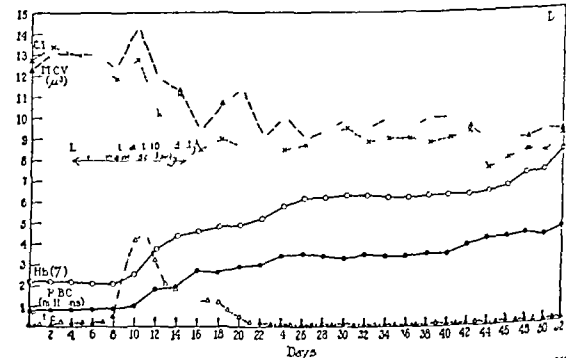


Chart 2—Hematologic changes following the daily intramuscular injection of 10 cc of liver extract.

nicious anemia did play a part in the production of symptoms in certain instances. This was clear from the fact that in some cases the addition of normal gastric juice to substances rich in the water-soluble accessory food factor was required before a remission

5 West Randolph Puerto Rico Rev Pub Health & Trop Med 4 219 (Nov) 1928  
6 Cohn E J Minot G R Alles G A and Salter W T J Biol Chem 77 325 (May) 1928  
7 (a) Castle W B Am J M Sc 178 748 (Dec) 1929 (b) Castle W B and Townsend W C ibid 178 764 (Dec) 1929 (c) Castle W B and Townsend W C and Heath C W ibid 180 305 (Sept) 1930 (d) Castle W B Heath C W and Strauss M B ibid 182 741 (Dec) 1931  
8 Wills L Brit M J 1 1059 (June 20) 1931

9 Castle W B and Rhoads C P Lancet 1 1198 (June 4) 1932  
10 Strauss M B and Castle W B Lancet 2 111 (July 16) 1932  
11 Rhoads C P and Castle W B Am J Path 9 813 (supp) 1933

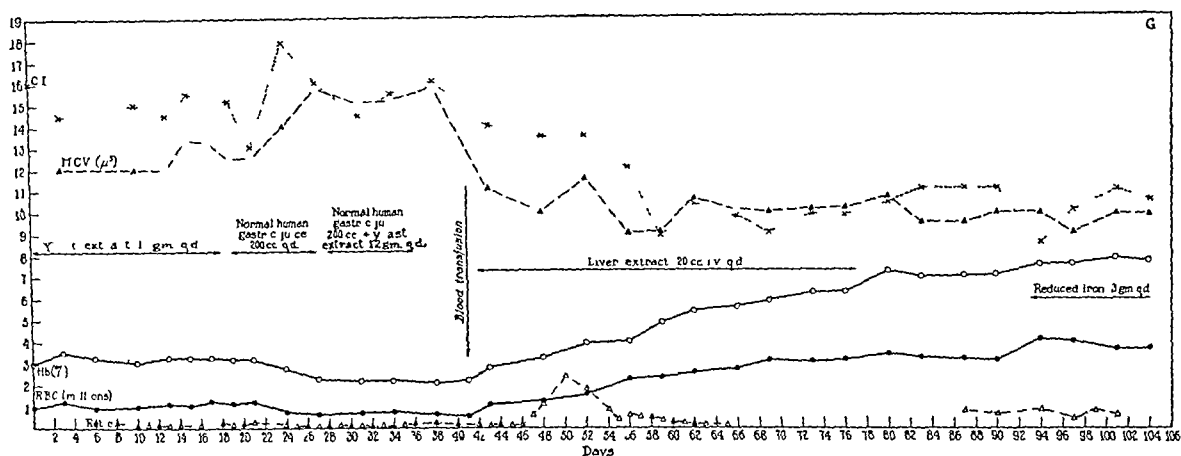
could be effected. This was evidence that there was a lack of anti-pernicious anemia factor in the gastric juice of the patients tested. In the same publication it was reported that in other instances remissions could not be induced even though both the dietary factor and the gastric factor were supplied to the intestinal tract. This was also the case when liver extract, a material supposed to represent the product of the interaction of those two factors was given by mouth, although when a much smaller amount of liver extract was administered parenterally, maximum responses were obtained. As suggested by Castle,<sup>12</sup> for pernicious anemia this fact can indicate only that the effective material either was not absorbed from the intestinal tract or was broken down in it. The former hypothesis was considered to be the most probable, since sprue may result from surgical intervention with the absorbing surface of the bowel, moreover, sprue is frequently associated with secondary deficiencies of such dietary constituents as calcium and iron, elements not likely to be destroyed in the intestinal tract.

loss of weight. For five weeks before entry to the hospital the patient had received daily intramuscular injections of liver extract, the amount given at each injection being that derived from 10 Gm of whole liver. At the onset of the disease the patient weighed 215 pounds (97.5 Kg), the weight on admission was 92 pounds (41.7 Kg).

**Examination.**—The patient was emaciated and semicomatose, with incontinence of urine and feces. The mucous membranes were very pale and had a definite icteric tint. The tongue was smooth. The abdomen was tympanitic, and audible peristalsis was present. There was pitting edema of both legs.

Gastric analysis showed free hydrochloric acid only after the injection of histamine. Results of the laboratory examination were: red blood cells, 1,130,000, hemoglobin, 30 per cent, white blood cells, 5,250, color index, 1.42, mean corpuscular volume, 115 cubic microns, reticulocytes, 10 per cent.

**Course in Hospital.**—Vomiting occurred after every feeding. There were five or six large yellow stools a day. Intramuscular injections of solution liver extract-Lilly were given daily for two weeks, each being of 10 cc, an amount derived from 50 Gm of whole liver. On the sixth day there was a reticulocyte count of 22 per cent. The diarrhea and vomiting disappeared. The injections were continued twice a week until



It appears, then, that clinical sprue may arise in three ways: by dietary lack, by lack of the gastric enzyme that is absent in pernicious anemia, or by inability to absorb the product of the interaction of the first two. Clearly, any one of the three factors may be causative or any combination of the three may exist. Furthermore, differences in the relative importance of the part played by each of the three might account for variations in the clinical manifestations.

In view of the facts presented, it becomes clear that the desideratum in the treatment of sprue is to place the product of the interaction of the dietary factor and the gastric enzyme, that is, liver extract, as near to the site of utilization as possible in as large amounts as may be required. Our purpose in this communication is to indicate what parenteral route is most effective and what amounts of material are required to induce remissions in the most refractory cases. If methods effective in those cases were to be applied as a general rule in the treatment of all, therapeutics would become simplified and the period of the patient's incapacity would be materially reduced.

#### REPORT OF CASES

**CASE 1—History.**—M. G., an American woman, aged 47, who had resided for twenty years in Puerto Rico had had sprue for four years with glossitis, stomatitis, diarrhea and

discharge. The patient gained rapidly in weight and left the hospital six weeks after admission, with an erythrocyte count of 3,710,000 and hemoglobin 75 per cent. One year later the patient's weight was 187 pounds (84.8 Kg) and she was symptom free. She has received the same amount of liver extract twice a month since her discharge.

**CASE 2—History.**—R. D., an American woman, aged 50, who had lived for twenty-one years in southern China, entered the hospital complaining of diarrhea of seven years' duration, her illness following an afebrile attack of diarrhea lasting six weeks. Subsequent attacks occurred during the first year. Early in the second year soreness of the tongue and mouth developed and the diarrhea was persistent. Relief of symptoms followed a diet of sour milk and liver. During the fourth year from the onset of symptoms, improvement did not follow the same treatment and the patient returned to this country, where she was free from symptoms for six months. The period of relief was again followed by severe abdominal distress and diarrhea. About six weeks before entry, weakness, shortness of breath and pallor appeared, and she was confined to bed. Three vials of liver extract-Lilly were administered orally each day for three months without relief of symptoms.

**Examination.**—The patient was markedly emaciated and appeared extremely ill. The skin and mucous membranes had a lemon-yellow tint and were pale. There was atrophy of the papillae along the borders of the tongue, with furrows over the dorsum. The abdomen was slightly distended and tympanitic. The spleen was palpable. There was pitting edema of both ankles. Gastric analysis showed free hydrochloric acid only after the injection of histamine. Laboratory examination showed red blood cells, 820,000, hemoglobin, 22 per cent.

<sup>12</sup> Castle, W. B. Proc. Internat. Assemb. Interstate Post Graduate Med. Assn. A. G. 82, 1930.



color index, 1.34, mean corpuscular volume, 131 cubic microns, icterus index, 20, reticulocytes, 1 per cent

**Course in Hospital**—Daily intramuscular injections of solution liver extract-Lilly were given for two weeks. Each injection was of 10 cc, an amount derived from 50 Gm of liver. On the sixth day after the first injection there was a reticulocyte rise of 42 per cent. The day after the first injection the patient had one formed bowel movement, although there had previously been five or six loose stools daily. The reticulocyte response was followed by a rise of the red count and hemoglobin values. The patient had no further diarrhea unless a longer period than two weeks elapsed between injections of liver extract. She was discharged seven weeks after entry with an erythrocyte count of 4,170,000 and a hemoglobin level of 73 per cent. For two years since discharge the patient's erythrocytes have been maintained at about 4,500,000 per cubic millimeter with treatment twice a month. She has been able to eat a normal diet and has had no diarrhea.

**CASE 3—History**—M G, a Puerto Rican woman, aged 63, had had sprue for eighteen years before entry. For five years, soreness of the mouth and tongue had been present. The patient had lost from 30 to 40 pounds (13.6 to 18 Kg) and had noticed extreme weakness during the two months preceding her admission.

**Examination**—The patient was emaciated and markedly pale. The tongue was smooth. The abdomen was moderately distended and peristalsis was audible. The spleen was just palpable. There was pitting edema of both legs.

Gastric analysis showed free hydrochloric acid only after the injection of histamine. Laboratory examination showed red blood cells, 1,000,000, hemoglobin, 30 per cent, white blood cells, 2,250, mean corpuscular volume, 120 cubic microns, color index, 1.50.

**Course in Hospital**—The patient was given 12 Gm of a commercial yeast extract daily for twenty days, without relief of anemia or diarrhea. During the following ten days 200 cc of normal human gastric juice was given daily without any therapeutic response. During the succeeding ten days human gastric juice and Vegex in the aforementioned amounts were incubated together and fed daily. This digest is known to be effective in pernicious anemia. There was no improvement in blood values or amelioration of the diarrhea. Since the patient's condition was serious, 20 cc of Parke, Davis & Co liver extract prepared for intravenous use was administered intravenously each day. On the eighth day after the institution of treatment the reticulocytes were 27 per cent. This was followed by improvement in the blood values and cessation of the diarrhea. The daily treatment was continued for two weeks and then one injection was given twice weekly until discharge three and a half months after entry. At the time of discharge the erythrocyte count was 4,000,000 and the hemoglobin 80 per cent. Treatment has been continued at intervals of two weeks for one year, and during that time the patient has been symptom free and has maintained normal blood levels.

**CASE 4—L N**, an American woman, aged 45, who had resided in China for twenty-one years, had suffered from sprue for fifteen years. The presenting symptoms were stomatitis, glossitis, proctitis and diarrhea. Nine years before admission a remission had followed the taking of a high protein, low fat and low carbohydrate diet. For three years before admission, nausea and vomiting with marked loss of weight had been present. For six months the patient had been in bed and able

to retain only milk. During the three months immediately preceding admission she had received intramuscular injections twice a week of 2 cc of liver extract, an amount derived from 10 Gm of whole liver. No improvement had resulted from this therapy.

**Examination**—The patient was markedly emaciated. There was pallor and a faint yellow color of the skin and mucous membranes. The tongue showed atrophy of the papillae. There was edema of both legs.

Laboratory examination showed red blood cells, 860,000, hemoglobin, 27 per cent, white blood cells, 2,500, mean corpuscular volume, 136 cubic microns, color index, 1.54. Gastric analysis showed free hydrochloric acid only after the injection of histamine.

**Course in Hospital**—The patient was given 20 cc. of liver extract-Parke, Davis & Co intravenously each day during her stay in the hospital. On the seventh day of treatment the reticulocytes had risen to 43.2 per cent. This was followed by an increase in the number of erythrocytes and of the hemoglobin content. Diarrhea did not occur after the injections of liver extract were begun. The patient's appetite improved and she was discharged three weeks after entry with an erythrocyte count of 3,040,000 and hemoglobin of 67 per cent.

#### COMMENT

The four cases of sprue reported all failed to respond to some form of specific treatment but did finally improve under intensive parenteral therapy. They were the only ones in a series of twelve cases of sprue similarly studied and treated in which a clear-cut comparison between different methods of treatment could be drawn. In all four refractory cases a steady, progressive increase in the severity of the disease had taken place in spite of supposedly adequate therapy employing agents that were known to be specifically effective. When moribund, all were finally treated with massive doses of liver extract, parenterally administered, and in all a prompt, dramatic and complete remission was effected. All have been maintained in good health by means of injections of liver extract at intervals not exceeding one month.

In addition to being completely refractory to any sort of oral therapy, two of the individuals had received persistent and supposedly adequate parenteral treatment without improvement. It thus appears that a well defined threshold requirement for liver extract exists in certain cases of sprue, a threshold that must be exceeded before a remission can be established. When such a refractory case is encountered intravenous therapy is indicated, not only because it is more effective in raising the concentration of the required substance in the blood stream but also because it is the only route by which the required amount of material can be administered without causing serious discomfort and perhaps disability to the patient. Any patient with sprue admitted for treatment now receives intravenously an amount of liver extract<sup>13</sup> derived from 50 Gm of liver each day until a clear-cut remission has been established.

The liver extract preparation found to be most effective is a relatively simple, unconcentrated product. Evidence is at hand that a certain loss of activity results from too great refinement and concentration. Patients with sprue have failed to improve on intramuscular injection of a large amount of a highly refined and concentrated product although a full remission has been effected by the use of a much smaller amount of material more simply prepared.

The mechanism of the production of the increase in the threshold requirement for liver extract is at present

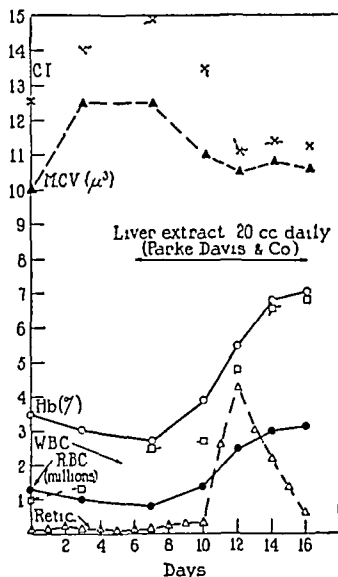


Chart 4—Hematologic changes following the daily intravenous administration of 20 cc of liver extract

unknown. An analogous situation may be observed in animals, however, in experimentally induced disease states due to the lack of certain accessory food factors. One of these experimental deficiencies is canine black tongue, a condition considered by Goldberger and Wheeler<sup>14</sup> similar to pellagra in human beings and due to a lack of the heat-stable, water-soluble vitamin. In black tongue a refractory state may be induced if treatment is kept at the minimum required for preservation of life during repeated acute attacks. Eventually no amount of material rich in water-soluble vitamin will effect improvement, although a minute amount of the same substance is prophylactically effective.

The amount of treatment required to maintain a person with a high threshold requirement in good health, once a full remission has occurred, varies widely in different individuals. In one instance (case 2), intramuscularly administered liver extract is required at intervals of two weeks. If the treatment is delayed, gastro-intestinal symptoms recur and persist until liver extract is administered. In other individuals, treatment once in thirty days is sufficient to prevent recurrence.

As previously discussed, the effectiveness of liver extract in the treatment of sprue, coupled with other known facts, clarifies the etiologic mechanism of the disease. The efficacy of intensive treatment of cases refractory to less adequate measures is further evidence of the specificity of the effect of liver extract. The requirement of certain individuals for very large amounts of effective material administered parenterally is evidence of a threshold requirement that must be exceeded before a physiologic response can occur.

The emphasis that has been placed on the purely hematologic responses of pernicious anemia to liver has obscured the fact that corresponding improvement of the lingual and gastro-intestinal symptoms occurs. This was pointed out by Minot and Murphy in their original communications and has been commented on by others. The idea of treatment by diet of a gastro-intestinal disorder, such as sprue, is so thoroughly ingrained in the medical consciousness that it is difficult for it to abandon the conception of some beneficial quality of the diet, simply as a regimen. The foregoing discussion should serve to indicate that the occasional effectiveness of diet in the treatment of sprue is largely based on its ability to supply the water-soluble vitamin. Diet is, at best, an uncertain method of obtaining "liver extract" for the internal economy of the organism. By the use of parenteral liver extract the obstacles of dietary defect, gastric dysfunction and intestinal malabsorption are at once effectively surmounted.

#### SUMMARY AND CONCLUSIONS

1 Four cases of sprue were refractory to ordinarily effective treatment. Clinical cure followed intensive parenteral liver extract therapy.

2 The use of liver extract in sprue is indicated by the etiologic mechanism of the disease.

3 Sprue frequently requires much more intensive treatment with liver extract than does pernicious anemia.

4 The frequent parenteral administration of large amounts of liver extract is the therapeutic procedure of choice in sprue and should be continued until a remission is established.

Sixty Sixth Street and York Avenue

<sup>14</sup> Goldberger S. and Wheeler G. A. Bull. 120 H. S. Lab. U. S. P. H. S. 1920 p. 7

## NORMAL CEREBROSPINAL FLUID DYNAMICS IN SPINAL CORD TUMOR SUSPECTS

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AND

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As the result of the efforts of Ayer<sup>1</sup> and Stookey,<sup>2</sup> the technic of eliciting abnormal changes in cerebrospinal fluid dynamics has become so refined that an obstruction in the spinal canal can be detected earlier in the disease than formerly. Cases have been reported, however, in which tumors were found that appeared large enough to block the entire canal but normal dynamics were shown by lumbar puncture. The question therefore arises, What size must a tumor be in relation to the spinal canal before there are any demonstrable changes in dynamics? Patients have frequently been known to suffer from pains for years which were thought due to rheumatism, sciatica, sacro-iliac disease or neuritis, before any objective symptoms were detected to suspect an intraspinal lesion. In such instances a problem as to the value of a lumbar puncture always arises, especially when the tumor does not obliterate the subarachnoid space.

Elsberg<sup>3</sup> states that in about 20 per cent of the patients with spinal cord tumors the Queckenstedt test (jugular compression) may be expected to be negative. This statement was made before the refined technic of both Ayer and Stookey were proposed. The present percentage of a negative Queckenstedt test is much less if done by those who are familiar with the technic and careful in following its details. Too much emphasis cannot be laid on this. The details that seem most insignificant are sometimes very important. Nurses at times are careless in cleaning the manometers and valves before sterilization. The most accurate readings will be obtained if the manometers and valves are autoclaved instead of boiled, otherwise droplets of water are likely to remain on the inside of the manometer, thus forming pockets of air and increasing capillary attraction. This may make some difference in the rise and fall of the spinal fluid when the pressure readings are taken. A fairly reliable test to make one confident that the needle is in the subarachnoid space is to have the patient strain or cough. Following this there should be a rapid rise and fall in spinal fluid pressure, which is at once followed by the normal amplitude of the respiratory and pulse oscillations.

Our purpose in this paper is to give an adequate explanation of the occurrence of normal pressure changes during the Queckenstedt test in the presence of a spinal cord tumor. Such a case has recently come under our observation, the history of which is as follows:

M. S., a girl, aged 21, unmarried, came to the clinic complaining of pains on the right side of the abdomen, which had been present intermittently for two years with no associated nausea or vomiting. At first the pains were located mainly in the right

From the Lahey Clinic

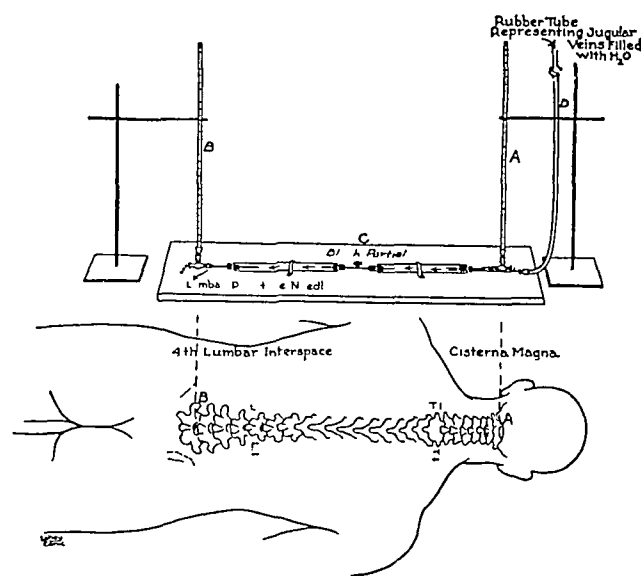
<sup>1</sup> Ayer J. B. Spinal Subarachnoid Block as Determined by Combined Cistern and Lumbar Puncture with Special Reference to the Early Diagnosis of Cord Lesions. Arch. Neurol. & Psychiat. 7: 38 (Jan.) 1922

<sup>2</sup> Stookey Byron Merworth H. R. and Frantz, A. M. A. Manometric Study of the Cerebrospinal Fluid in Suspected Spinal Cord Tumors. Surg., Gynec. & Obst. 41: 429-442 (Oct.) 1925

<sup>3</sup> Elsberg C. A. Tumors of the Spinal Cord. New York: Paul B. Hoeber, 1925. p. 253

upper quadrant. A gallbladder visualization showed normal function. The pains were aggravated by sudden twisting or bending of the neck and also by coughing. There was marked constipation but there were no bladder disturbances. There was a slight feeling of stiffness in the right leg for about two weeks previous to her entrance to the hospital. The rest of the history was irrelevant.

Physical examination showed moderate superficial and deep tenderness in the right lower quadrant. The abdominal reflexes were brisk and equal. The patellar and achilles reflexes on the right were markedly hyperactive (+++) and slightly less active on the left (++) A bilateral Babinski reflex was present. A very slight relative hypesthesia could be detected over the first and second lumbar skin areas on the right. Vibratory sense over the right internal and external malleoli was slightly diminished. The lumbar puncture showed an initial pressure of 120 mm of water. Prolonged jugular compression brought an immediate rapid response, the fluid rising rapidly to 260 mm and descending with the same speed on the release of the jugulars, the patient breathing normally throughout the procedure. The fluid, when compared with water, was slightly tinged with yellow. The total protein of the spinal



An artificial spinal canal with a partial block (C). A spinal puncture needle with manometer (A) attached is inserted into the caudal end corresponding to the cisterna magna. Another spinal puncture needle with manometer (B) is attached to the caudal end representing the fourth lumbar interspace. The diameter of the bore of the needle at C can be varied at will. The rubber tube (D) filled with water serves to transmit pressure to the canal in the same manner as compression of the jugular veins. By compressing the rubber tube no changes occur in the rise and fall of the water in either manometer as long as the diameter of the opening at C is equal to or greater than the diameter of the bore of the spinal puncture needles. As soon as the diameter of the opening at C is less than that of the spinal puncture needles there is an immediate lag in the rise and fall in the manometer (B) when the pressure is applied to the rubber tube (D).

fluid was 60 mm per hundred cubic centimeters. Iodized poppy-seed oil injected into the cistern twenty-four hours later stopped at the seventh thoracic vertebra, a few drops of the oil passed the obstruction after several hours. A laminectomy revealed a firm neurofibroma which was large enough to cause a pressure furrow in the spinal cord. There were no adhesions.

It is possible therefore to have a fairly large tumor in the spinal canal which does not give any signs of obstruction by the Queckenstedt test. To determine how large a spinal cord tumor must be before a partial block can be detected by lumbar manometric readings is obviously difficult because of the varying shapes and structures of the tumor. In considering this case in relation to hydrodynamics we concluded that as long as the unobstructed area at the site of the tumor was as large as the bore of the lumbar puncture needle

there could be no abnormal dynamics. In view of Weed's<sup>4</sup> belief that the dural tube in live mammals may be considered fairly though not absolutely rigid, we attempted to demonstrate our conclusions as follows. Two cylinders, closed at each end by cork stoppers, were connected by a large needle, as shown in the accompanying illustrations. A rubber tube was attached to the proximal cylinder by a size 18 gage spinal puncture needle. The system was then filled with water and the rubber tube clamped. This, then, was to represent the spinal canal with a partial block. The rubber tube could be used to increase the pressure in the cephalad end of the canal at will by pressing it. A size 18 gage lumbar puncture needle was then inserted through the caudal cork and a manometer attached. By compressing the rubber tube, the increased pressure was indicated by an immediate and rapid rise of the fluid in the manometers. It was also found that, by changing the size of the opening at the artificial block, a rapid rise and fall of the fluid occurred in the manometers by pressing the rubber tube intermittently. There was no change from the normal until the size of the opening in the block was definitely less than the size of the opening in the lumbar puncture needles. In other words, if the cross sectional area of the bore of the needle used in the spinal puncture is of the same order of magnitude as the effective cross sectional area not blocked by tumor in the spinal canal, no abnormal pressure changes in the dynamics should occur.

Another 18 gage needle was inserted in the cephalad cylinder and a manometer attached. No changes occurred in dynamics in either manometer until the size of the opening at the block was less than that of the needles used in either end. Thus, when the diameter at the partial block was made smaller, there was a lag in water at B and a rapid rise and fall in water at A when the rubber tube was compressed. This would suggest that a partial block can be detected more quickly by a combined cisternal and lumbar puncture than by lumbar puncture alone. Thus it is very important to do the combined punctures when a questionable change in the dynamics is found during a lumbar puncture.

Thus, we believe, explains why the cerebrospinal fluid dynamics are normal in a small percentage of relatively large spinal cord tumors. In fact, as long as an opening remains in the entire length of the canal as large as the bore of the lumbar puncture needle, no changes from the normal should be expected as long as the character of the wall, the viscosity of the fluid and the size of the opening remain constant.

It also explains why the dynamics are normal in a certain percentage of cases before cerebrospinal has been removed and why, when from 5 to 10 cc has been removed, the block first manifests itself as either a partial or complete obstruction. For instance, if the tumor is of such a size that it nearly fills the canal, the intraspinal pressure keeps an opening larger than the lumbar puncture needle. The removal of the fluid decreases the intraspinal pressure sufficiently to permit the dura and arachnoid to come in contact with the edges of the tumor and cord, thus producing block.

It should be emphasized, therefore, that a relatively large tumor may be present even though the dynamics are normal. If the patient's symptoms are suggestive of a spinal cord tumor, the cerebrospinal fluid dynamics are of real significance only when positive, and when

<sup>4</sup> Weed, L. H. Some Limitations of the Monroe-Kellie Hypothesis. Arch. Surg. 18: 1049 (April) 1929.

negative the introduction of iodized oil into the canal must be considered as the next best method of detecting a tumor, if it is at all possible. The diagnosis of spinal cord tumor should not be absolutely dismissed because the cerebrospinal fluid dynamics are normal

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## PRESENT ENDOCRINE DIAGNOSIS AND THERAPY

A CRITICAL ANALYSIS BASED ON HORMONE  
STUDIES IN THE FEMALE

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It is difficult to keep one's footing in a stampede and practically impossible to think or plan connectedly during a panic. Therefore, the members of the medical profession as well as the public, who have been caught in the whirlwind sweep of this new medical advance, have lost all sense of proportion, direction and balance whenever the subject of endocrinology is touched on. In spite of the turmoil, real progress can be recorded, often unheard, because of incoherent babble and ballyhoo, which is more vocal than constructive and conservative advances.

It has been our effort since 1925 to place the study of functional endocrine disturbances of the female sex organs on a more solid foundation and to devise methods that will permit evaluation of conditions comparable to metabolism determinations. Although our methods are now used in many laboratories throughout this country and abroad, the profession at large has not made use of these aids in diagnosis, prognosis and treatment to the extent that the information obtained by these technics appears to warrant.

The material on which our results are based, from January 1926 to December 1933, includes 1,773 estrogenic substance tests on blood performed in our laboratory, 1,269 urine tests for estrogenic substance, 661 anterior pituitary tests on the blood, 78 anterior pituitary-like tests on the urine, 1,843 tissues, cyst fluids, bile, cerebrospinal fluid and the like tested for estrogenic substance, and 916 pregnancy tests.

This large material which we have accumulated appears to warrant comprehensive publication. Perhaps it may help to clarify some of the confusion, loose reasoning and overenthusiasm that threatens further to obscure a very complex subject. Concrete data may serve in restoring balance and proper perspective.

In the spring of 1925 the presence of estrogenic substance was demonstrated in the circulation.<sup>1</sup> In the fall of the same year a clinical method for determining the presence of this hormone was devised.<sup>2</sup> In 1926, after Loewe<sup>3</sup> had demon-

strated the presence of the estrogenic substance in the urine, a method was published for determining its excretion in the urine.<sup>4</sup> In 1931 we<sup>5</sup> described a clinical quantitative test for the determination of the anterior pituitary hormone in the blood of nonpregnant women. Previously such determinations had been limited to the duration of pregnancy or the period after the menopause, at which times the anterior pituitary hormone values are sufficiently increased to permit testing without concentration.

### METHODS EMPLOYED

The details of our methods can readily be obtained from previous publication.<sup>6</sup> Two main hormone constituents have been studied, the one the estrogenic substance,<sup>7</sup> the other the anterior pituitary type of substance known as the gonadal stimulating hormone, gonadotropic hormone and closely related bodies, prolalin (Zondek) and pituitary-like hormone (Collip).

The estrogenic substance is concentrated by lipid extraction of the blood or urine. The blood tests represent weekly samples of vein blood, 40 cc being used.<sup>8</sup>

The urine studies which show the entire output of estrogenic substance in successive seventy-two hour specimens are obtained by continuous chloroform extraction. The test object for the estrogenic sub-

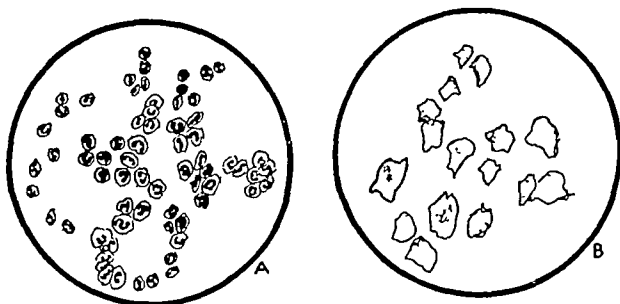


Fig 1—Vaginal spread of castrate mouse. A negative leukocytes. B positive spread from same mouse forty-eight hours after injection of extract containing at least one mouse unit of estrogenic substance.

stance, irrespective of its source, is the castrated adult mouse. The smallest amount of extract that in forty-eight hours produces a characteristic change in the vaginal spread is recorded as a mouse unit (fig 1).

The anterior pituitary types of hormone are obtained by us with acid alcoholic extractions of the 40 cc of blood specimens previously freed from estrogenic substance. The anterior pituitary-like hormone is extracted from the seventy-two hour specimens of urine by means of either alcohol precipitation<sup>9</sup> or adsorption.<sup>10</sup>

The test animal for the prepituitary reaction is the immature noncastrated rat and the test is recorded in

<sup>4</sup> Frank R T. The Role of the Female Sex Hormone. *J A M A* 97: 1852 (Dec 19) 1931.

<sup>5</sup> Frank R T, Goldberger M A and Spielman Frank A. Method for Demonstrating Prepituitary Maturity Hormone in the Blood of Nonpregnant Women. *Proc Soc Exper Biol & Med* 28: 999 (June) 1931.

<sup>6</sup> Frank and Goldberger. Frank A, Goldberger and Spielman. VIII Simplification of Technic. *J A M A* 90: 376 (Feb 4) 1928.

<sup>7</sup> The term female sex hormone was employed by us in former papers in *THE JOURNAL* to designate the estrogenic principle found throughout the plant and animal kingdom.

<sup>8</sup> It would be preferable if more frequent blood tests could be taken and each test titrated on several animals. To counteract the individual susceptibility of test mice the amount of blood extracted has been increased from 35 cc to 40 cc. Perhaps the Fluhrman test which is based on a mucifying action on the vaginal epithelium—if found identical with our methods—may prove of value.

<sup>9</sup> Zondek Bernhard. Weitere Untersuchungen zur Darstellung Biologie und Klinik des Hypophysenhinterlappenhormons (Prolan). *Zentralbl f Gynak* 53: 834 (April 6) 1929.

<sup>10</sup> Katzman P A and Doisy E A. A Quantitative Procedure for Determining Normal Excretion of Prolan. *Proc Soc Exper Biol & Med* 30: 1188 (June) 1933.

From the Gynecological Service and Laboratories of the Mount Sinai Hospital.

<sup>1</sup> Frank R T, Frank Marie Louise, Gustafson R G and Weyerts W W. Demonstration of the Female Sex Hormone in the Circulating Blood. I Preliminary Report. *J A M A* 85: 510 (Aug 15) 1925.

<sup>2</sup> Frank R T and Goldberger M A. The Female Sex Hormone. IV Its Occurrence in the Circulating and Menstrual Blood of the Human Female. Preliminary Report. *J A M A* 86: 1686 (May 29) 1926.

<sup>3</sup> Loewe S and Lange F. Der Gehalt des Frauenharnes an brunsterzeugenden Stoffen in Abhängigkeit von ovariellen Zyklus. Ueber weibliche Sexualhormone. VII Mitteilung. *Klin Wchnschr* 5: 1038 (June 4) 1926.

rat units For this test the changes taking place after 100 hours in the ovarian follicle are evaluated (fig 2)

The pregnancy tests of Aschheim and Zondek<sup>11</sup> and Friedman<sup>12</sup> were employed unchanged just as these authors recommended

#### THE HORMONE CYCLE IN THE NORMAL FERTILE MENSTRUATING FEMALE

Such a remarkable congruence was found in two composite graphs of the blood, based respectively on two series of women, the first dating from our earlier work in 1925 to 1928,<sup>13</sup> and the second in another group from 1930 to 1933, that marked deviations from this standard type may be considered abnormal and of significance

In the normal menstruating fertile woman the 40 cc blood samples do not contain a full mouse unit until from seven days before the menses With the onset of bleeding, the blood level again decreases

The urine cycle for estrogenic substance is likewise characteristic About the tenth day and again about three days before the menstrual bleeding, increased excretion takes place The normal monthly total output is from 1,200 to 1,500 mouse units (fig 3)

An earnest warning must be given against short cut technics by which attempts to draw conclusions from single isolated tests are attempted The data thus obtained are valueless, as their interpretation depends on accidental variations (fig 3)



Fig 2—Sections of ovaries of immature rat A normal untreated animal primordially follicles B anterior pituitary reaction 100 hours after injections of extract containing at least one rat unit of prepituitary or anterior pituitary like extract The follicles are enlarged and cystic

In the blood there likewise is an anterior pituitary hormone cycle

Between the eighth and the tenth day, a full rat unit (R U) is present in the 40 cc blood specimen Before and after, smaller quantities are found (fig 3, broken line)

Although minor discrepancies have been noted here and there, our earlier conclusions, based on blood and urine studies, which lead us to divide functional disturbances of the genital tract into two large classes, those of underfunction and those of overfunction, have been confirmed more and more by the accumulation of larger groups of patients

#### PREPUBERTY AND PUBERTY

To what degree the ovaries function before puberty is of interest Our studies on the estrogenic substance before the onset of puberty are still quite fragmentary A titer of the excretion on a child, aged 3 years, menstruating cyclically since the age of 6 months, shows that there is cyclic excretion under these conditions<sup>14</sup>

<sup>11</sup> Aschheim Selmar and Zondek Bernhard Schwangerschafts diagnose aus dem Harn (durch Hormonnachweis) Klin Wchnschr 7 1404 (July 22) 1928

<sup>12</sup> Friedman, M H and Lapham M E A Simple Laboratory Procedure for the Diagnosis of Early Pregnancies Am J Obst. & Gynec 21 405 (March) 1931

<sup>13</sup> Frank R T The Female Sex Hormone Springfield Ill Charles C Thomas 1929

<sup>14</sup> Frank R T Premature Sexual Development in Children Due to Malignant Ovarian Tumors with Special Reference to Hormonal Studies and After Treatment Am J Dis Child 43 942 (April) 1932

Our studies on a small group of normal children between the ages of 4 and 13 years show that very little estrogenic substance is usually excreted before puberty, an amount readily accounted for by the alimentary intake (an ordinary potato contains, for example, 2 mouse units of estrogenic substance)

Of fifteen children, only two gave any positive reaction A 4 year old girl showed 1 mouse unit in 500 cc of urine, a 9 year old girl, 1 mouse unit in 250 cc

A child investigated for cyclic vomiting at the age of 12½ years showed cyclic but less excretion of estrogenic substance than that seen in the adult menstruating female but more than in younger children (725 mouse units) Two and one-half months later the first menstruation appeared in this patient, and since that time the cyclic vomiting, which had occurred every four to four and one-half weeks, has disappeared completely

#### THE UNDERFUNCTIONING OVARIES, STERILITY, AMENORRHEA (DYSMENORRHEA AND OLIGOMENORRHEA) AND THE MENOPAUSE

Unless the ovaries have been directly injured by local action, such as by x-rays, we ascribe underfunction, with few exceptions, to primary pituitary disturbances The gonads, in spite of their prime biologic importance, are subsidiary glands under the direct control of the anterior pituitary (adenohypophysis) and dependent on the prepituitary cycle (fig 3)

Patients with underfunction, clinically identical, with monotonous regularity, fall into three main groups, (1) subthreshold blood cycle, (2) acyclic blood but cyclic urine cycle, and (3) acyclic, in both blood and urine (fig 4)

With equal regularity, according to this hormone grouping, the prognosis in class 1 has proved encouraging, irrespective of the duration of the complaint (sterility, oligomenorrhea, amenorrhea), in class 2, doubtful, in class 3, bad

**Amenorrhea**—The three hormone types characteristic of amenorrheas and all underfunctions of the ovaries allow for many individual variations, which enhance the difficulties of prognosis and, consequently, the evaluation of treatment, as can be readily illustrated

A woman, aged 28, had been married three years and was sterile The menses had never been regular She showed many endocrine stigmas, including moderate hirsutism with male escutcheon, a clitoris five times the normal size, and a high symphysis The basal metabolism was plus 12, and roentgen examination of the sella was normal The sugar tolerance was normal The fourth blood specimen showed a strong accumulation of estrogenic substance The urinary excretion of this hormone was likewise normal (1,825 mouse units) Hence we predicted an impending menstruation, which actually took place five days later, to the great surprise of the patient

We have had a number of similar cases in which impending menstruation could be predicted by means of the blood studies—one after six years of amenorrhea and one after seven years Had any therapy been given this would have been hailed as miraculous in its effect by both patient and medical attendant In another patient a cyclic accumulation of estrogenic substance in the blood but a much smaller excretion of estrogenic substance in the urine (900 mouse units total) was noted (fig 4B) In this patient, aged 33, although the amenorrhea was five years in duration, an absolutely good prognosis was given, which the subsequent course fully justified

In sharp contrast with the two cases just described is one of primary amenorrhea in a girl, aged 20, who made a very

normal physical impression, in whom a hormone study extending over five weeks showed a minimal subthreshold quantity of accumulation of estrogenic substance in the blood and almost a total absence of excretion in the urine (125 mouse units total) In this case the prognosis was very bad

The symptoms complained of by these patients vary greatly In the younger group, primary amenorrhea brings the patient under observation if menstruation

has not occurred at the time that racial and familial expectancy lead one to anticipate it (from the fifteenth to the twentieth year) Other children become amenorrheic after a longer or shorter period of menstruation (secondary amenorrhea) Adults who have reached the age of from 20 to 35 without menstruation are less common

After marriage, the same or similar patients seek advice because of sterility Before hormone investigations are made, the potency of the husband and the absence of cervical and tubal infection as well as mechanical permeability of the tubular tract are determined At the same time amenorrhea may or may not be complained of

Dysmenorrhea appears with great frequency in the group of patients who are overworked, infantile, and often sterile

The secondary amenorrheas and sterilities are most often noted in

patients afflicted with obesity If the obesity is due to overeating, judicious dieting will afford prompt relief Pituitary obesity is resistant, thyroid insufficiency, which unfortunately is uncommon in these fat women, is most amenable to treatment Amenorrhea due to asthenia is found in systemic disease (tuberculosis), psychoses, or in the infrequent cases of Simmonds' disease and suprarenal insufficiency

Amenorrhea in Absence of Vagina Occasionally nature supplies a critical experiment Patients with absence of the vagina may be normal in feminine configuration, eunuchoid, or verging toward the masculine Our experience now covers seventeen cases, of which fourteen have been studied in detail<sup>15</sup> The hormone studies, with two exceptions, show a definite cycle, which enables us to state that twelve of these patients are feminine individuals Retention of blood in the

vestigial genital tract cannot occur because the uterus is solid and without endometrium When no sex cycle was noted, the sex of the patient remained undetermined

Figure 5 shows a twenty-one day blood cycle with a fairly normal amount of urinary excretion (1,040 mouse units) On the other hand the blood cycle may be absent, the excretion in the urine resembling that found in puberty bleeding, in one instance 4,600 mouse units was excreted during a period of thirty-three days, which is approximately three times the normal

In both of these cases we are able to state that functioning ovaries are present, in fact, it would seem that in the second case they are overfunctioning

However, from a study of the graphs of these twelve patients, it appears that when there is an accumulation of estrogenic substance in the blood, less is excreted in the urine Whether this implies a definite utilization of the hormone by the normal uterus is as yet an open question, nothing being known as to how the estrogenic substance or in fact any hormone acts or combines locally<sup>16</sup>

**The Menopause**—The symptoms of the menopause, irrespective of whether normal and spontaneous, or artificially induced by operation (hysterectomy, double oophorectomy, or combined hysterectomy and salpingo-oophorectomy), are usually identical, consisting subjectively of protean neurovascular disturbances If the patient is young and the ovaries, one or both, are left in situ, local atrophy of the introitus and vagina remains in abeyance

Hormonally, however, marked differences are found

**Normal Menopause** Figure 6 shows what is considered the most typical finding of a high anterior pituitary reaction of the blood, no demonstrable estrogenic substance is found in the blood or in the urine

This anterior pituitary overload in the blood is noted in less than 50 per cent of such patients Not infrequently, a year

Fig. 3—Hormone cycle (E S and A P) of normal fertile menstruating woman. Above base line (O) record of blood specimens taken every seven days. Black dots E S estrogenic substance (solid line) small circle A P anterior pituitary (broken line), above 2½ = positive below 2½ = negative 1 = less than 1 mouse unit in 40 cc of blood. Below base line total excretion of estrogenic substance in urine. Figures to the left show amount of mouse units. Total excretion 1,500 mouse units of estrogenic substance. Each block represents three days. A B C to show that single blood and urine specimens are valueless and misleading.

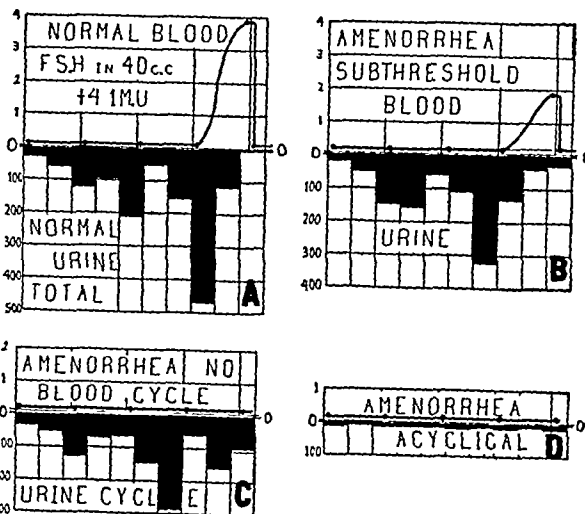
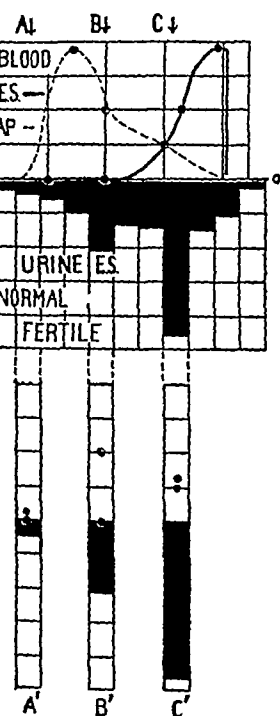


Fig. 4—Occurrence of estrogenic substance in the blood and urine of normal and amenorrheic women. A normal B subthreshold C negative blood cycle positive urine cycle D acyclical

or more after the menopause estrogenic substance is still cyclically excreted. This is not surprising, since follicles may be found in senile ovaries

<sup>16</sup> The sole evidence that a local accumulation of hormone actually occurs is supplied by the menstrual blood. While the circulating blood just before the time of menstruation contains 1 mouse unit to every 40 cc the blood seeping through the endometrium (menstrual) may contain as much as 1 mouse unit to 2 cc. Blood drawn by cupping from the perio vaginalis during menstruation however contains only the same amount of hormone as that found at any given time in the general circulation

<sup>15</sup> Frank, R. T. and Goldberger, M. A. The Female Sex Hormone. A New Method of Determining Sex in the Presence of Malformation of the Genital Organs. J. A. M. A. 87: 554 (Aug. 21) 1926



**Artificial Menopause** Figure 7 shows blood studies performed on a woman, aged 35, whose uterus was removed seventeen years previously. A definite blood cycle of estrogenic substance has continued. This is the longest persistence of ovarian function with absence of the uterus that we have had the opportunity to observe.

In older women only the uterus of whom has been removed, a blood cycle with scanty excretion in the urine is evidence of persistent but diminished ovarian function.

In other patients if the anterior pituitary factor in the blood is high and no blood or urinary excretion of estrogenic substance is found, the true physiologic menopause is shown to have taken place.

Removal of the uterus need not abolish the blood and urinary cycle for anterior pituitary and estrogenic substance. From these examples of studies on both the natural and the artificial menopause it should be clear that, although the symptoms complained of may be identical, the humoral conditions may differ widely in different individuals. This, too, may explain the great divergence in response to therapy noted in different women.

**Vicarious Menstruation—Molimina**—Considerable prominence has been given to "vicarious" menstruation. A study of patients with primary amenorrhea suffering with "cyclic" epistaxis showed no blood or urinary cycle. In the blood sickening from the nose, no estrogenic substance could be demonstrated. In our experience, no case of true vicarious menstruation has been observed.

In sharp contrast to this, "molimina" in amenorrheic patients, such as engorgement of the breasts, pelvic heaviness and periodic leukorrhea, may signify cyclic ovarian function, as shown in figure 8.

#### OVERFUNCTION OF THE OVARIES. PUBERTY BLEEDING, MATURITY MENORRHAGIA AND METRORRHAGIA, PRECLIMACTERIC HEMORRHAGES (PREMENSTRUAL TENSION)

Again, as in the preceding group, disturbance of the anterior pituitary must be regarded as the etiologic factor.

From our studies it has become apparent that the blood hormone level for estrogenic substance is a most

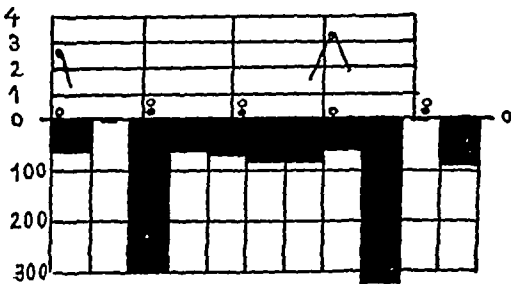


Fig 5—Absent vagina. Twenty one day blood cycle. normal urine cycle.

delicately balanced mechanism in which the normal by our method of extraction is approximately 1 mouse unit to 40 cc of blood, or 25 mouse units per liter. Only after the eighth week of pregnancy is this level exceeded, at which time not more than twice this amount normally accumulates in the blood (50 mouse units per liter).

This high level also occurs in a small group of cases which we designate as "premenstrual tension." No such increase develops when huge doses of estrogenic substance are injected

intravenously or even when a great excess is spontaneously produced, as in suprarenal tumors.<sup>17</sup>

And yet, without exceeding the higher physiologic limit, the same amount of estrogenic substance, depending on the rapidity or failure of excretion, may and does produce the differences illustrated in figure 14. This difference in effect is due to differences in the level of excretion, which varies greatly in different individuals and as we have previously stated,<sup>18</sup> may also vary at different times of the cycle in the same individual. This variation in excretory threshold is

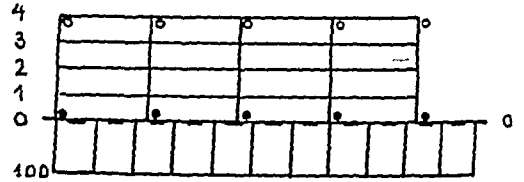


Fig 6—Natural menopause in a woman aged 53. High anterior pituitary reaction. No blood or urine cycle.

probably directly influenced by the pituitary secretion, which is cyclic in the normal female (fig 3, broken line).

The symptoms of ovarian overfunction in the majority of instances are excessive and irregular bleeding—menorrhagia and metrorrhagia. In the "tension" cases, mentioned before, bleeding is normal. In suprarenal tumors, amenorrhea predominates. If the blood hormone level is persistently high and no cyclic excretion of estrogenic substance occurs through the urine, amenorrhea should result.<sup>19</sup>

Excessive bleeding, we have found as a rule, bespeaks overfunction of the ovaries because, almost without exception, these bleeding cases show a markedly excessive excretion of estrogenic substance in the urine, although the amount recoverable from the circulating blood may actually be diminished.

In our large material, only three exceptions to this rule so far have been noted, both in patients with diminished thyroid function and in obesity (relieved by thyroid extract).

Menstrual bleeding in its simplest form, although this does not correspond to the true physiologic menstrual process, can be experimentally induced in castrated primates by the continued injection of large amounts of estrogenic substance. Bleeding does not occur if the proper hormone level is maintained until the injections are stopped (in the macaque<sup>19</sup> and in man<sup>20</sup>).

The prerequisites for normal menstruation, on the other hand, are more complicated. They consist in preliminary preparation of the uterus by estrogenic substance and then sensitization by the special corpus luteum hormone (progesterone). Unless these two factors act in succession on the uterus, nidation is impossible.

"Anovular" menstruation has been much featured in the recent literature, consisting in ripening of the follicles, with consequent production of estrogenic substance, but without

<sup>17</sup> Unpublished data.

<sup>18</sup> Frank R T, Goldberger, M A and Spielman Frank. Utilization and Excretion of the Female Sex Hormone. *Proc Soc Exper Biol & Med* 29 1229 (June) 1932. Frank R T and Goldberger, M A. The Female Sex Hormone. XI Utilization of the Hormone in the Normal Woman. Effect of Abnormal Kidney Permeability in the Production of Amenorrhea and Sterility. *J A M A* 94 1197 (April 19) 1930.

<sup>19</sup> Allen Edgar and Baker D D. Menstrual Periods Induced in Ovariectomized Monkeys by Estrus Producing Ovarian Hormone. *Am J Obst & Gynec* 20 85 (July) 1930.

<sup>20</sup> Claiberg C. Die Wirksamkeit des Luteohormons das spezifische Hormons des Corpus luteum am menschlichen Uterus. *Zentralbl f Gynak* 56 2460 (Oct 8) 1932.

ovulation or formation of the corpus luteum<sup>21</sup> This type of disturbance is said to produce both cyclic menstruation and irregular bleeding Clinically, it is best exemplified by the usually transitory condition known as "polycystic or microcystic ovaries"

Our studies of cyst fluids are interesting in this connection Follicle cysts of all sizes, if lined by granulosa cells, contain estrogenic substance in considerable concentration Simple "serous" cysts give no estrual reaction, nor is any effect produced by pseudomucin or dermoid cyst fluid

On the other hand, polycystic ovaries may likewise cause amenorrhea if the blood hormone level for estrogenic substance remains continuously high This produces chronic hyperplasia of the endometrium, amenorrhea, and an excessive continuous excretion in the urine of the estrogenic substance—the "polyhormone amenorrhea" of Zondek and others—"amenorrhea of overfunction" Our observations lead us to consider this group much less numerous than was at first believed

In marked contradistinction to the hormone conditions found in functional bleeding, the irregular uterine bleedings due to inflammation (tubal, peritubal, cellular exudates), tumors of the uterus (including small submucous fibroids) show either a normal or a subnormal amount of estrogenic substance excreted through the urine, thus affording a characteristic differential, useful in diagnosis

The following groups illustrate overfunction

**Puberty Bleeding**—This constitutes a fairly numerous group between the ages of 10 and 20 years

Figure 9 charts the bleeding of a girl, now 17 years old, watched for five years during which time curettement was done three times (hyperplastic endometrium) and transfusion four times (hemoglobin down to 30 per cent on one occasion) No blood studies were made, repeated urine studies showed typical overexcretion

The menstrual blood in these cases contains much estrogenic substance, as high as 500 mouse units per liter for days and weeks

**Adult Menorrhagia and Metrorrhagias**—This large group is most often encountered by the physician In the early stages the patient's uterus is normal The uterus eventually, in the course of years, enlarges symmetrically (at first boggy, later firm and fibrous) Curettings show hyperplastic, polypoid or cystic endometrium The ovaries are normal or may be "microcystic"

A woman, aged 23, married for five years, had had an abortion five years before She started to menstruate at 13

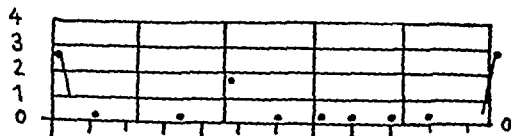


Fig 7—Induced menopause Hysterectomy seventeen years previously at age of 17 years Cyclic ovarian function has persisted seventeen years

years and bled excessively every two weeks She had had radium treatments at another hospital The blood studies (fig 10) showed a fifteen day blood cycle excretion in thirty-three days 4185 mouse units (normal 1,500 mouse units) Six months later she became pregnant with a normal termination, good evidence that such conditions are functional and often self limited

Figure 11 shows one cycle in a woman, aged 31 who had had an ovarian cyst removed five years previously The menorrhagia had existed for two years After the blood

studies were completed, bleeding became and has remained normal without treatment The studies extend over two four and one-half week periods (only one of which is shown) In both an occasional, but not cyclic, accumulation of estrogenic substance in the blood was noted In both a marked excess of estrogenic substance was excreted 6,000 mouse units and 7,425 mouse units (normal 1,500 mouse units)

In sharp contrast to these typical cases and charts are two examples of organic disease, the first from a patient whose bleeding was due to small submucous fibroids, the other suffering from subacute adnexal

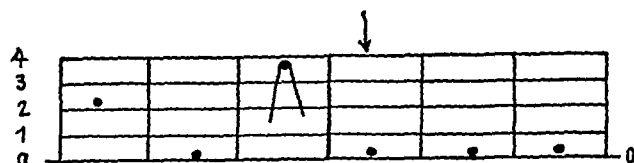


Fig 8—Amenorrhea molimina Arrow indicates time of breast engorgement and pelvic pain Blood cycle occurs

inflammation (figs 12 and 13) In both it will be noted that the ovarian function is low

**Piechmacteric Bleeding**—This shows the same changes as in puberty bleeding and appears to be due to the same functional causation

**Premenstrual Tension** (overfunction without excessive bleeding)<sup>22</sup>—In this carefully studied group, characteristic psychic and physical symptoms develop increasingly from the second week on until the onset of menstruation Within one to six hours after the flow begins, complete relief is experienced

An illustrative case in a woman, aged 40, showed psychic instability and unrest, she stated that she felt like jumping out of her skin Physically there were tense breasts, edema of the ankles, and pelvic engorgement

Figure 14 shows the typical marked progressive increase of estrogenic substance in the blood (first week 40 cc gives 2 plus reaction, second week 40 cc gives 4, third week 30 cc gives 4, fourth week 20 cc gives 4 In the normal female 40 cc gives 0 until the fourth week, then 40 cc gives 4)

In marked contrast to the blood curve, the urinary threshold in these women is high, only from 250 to 350 mouse units being excreted during a cycle (normal 1,500 mouse units)

This condition exemplifies the strong effect produced by comparatively small amounts of hormone if excretion, and perhaps also utilization or destruction, is defective

#### PREGNANCY CONDITIONS

Because of limitations of space, hormone studies in normal and abnormal pregnancy, as well as in chorion-epithelioma in the male, will be reserved for later publication

#### DIAGNOSIS

In the preceding we have given a brief review of the results derived from our hormone studies The information obtained from hormone graphs on ovarian function have thrown light on symptoms and diagnosis as well as on the reason for success or failure of the therapy However, such studies, though they serve as valuable aids, cannot replace clinical acumen and experience

The general impression made by a patient on an experienced observer is of much importance It is essential to have the patient strip in order not to be deceived by artificial and adventitious aids On the one

<sup>21</sup> Schroeder Robert Arch f Gynak 110 63 1919 Geit S H Abence of Corpora Lutea in a Case of Atypical Uterine Hemorrhage J A M A 78 1185 (April 22) 1922

<sup>22</sup> Frank R T The Hormonal Causes of Premenstrual Tension Arch Neurol & Psychiat 26 1053 (Nov) 1931

land, it is surprising to see how those not specially trained will overlook marked evidence of serious endocrine disturbances and, on the other hand, ascribe to endocrine causes symptoms clearly due to local diseases

R M was a most peculiar looking individual, definitely acromegalic, with hirsutism, exophthalmos, the clitoris six

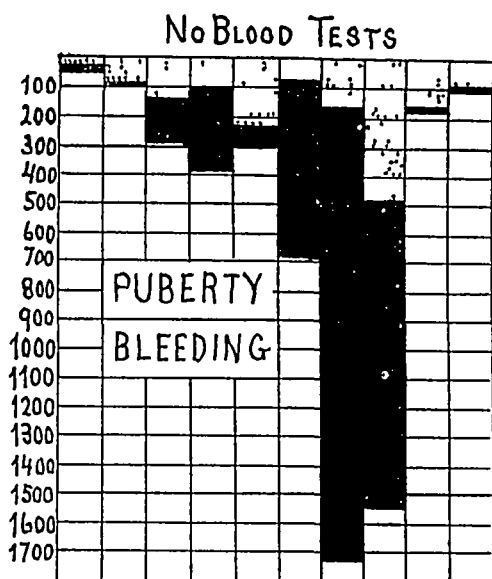


Fig 9—Puberty bleeding overfunction shown by excessive excretion of estrogenic substance (5330 mouse units in black). The stippling shows amount excreted by a normal woman and superimposed as a contrast

times the normal size the labia resembling a split scrotum a funnel-shaped introitus and brandlike high fourchette. In spite of these well marked stigmas of external pseudohermaphroditism and of serious general endocrine disturbance the patient was cured and later had her ovaries resected for menorrhagia. A year later insufflation tests were performed because she had not conceived

To avoid gross mistakes of this kind, it is essential to train the eye to recognize the various types that may still be considered normal, although they may merge into those suffering from actual endocrine disease

A nontechnical classification is as follows

Normal feminine

Infantile with excessive trunk length

Eunuchoid with excessive extremity length

Masculine, harsh voiced phlethoric, hirsute

Acromegaloïd

Thyroid ( $\pm$ ), myxedemoid ( $-$ ), basedoid ( $+$ )

In order not to be misled, we try to obtain photographs of the patient at various ages and, whenever possible, compare the given individual with other members of the family for nature permits itself wide variations in type, both racial and familial. In this way a tall individual coming from a tall family would not *eo ipso* be classified as eunuchoid or a short thick-set individual in whom all the members of the family show similar traits without symptoms will not, offhand, be classified as a Froehlich type of individual

In seeing a large number of patients suspected of endocrine disturbance, the experienced diagnostician will not find it necessary to subject every individual to a complete workup. In what appears to be a mild transient disturbance, whether menorrhagia, amenorrhea, sterility after short periods of marriage or the like, often merely a thorough physical examination is given and further study is postponed in the hope that spontaneous rectification will take place during observation

Whenever the duration of the disease, however, has been longer or when real endocrine stigmas are noted, certainly in any endocrine clinic, more detailed studies must be undertaken. In the main these consist of complete physical examination, blood count including differential count, anthropometric measurements, basal metabolic tests, a roentgen examination of the sella turcica, fundus and visual field examination, and always in obesity cases a sugar tolerance test (Janney)

After these data have been obtained we decide whether a hormone test extending over an entire cycle or, if the patient is amenorrheic, over a period of five weeks, is indicated

The roentgenogram of the sella has been particularly useful. During the course of each year we pick up several silent pituitary neoplasms which usually mask under the guise of an innocent amenorrhea or obesity, not infrequently a combination of the two

E W, a woman, aged 22, had had amenorrhea for five years. A roentgenogram of the sella showed an enlarged floor and marked thinning out of the sphenoid. At operation a pituitary tumor was removed

E S, a woman aged 23, had one child nine months before and had been bleeding excessively since. The patient was 5 feet 4½ inches (164 cm) tall and weighed 223 pounds (100.7 kg). A hormone study was made in which no blood cycle was noted and only 405 mouse units of estrogenic substance was excreted in the urine (one third of the normal). A previous sellar roentgenogram showed a very large sella. There was some blurring of the right ocular disk although vision was not yet impaired. Perimetric examination showed concentric diminution of the visual fields

The patient was then lost sight of. I have since learned that she has had a resection of the ovaries performed for the bleeding at another institution where apparently no attention was paid to the serious endocrine changes, which will eventu-

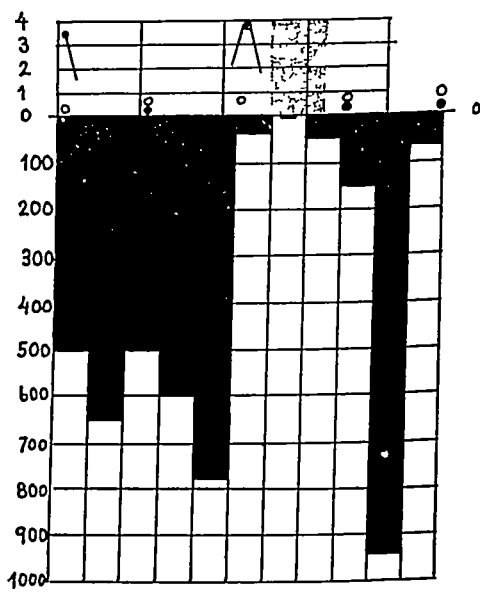


Fig 10—Menorrhagia fifteen day blood cycle excessive excretion (4185 mouse units). Stippled area shows uterine bleeding

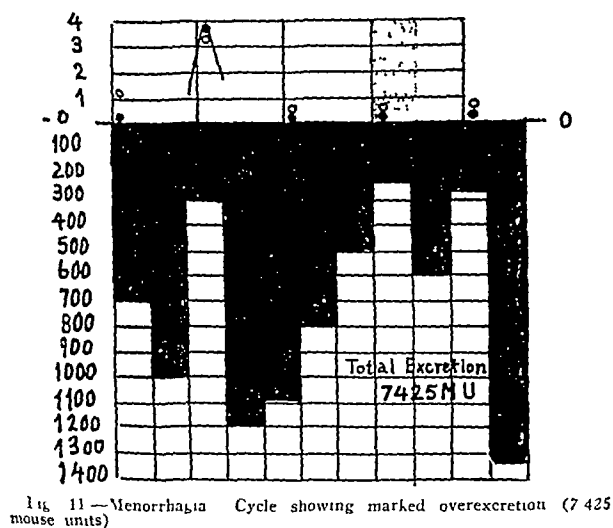
ally lead to typical cerebral symptoms of pituitary tumor from which this patient suffers

**Basal Metabolism**—We always hope, in cases of obesity, to find a diminished basal metabolism. This hope is, however, rarely fulfilled, as the majority of obese patients show a normal metabolic rate and many of them do not tolerate thyroid in any form

In underweight asthenic patients, the basal metabolism is frequently found below normal, at times running as low as minus 20. Our experience has been that in many of these patients, by increasing the protein factor of the diet, the metabolic rate may be restored to normal. Before resorting to thyroid medication, we prescribe this dietary change.

**Blood Examinations**—Whenever in adult patients there is a permanent increase in the lymphocytes this is considered an indication of real endocrine disturbance. This increase, which may reach a total of from 40 to 60 per cent, is found quite regularly in thyroid disturbances of both overfunctional and underfunctional types, occasionally in acromegaly and not infrequently in obesity. While not helpful in actual diagnosis it is usually a warning that a real endocrine malady is present.

**Sugar Tolerance**—In all cases of obesity that do not respond to diet, it is our custom to perform a Janney test after the patient has been on a reduced carbohydrate diet for at least a week. Persistence of a high sugar level in the blood without appearance of sugar in the urine, regularly bespeaks an obesity that will not respond readily to the ordinary dietary measures.



#### TREATMENT

Our hormone studies were undertaken in the hope not only of learning more about the nature of the various diseases studied but also with the expectation that these studies might prove useful in the devising of successful therapeutic measures. Our expectations have been realized only to the extent of preventing self deception as to our therapeutic results and throwing much light on the self limitation of many endocrine disturbances with spontaneous cure. The following dramatic cases will throw some further light on these statements.

R B, a woman aged 22 whose marriage had been sterile for three years had periods of amenorrhea for from six to three months. The patient was of the infantile type. She was 4 feet 11 inches (150 cm) tall and weighed 93 pounds (42.2 kg) normal 113 pounds (51.3 kg). The basal metabolism was minus 2 per cent. The blood pressure was 120 systolic, 98 diastolic. The Janney test showed a high sugar tolerance. Sellar roentgenograms were normal. The blood was normal. During a period of amenorrhea there was no accumulation of estrogenic substance in the blood. A urine test was not performed as this was in 1929. The patient was observed for the next two and one half years without any treatment. Menstruation has become normal and she has given birth to a normal child.

J F, a girl aged 17½ years, had never menstruated. Her sister menstruated at the age of 12. There was a slight indication of eunuchoidism. The basal metabolism was minus 12 per cent. The patient was distinctly overweight. After three months' observation, menstruation set in and has remained normal.

A R, a girl, aged 15 years, referred to us because of a possible basophilic adenoma, was markedly overweight. There was definite prognathism. The shoulders were heavy. There

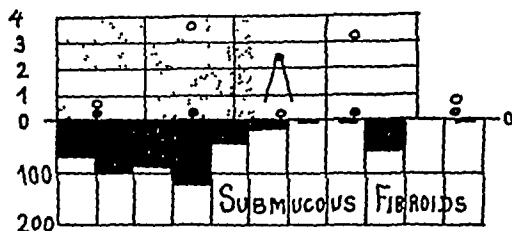


Fig. 12—Menorrhagia due to fibroids. No sign of ovarian overfunction.

was a slight dorsocervical kyphosis. There was diffuse sparse hirsutism and escutcheon. The sella turcica was normal. There were moderate striae on the abdomen. The sugar tolerance was normal. There was early closure of the epiphyses (like 18 years). The basal metabolism was minus 3 per cent. No treatment was given except reduction in weight. After 30 pounds (13.6 Kg) was lost normal menstruation began and has continued.

E H, a woman aged 29, unmarried, had had menses since she was 13½ years old. Amenorrhea had been present for one year. There was hirsutism. The blood count was normal. The basal metabolism was minus 8 per cent. The genital tract the sella turcica and the weight were normal. The patient bled after the first interview and has continued to menstruate since then.

E M, a girl aged 15½ years, has eight normal sisters and brothers. She has frequent temporal headaches. The patient was 4 feet 7 inches (139.7 cm) tall and weighed 66 pounds (29.9 Kg), normal 110 pounds (49.9 Kg). There was no axillary hair, and only a few sparse pubic hairs. The breast development was that of a girl from 5 to 6 years of age. The uterus was extremely small. The basal metabolism was plus 19 and plus 38. Roentgenograms of the sella were negative and of the long bones showed no delay of development or epiphyseal union. The patient was put on increased nourishment and began to menstruate normally after five months.

R L, married, had had amenorrhea and been sterile for five years. When first seen she was found three months pregnant and was delivered at term.

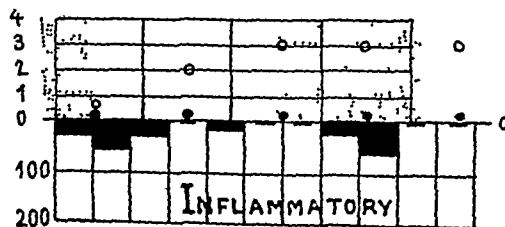


Fig. 13—Menorrhagia and metrorrhagia due to pelvic inflammation. No sign of ovarian overfunction.

L P, aged 32, had one child, aged 17 years. The patient was obese and showed hirsutism, general and of the face. She had had amenorrhea for one year. The basal metabolism was minus 12. The sugar tolerance and blood count were normal. She was abdominous and had short arms and legs.

The patient received various estrogenic substances during 1927. During 1928 she lost considerable weight but the long periods of amenorrhea continued. In 1931 she became pregnant and was delivered of a full term child in August 1932. She was delivered of another child in October 1933.

These few cases, selected out of many, illustrate the spontaneous recovery from obscure endocrine conditions, which in some of these patients appeared grave. We must again emphasize that, had any medication been given, these spontaneous cures would have been ascribed to the treatment. This type of case should act as a full reply to the numerous questions put to us as to how to explain almost miraculous results from various treatments in isolated cases, because every physician encounters surprising response to "therapy" in isolated instances. Unless one is extremely critical, the results so often accidental are regularly ascribed to the therapy.

In marked contrast to the foregoing, a few cases in which futile attempts at therapy were practiced are worth quoting. Some were based on carelessness and incompleteness of diagnosis. Others may be ascribed to the extreme optimism shown by many physicians.

M. C., aged 31, had been subjected to supravaginal hysterectomy for fibroids. This rather stupid patient consulted a physician, who found out that she no longer menstruated and thereupon gave her a long series of injections of Amniotin in the form of estrogenic substance, to bring back the menses."

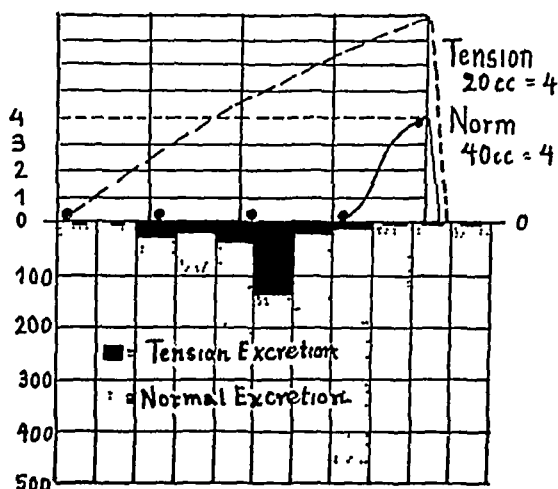


Fig 14—Contrasting premenstrual tension and normal function. Normal estrogenic substance in blood shown by solid line. Tension estrogenic substance in broken line. Tension shows increased estrogenic substance in blood. Decreased excretion 300 mouse units (solid blocks) compared to that of normal female (1500 mouse units).

A young woman aged 20 came to our endocrine clinic complaining of primary amenorrhea. She had been given a long course of anterior pituitary-like principle from the urine of pregnancy and theelin by various private physicians without result. Pelvic examination showed absence of the vagina.

A. B., aged 29, unmarried, complained of increase in weight and amenorrhea for the last eight months. She had been treated for obesity by diet and dimetrophenol, and had also been given thyroid extract. On examination this patient was found seven months pregnant.

Let these few cases suffice in showing to what extent "hormone therapy" is practiced without proper criteria.

#### "ESTROGENIC" SUBSTANCES

**Endocrine Remedies**—Needless to say, we have tested out both in the laboratory and in the clinic the usual endocrine products as they become available. Until quite recently all the remedies taken by mouth contained no active principle whatever.

Within the last few years, the estrogenic substance in considerable concentration has become available in tablet form, as for example Progynon tablets, or in pessaries for vaginal absorption, in Amniotin pessaries.

For hypodermic injection, the estrogenic substance is dispensed under the name of theelin, Amniotin, Progynon, Menformon, and the like, and can be obtained in strengths varying from 150 to 1,000 mouse units per cubic centimeter, in remarkably pure form. Such a preparation certainly appears attractive. In our clinic it has been used on considerable groups of patients for amenorrhea, oligomenorrhea, excessive bleeding and the symptoms of the menopause. In none of these conditions have we found it of real and convincing value.

Our studies on animals have shown that when as much as 20,000 mouse units of estrogenic substance is injected into the circulation of a castrated rabbit, the hormone disappears from the circulation within half an hour. When such an animal is killed twenty-four hours later and its tissues are completely extracted, barely a trace of estrogenic substance can be recovered.

In two instances, female volunteers submitted to the injection of large doses of estrogenic substance. One was a fertile menstruating woman in whom no increase of excretion could be noted during a month, although the injections were spaced at weekly intervals. In the other, a markedly asthenic young woman amenorrheic for two years about one fifth of the total injected dose (40,000 mouse units) was eventually recovered from the urine.

Our clinical and animal results are discouraging. We feel confident that to produce an actual menstruation in the castrated human female will require the 250,000 mouse units that Clauberg<sup>20</sup> found necessary to employ and then that no benefit will accrue to the patient.

Were we inclined to use this therapy in functional amenorrhea after serious endocrine diseases such as pituitary tumors had been excluded, we would give a total of 15,000 mouse units divided in three doses, injected every other day during one week. These injections would then be repeated at intervals of five to six and seven weeks, in the hope thus to strike a time at which follicular growth was actually occurring and the therapy prove an adjunct to the normal but subthreshold cycle. However, it should be kept in mind that conclusive experiments have shown<sup>21</sup> that continued high dosage of estrogenic substance has a distinctly sclerosing effect on the ovaries. The permanence of this unwished for effect has as yet not been fully determined.

We agree fully, therefore, with the opinion expressed in the admirable summary issued by the Council on Pharmacy and Chemistry.<sup>21</sup>

**Anterior Pituitary Hormone**—The true anterior pituitary hormone has not as yet been isolated in such a form as to be available for therapeutic use.

As a substitute, the anterior pituitary-like hormone obtained from the urine of pregnant women and dispensed under the form of Antuitrin-S, Follutein, Prolan, and the like has been extensively employed.

Laboratory investigation has shown that the anterior pituitary-like hormone (it is denominated prepituitary-like because in the absence of the pituitary in the test animal the prepituitary-like hormone does not exert a full effect) produces ovulation and corpus luteum formation, particularly in rodents. Unfortunately, as the studies of Geist<sup>22</sup> have shown, the effects on the human being are distinctly different, even when huge doses are given. This investigator found that in the human being some interstitial bleeding into the ovarian stroma and some increase in theca cell luteinization took place. Just what physiologic effects are produced by this change, he was as yet unable to determine. Clinically no effect could be noted.

<sup>23</sup> Kunde M. M. D. Amour F. E. Gustavson, R. G. and Carlson A. J. Effect of Estrin Injections on Reproductive Organs: Hypophysis, Kidney, Adrenals, Thyroid and Blood Vascular System. *Proc Soc Exper Biol & Med* 28: 122 (Nov.) 1930.  
<sup>24</sup> Estrogenic Substances. Theelin. Council on Pharmacy and Chemistry. *J. A. M. A.* 100: 1331 (April 29) 1933.  
<sup>25</sup> Geist S. H. Reaction of the Mature Human Ovary to Antuitrin S. *Am J Obst & Gynec* 26: 588 (Oct.) 1933.

Although much lauded in the literature (Novak and others), our own experience with prepituitary-like hormone has been unsuccessful in functional bleedings. This is readily understood when we are once aware that the expected corpus luteum formation, which at best should not produce more than what is called "dumb rut" in animals, does not result.

Various other endocrine constituents have been tried by us in gynecologic diseases. Our experiences with insulin and parathyroid extract have been quite unconvincing and have been discontinued.

#### RECOMMENDED METHODS OF TREATMENT

**Underfunctioning Ovaries**—Those amenorrheas due to obesity, asthenia or depressed thyroid function usually respond promptly to treatment. The obesities require strict limitation of carbohydrates and fats, with a sufficient amount of protein to keep up strength and energy. We recommend slow but continuous loss of weight, at the rate of 1 pound a week, until the normal weight has been reached.

Such a diet requires minute instruction, a detailed dietary and occasional encouragement at personal interviews. The asthenic patients, a less numerous group likewise require stressing of the protein factor of the diet but in addition sufficient carbohydrates and fats. The patients whose thyroid function is definitely reduced (minus 15 or lower) usually respond very promptly to thyroid medication. We find no advantage in giving thyroxine, usually employing the desiccated thyroid substance. Every eight to twelve weeks a basal metabolism test should be taken.

With the exception of these three types of patients, our therapy in amenorrhea as well as in sterility has not shown the slightest results. We exclude deliberately the spontaneous recoveries that are so frequently accepted as therapeutic triumphs.

It is quite possible that the amenorrheas and sterilities due to underfunction of the ovaries may respond to anterior pituitary medication when this becomes available. The giving of "estrogenic" substances appears entirely illusory and at best even in the highest dosage could bring about only a single anovular "menstruation."

Dysmenorrheic patients are best relieved by putting them into good condition. This applies especially to the asthenic group.

In addition a combination of small doses of codeine with coal tars, as for example codeine, one-fourth grain (0.016 Gm.), amidopyrine, acetphenetidin and acetylsalicylic acid, 2 grains (0.13 Gm.) of each, may be repeatedly given during the time that pain is felt. At the same time one or more doses of  $\frac{1}{500}$  grain (0.0003 Gm.) of atropine may be given by mouth until dryness of the throat is noted. None of the many other methods of treatment recommended such as operations on the cervix (Dudley, Pozzi, Blair Bell), nor the many antispasmodics lauded for these complaints have shown any effect. Occasional dilation without curettage, gives temporary relief over the next few succeeding periods. Twice in the experience of the senior author has it been necessary to induce permanent amenorrhea (once many years ago by double oophorectomy, once by roentgen sterilization) because of the incapacitating suffering. Morphine should never be given to these patients.

**The Menopause**—From our hormone studies we realize that the menopause even when the symptoms are alike may show entirely different humoral conditions. None of the recommended endocrine preparations either estrogenic or gonadotropic have proved effective. Reassurance, long continued use of mild sedatives such as bromides and phenobarbital, hot alcohol rubs and occasional small doses of ergot, from 3

to 5 drops three times a day for two or three days, interrupted for a week, have shown the most satisfactory effect.

**Overfunction of the Ovaries**—Premature puberty, if due to so-called essential causes, requires no treatment. When it results from ovarian tumors, these must be removed. We have encountered no premature sexual maturity due to pineal growths.

The puberty bleedings require long-continued care. When first seen in a condition of marked anemia (hemoglobin from 25 to 30 per cent) transfusion is indicated. Today chief reliance is placed on the moccasin venom treatment devised by Peck,<sup>26</sup> which, if long continued, regularly controls these bleedings. Occasionally curettage, in order to give temporary relief of the bleeding, may have to be practiced. After these patients reach the sixteenth, seventeenth or twentieth year, they one and all become normal.

**The Functional Bleedings of Maturity**—It is important first to rule out organic lesions, which is not always easy. The gonadotropic hormones, frequently lauded for these complaints, in our hands have proved ineffective, which, considering the fact that if active they should further stimulate the already overacting ovaries, is not surprising. These patients require treatment along strictly gynecologic lines.

In the milder troubles, bed rest, ice bags or short hot douches may be tried. Next, thorough curettage is indicated. If this brings only temporary relief, we have repeatedly, even during the child-bearing age, reduced the functioning of the ovaries with carefully applied x-rays, which in the hands of the expert can be accurately graduated to produce reduction of bleeding, oligomenorrhea or amenorrhea as desired, in women below 35 years of age. A number of these women have later borne normal children.

The preclimacteric bleedings that appear on the same basis as the puberty bleedings, namely, overfunction, should be treated by curettage, and, as these patients are approaching the menopause, no hesitation need be felt in using sterilizing doses of x-rays.

**Premenstrual Tension**—In this comparatively small but clear-cut group, relief can be obtained by giving a saline cathartic a week or more before the anticipated menses, at the time that the "tension" is most annoying. After, for example, a bottle of magnesium citrate is taken, no fluids must be ingested until the bowels have moved freely at least twice. Then for the next few hours the patient should drink large quantities of water, tea or coffee. A surprising degree of well being results from this simple treatment.

#### SUMMARY

Quantitative hormone studies show the humoral status before and at puberty, during maturity and after the menopause.

Functional genital disturbances are of two types—underfunction and overfunction.

Both types are primarily due to disturbances of the anterior pituitary cycle, the ovarian cycle being secondarily affected.

Emphasis is placed on the accurate "size up" of the individual studied and on other laboratory aids which help in the recognition and evaluation of congenital and acquired endocrine stigmas.

<sup>26</sup> Peck, S. M. and Coldberger, M. A. The Treatment of Uterine Bleeding with Snake Venom. *Am J Obst & Gynec* 25: 887 (June) 1933.



Examples of spontaneous recovery without treatment are featured, as, in our opinion, they account for the majority of successes currently ascribed to endocrine therapy in functional genital disturbances of the female

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## A NEW TREATMENT OF TRAUMATIC DERMAL MYIASIS

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Myiasis is defined as the invasion of any part of the body of man or animals by dipterous larvae (fly maggots). Traumatic dermal myiasis is the invasion of wounds or ulcers of the skin by these larvae. Maggots invading skin wounds and ulcers will also penetrate into the underlying exposed tissues. The presence of these organisms accentuates the putrid condition of the sores and the suffering of the patient and, not infrequently, considerable quantities of tissue may be destroyed by their feeding activities.

One of the earliest published references to traumatic dermal myiasis was that of Joseph<sup>1</sup> in 1800, and a large number of similar observations have been published since then, especially by medical practitioners and investigators in the warmer regions of the globe. Traumatic dermal myiasis is of common occurrence in the southern part of the United States. However, entirely too often it is not accurately diagnosed, especially when the maggots are deeply embedded. When it is noticed frequently only a small number of larvae, those on or close to the surface, are removed, the others remaining undiscovered and thereby escaping treatment and subsequent removal.

Usually the treatment of this type of myiasis is very briefly described in medical textbooks with the information that the infested wounds are treated with antiseptic douches, the larvae being subsequently removed with appropriate instruments after which an antiseptic dressing is applied. Actually, a number of different treatments for this condition are widely used. One of the most highly recommended of them, and the one that has been the most satisfactory thus far, is irrigation of the wound with 20 per cent chloroform in sweet cow's milk. The fat in the milk tends to stifle the embedded larvae, which consequently attempt to leave the wound and in so doing are killed by the chloroform. They are then removed with forceps and the wound is dressed with an antiseptic dressing. Some of the other more commonly used methods of treatment are surgical removal of the maggots, and douching or irrigating the infested wound with chloroform, benzene, infusion of pyrethrum, turpentine, 2 per cent phenol (carbolic acid) infusion of basil (*Ocimum basilic*) and even salt water. Following such irrigations the wound is washed with luke warm water and an antiseptic dressing is applied.

A year and a half ago, during our term of service in the orthopedic division of the Jefferson Davis Hospital of Houston, Texas, cases of traumatic dermal myiasis were seen from time to time, and being dissatisfied with the milk-chloroform treatment, because

the preparation had to be made up fresh for each treatment and because from two to four treatments were usually necessary for each case, we made an attempt to find some more satisfactory method.

In the search for a new douche the following requirements were kept in mind: a substance that would cause the maggots to leave the deeper portions of the wound and that would kill them before they could completely escape, a substance that could be made up in quantity and would remain stable over a considerable period of time, and a substance that would have a soothing effect on the wound.

After considerable experimentation a satisfactory diluent, or vehicle, for the chloroform was found in light vegetable oil, any light oil of vegetable origin seems to be equally effective. In this substance the chloroform is entirely soluble, whereas in milk it is practically insoluble. Milk contains about 87 per cent water, and chloroform is so slightly soluble in water that only 0.66 Gm. will dissolve in 100 cc. of water at 22 C. If kept in a closed container, the chloroform-vegetable oil solution will keep indefinitely. When applied to a wound, the oil in the solution has a very soothing effect on the raw tissue. Owing to the solubility of chloroform in vegetable oil, only 15 per cent chloroform need be added to the diluent instead of 20 per cent, as when milk is employed in this capacity.

Seventeen cases of traumatic dermal myiasis have been treated with this mixture in the following way. When the infestation is on an extremity so that the entire part can be submerged in a vessel containing the chloroform-vegetable oil solution, this is done for thirty minutes, but when such a procedure is not possible the wound is kept flooded with the substance for the same length of time. In the latter event such flooding can be facilitated by first douching the cavity of the wound and then placing a flat gauze dressing over the wound and keeping it saturated with the douche. At the end of thirty minutes the dead maggots can be picked off the surface of the wound or out of the flat dressing, as the case may be, and the wound is dressed with a sterile bandage. In every case tested, all the larvae were removed from the wound in a single treatment, which is rarely the case when chloroform and sweet milk are used. In thirteen of these cases so treated, maggots were reared and the adults were identified as Texas screw-worm flies (*Cochliomyia macellaria* Fabr.).

This method has been employed to remove "surgical maggots" that have been placed in osteomyelitis for therapeutic purposes, with equally good results.

### SUMMARY

A new douche, composed of 15 per cent chloroform in light vegetable oil, has been employed in the treatment of seventeen cases of traumatic dermal myiasis. In every case all the maggots were removed with a single treatment, extending over a period of thirty minutes, such results are very rare when 20 per cent chloroform in sweet cow's milk is used.

The new douche has further advantages over the commonly used chloroform-milk solution in that chloroform is entirely soluble in vegetable oil and only slightly soluble in milk, in that the chloroform-vegetable oil solution is very stable and can be kept indefinitely in closed containers, whereas the chloroform-milk mixture has to be made up fresh for each application, and in that the vegetable oil is very soothing to the raw tissue of the infested wound.

<sup>1</sup>From the Rice Institute  
Joseph Myiasis Externa Dermatosa Hamburg 1800

# ADOPTION PRACTICES AND THE PHYSICIAN

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In this article adoption is considered in its purely human aspects as it concerns the medical profession. The relation of adoption to legal inheritance is beyond its province.

It is generally conceded that there is no social institution that can be regarded as an adequate substitute for the home in the training and socialization of children. There was a time when the inability of parents to support their children was considered a sufficient reason for the placement of the children outside the home. What such a policy would mean during the present crisis of unemployment must be apparent to all. There is a general agreement at present that, in instances in which it is necessary, children are best safeguarded by the conservation of the home through relief or social case work, with the exception of that small minority of instances in which the home is unfit.

There are certain children whose parents are dead, insane, feeble-minded, invalided, or otherwise unfit or unavailable for whom this solution is impossible. There is also the problem of the children of illegitimate unions and the community attitude which stigmatizes the unmarried mother and the bastard child. In the instances in which for certain reasons a child's own home is unavailable for its nurture, the first consideration should be the possibility of substituting another family home for the one it has lost.

Haste in the separation of an illegitimate child from its mother is rarely a virtue. In the pressure and turmoil following the birth of an illegitimate child an unmarried mother may give consent to its adoption and may deeply regret her consent a year or two later when she may be in a position to care for the child. The careful mustering of available resources during the pregnancy may prevent precipitate and probably permanent separation of the mother and child. Immediately after the birth of an illegitimate child the barriers to the care of the child within the family may seem immeasurably high to the mother, yet the solution may not be difficult later.

The interest of the child and of the community (the two are commonly identical) should be considered paramount in the placement of children for adoption. The interests of the adoptive parents and of the original parents, while worthy of consideration, are secondary to these. The problem of placement for adoption is the problem of the selection of the most suitable home available for a given child.

The problems of adoption practice are so interwoven that they do not readily lend themselves to formally organized discussion. In this paper an attempt will be made to consider the adoption procedure under the headings "Investigation of the Home," "Investigation of the Child," "Individualization of Placement," and "The Probationary Period." Some overlapping of discussion can scarcely be avoided.

## INVESTIGATION OF THE HOME

The responsibility involved in placing a child in an adoptive home is a grave one. The child is defenseless, and the power of the adoptive parents is almost

unrestricted. The placement will determine the future course of the life of the child.

The adoption of a child, like other human acts, proceeds from a motive. The motive at times may be but dimly recognized by the prospective parents. Children are adopted to fill a need or to serve a purpose in the lives of those who adopt them. In judging the suitability of prospective adoptive parents, an estimate of the motive for desiring a child is essential. An attempt should be made to judge the probable effect on the child of the emotional attitudes indicated by this motive. Sometimes the adoption of a child is sought from a motive that is grossly improper, as in the following.

The widow of a wealthy man, in order to receive a large share of his estate, secured a child and pretended that it was the posthumous child of her deceased husband. Another case found during the investigation illustrates how children secured from doctors, hospitals, and individuals are used in dishonest schemes. A woman lived with a man who was not her husband. The man was killed in a railroad accident. The woman came to Chicago and secured a child from a hospital for the purpose of proving that the child was the heir. At the time the child was discovered this woman was living with another man to whom she was not married. The baby, in a neglected condition, was removed from this woman's home to a hospital. The mother of the child was afterward found. She said that she had paid the hospital for disposing of the child. As the mother herself was unable to care for the child it was turned over to the Catholic Home Finding Association. This society placed it in a good home for adoption, after the family had been thoroughly investigated.<sup>1</sup>

More frequent, more subtle to detect, but scarcely less dangerous to the child are the many instances in which the motive of the adoptive parents deviates less obviously from ethical standards, as in the following.

CASE 1—A, a boy, was adopted from an orphanage when he was between 13 and 14 months old. The adoptive father had long wanted a son. The couple had a daughter of the same age as the adoptive child, and the adoptive mother believed she was not capable of bearing any more children. The adoptive mother thought that if they would take a boy in to board perhaps her husband would be "different," less quarrelsome and sarcastic, and would be easier to get along with. Her husband suggested that they adopt a child outright. The adoptive mother visited an orphanage armed with a letter from a state's deputy. She was given the child without investigation, information about the child, or follow up. The disharmony between the parents increased. The adoptive father became a habitual drunkard, was divorced by his wife, and was finally taken to a psychopathic hospital where a classification of chronic alcoholism with deterioration was made, and he was adjudged insane. The adoptive mother remarried. A was referred to the institute at the age of 13. The problems presented at this time were unmanageability at home, resentment of his step-adoptive-father's discipline, stealing and an episode of serving as a screen for a professional thief. He was very restless and had no friends.

The following case also exemplifies the adoption of a child for ulterior motives, and incidentally the placement of a child unsuitable for adoption.

CASE 2—B, a girl aged 22 months, was adopted from an orphanage. The adoption was carried out on the insistence of the father's employer who thought it was just the thing for the family. The adoptive father urged it on his wife, thinking it would give him a permanent position. B was the youngest of five children. Her father who came from a demoralized rural family of low mentality, liberally besprinkled with alcoholism, feeble-mindedness and illegitimacy, deserted his wife and children. The mother was refused aid by the charities.

because of alleged immorality, and was referred to the juvenile court. One of the children, a girl, was found to have gonorrhea and was treated, cured, and committed to a child-placing agency. The remainder of the children were committed to the care of the orphanage from which B was obtained. B was referred to the institute by the adoptive mother at the age of 6 because of failure of school progress. The adoptive mother was high strung and nervous, and wished to be rid of the child. A child protective agency had received complaint that she abused her. The psychometric examination of B revealed a mental age of 3 years and 10 months on the Stanford-Binet, giving an intelligence quotient of 58, classification, feeble-minded. The child was affected with a mild degree of stuttering and infantile mispronunciation. The adoptive parents sought to return the child to the orphanage and succeeded in returning her to her natural mother. The latter desired to resume legal custody by adoption. This is possible in Illinois only by the joint petition of the husband and wife. The whereabouts of her husband are unknown. She sought to avoid this requirement through a divorce but has not had the funds necessary for court costs. The adoptive parents who have no interest in the child, remain her legal guardians with full parental authority, although she is under the actual care of her natural mother.

Perhaps the crucial criterion is the ability of the parents to see in the child something more than a satisfaction of their own needs; the ability to recognize in the child a separate personality, with needs of its own. While some desire to relive through the child is perhaps usually present in, and normal to, parent-child relationships, prospective adoptive parents who give the clear and immediate evidence of a predominant desire to work out their own thwarted ambitions through a child should be considered unfit. On the other hand, a degree of parental pride in the achievements and accomplishments of a child is natural and desirable. It is therefore advisable, so far as possible, to place children with parents who will value the degree of achievement of which the children are capable.

The recognition of motives is often not easy. Prospective adoptive parents may not recognize their own motives in seeking a child, or, recognizing them, they may seek to conceal them. To estimate motives requires an adequate acquaintance with the prospective parents to sense the goals, values and frustrations that determine their attitudes and color their lives. The family physician is in an advantageous position for such an estimate. Of particular importance is the type of family organization in which each of the prospective parents grew up and the attitude he held toward his own parents.

The people who seek children for adoption cannot be assumed to be an average sampling of parents in the community. They differ as a group in being older and in being childless in most instances. In this connection, the role of venereal diseases in the production of sterility should not be forgotten.

A couple who have waited for years in the hope of having a child of their own and who are seeking a child for adoption are likely to be overprotective and oversolicitous toward a child that is placed in their home. Such a situation is not conducive to the development of good character. The position of such a child is an exaggeration of the usual position of an only child. Whereas the placement of a child in such a home may be of value to the parents, it will commonly be damaging to the child, as in the following instance:

CASE 3—C, a boy, aged 21 months, was referred to the institute by a child-placing agency for a routine examination previous to placement for adoption. The child was the son of a mentally retarded, suggestible Jewish girl and a gentle father about whom little is known other than that he practiced

a skilled trade. C was in good physical health. Psychometric examination resulted in a mental rating of 20 months, classification, probably slightly below average. There was some doubt as to whether or not the child was doing his best during the examination. Placement, with a view to adoption, in a middle class family was recommended, the adoption to be postponed until after reexamination one year later. The boy was referred for reexamination at the age of 3 years 4 months, intelligence quotient, 108, classification, high average. His adoptive mother, a barren woman who had been an only child but had not received in childhood as much affection as she desired was extremely overprotective, following the child about continually, calling him "lover," and asking his advice about every decision she made. She refused to permit a physical examination because the child had been recently examined and had created a fuss. The child was, obviously, very much spoiled. The adoptive mother was antagonistic to suggestions that her actions might be overprotective. She was afraid that he would not love his adoptive parents if he learned of his adoption. She wept in speaking of this and said that nothing mattered in her life except the child. It was felt that she would resent and resist any effort to modify her attitude or her behavior toward the child.

The adoptive parents who experience a sense of virtue in fulfilling the physical needs of an orphan child, yet have no appreciation that a child needs affection may be equally dangerous.

The social investigation of a prospective adoptive home is a task for which a social case worker is fitted by training. It is desirable that the responsibility for this portion of the adoption procedure be undertaken by social agencies that are properly equipped to handle it. In almost every state, even in the rural communities, such service is available, through either a state or a private agency.

The physician who has a broad understanding of people and their attitudes may nevertheless be invaluable in the estimation of the suitability of an adoptive home. Physicians are often called on by child-placing agencies to provide information about homes with which they are familiar. In this role the physician should give heed to the personalities and any apparent personality defects of the prospective parents with consideration of their probable effect on a child. Of great importance is the adjustment of the parents to each other. In the home in which there is a conflict between the parents, the child is often used as a pawn in the contest and suffers accordingly. Without a reasonable agreement between the parents on methods of training, the proper training of a child is usually impossible. It is important that the parents have, or be capable of developing, an understanding of children and of what may be reasonably expected of a child. It should be remembered that an assumed attitude will not hold up under stress. Homes in which both parents do not desire the adoption are usually unsatisfactory.

It is necessary that the adoptive parents have not only the will but also the power to give the child a fit home. This involves, in the first place, a state of reasonable health and a reasonable expectancy of a healthy life until the period when the child may be expected to become independent. Obviously a child should not be placed in a home in which either parent is suffering from open tuberculosis or is in an infectious condition with a venereal disease. It is not the custom of most child-placing agencies to require real evidence of the physical fitness of the prospective parents. Considerations of humanity would suggest that the community should demand, before the placement of a child in an adoptive home, at least that degree of investigation of the physical fitness of the parents that a life insurance

company would demand before risking its money. Mental deficiency, drug addiction, epilepsy, alcoholism, or any chronic and incapacitating disease should be considered as disqualifying an adoptive parent. It would seem that the adoption of children should be denied prospective parents who have at any time been insane.

It is, of course, further a prerequisite that the prospective adoptive parents be capable of providing the child with the necessities of life, and with educational and other advantages more or less commensurate with the standards of the community in which they live. Certain child-placing agencies require that adoptive parents have or take out an insurance policy for the protection of the child.

If a child is desired for a childless home, serious consideration should be given to the question of whether or not the adoptive parents are apt to have a child of their own. Such an event (filling the need for which the child was adopted) commonly places the adoptive child in a disadvantageous position. In the event that the adopted child displays jealousy of the natural child, or in the event that rivalry develops between them or that the level of behavior or accomplishment of the adopted child is less favorable than that of the natural child, the most broad-minded parents may find it difficult to avoid partiality toward the latter. When the adoption of a child is contemplated by a couple who already have children of comparable age, it is essential that the prospective adoptive child compare not unfavorably with the natural children.

Unmarried, divorced or widowed persons sometimes seek children for adoption. Each case should be considered on its own merits, but with the realization that in general the family set-up is the most successful.

In cases in which the suitability of parents is doubtful or perplexing, there is an advantage in consultation with a psychiatrist experienced in parent-child relationships.

#### INVESTIGATION OF THE CHILD

Although the interest of the adoptive parent should not be paramount in determining placement, it is apparent that there are obligations to an adoptive parent that should be considered in making a placement. The placement of a mentally defective child for adoption obviously is a grave injustice. It should be recognized that if prospective adoptive parents are not an average sampling of parents in the community, prospective adoptive children probably are even less so. This statement should not be taken to imply that there are not many possible adoptive homes of superior quality nor many children of superior endowment who need placement for adoption. It does imply the need for the exercise of care and caution in placement for adoption, both from the point of view of the child and from the point of view of the parents. Whereas illegitimate children are born to adults in every level and walk of life, feeble-minded girls and women in the community are notoriously apt to produce them. The factors that are responsible for the dependency of children are frequently associated with poorer rather than with better heredity, e. g., commitment of a parent to an institution for epileptics.

CASE 4—D, a boy aged 4 years was adopted by his maternal aunt and his uncle by marriage. The elopement and marriage of his parents which occurred after a few hours courtship was the result of a bet by the father a shell-shocked ne'er do well who rarely worked that he could 'make' the mother, a pretty waitress. The parents separated after the

mother was infected with a venereal disease. At the age of 1½ years D had cerebrospinal meningitis, and he lost the power of speech, which he was beginning to develop. For two to two and one-half years after this illness he was unable to walk and his hearing was impaired. He was referred to the institute at the age of 6 by his adoptive father after he was refused admission to two schools. The neurologic examination was negative except for hyperactive tendon reflexes. The psychometric examination revealed a mental age of 2 years and 8 months, which, with a chronological age of 6 years and 10 months gave an intelligence quotient of 39, classification, feeble-minded imbecile group. The feeble-mindedness was ascribed to his attack of meningitis at 1½ years. He was restless and destructive, suggestible and easily led, given to temper tantrums and screaming. He took delight in torturing animals, practiced coprophagia and smearing, and loved to roll in the mud. He did not talk beyond a few monosyllables. At this time the adoptive parents had a baby girl, aged 5 months, of their own. D was very friendly and kind to the baby when others were present, but as soon as their backs were turned he would screw up his hands like claws and reach for the baby's neck. Once the baby was almost choked to death before some one happened in on them. The baby was in terror of D and often got into such a nervous state that the normal functioning of the alimentary tract was interfered with. D's adoptive mother was evidently attached to him and was loath to part with him. He was, in appearance, a very attractive child. The adoptive mother was in poor health and was under considerable strain in the protection of the baby from D. Commitment of D to a state institution for the feeble-minded was recommended.

Certain states make legal provision for the annulment of adoption within a specified period, i. e., five years after its completion in event the child proves to be mentally defective or epileptic. In states in which legal provision is made for the annulment of adoption, greater liberality might well be extended in permitting its completion.

No placement for adoption should be permitted until a reasonable effort has been made to ascertain whether the child is suitable for adoption. Such an effort should include the exploration of the family history for hereditary diseases, such as amaurotic family idiocy and Friedreich's ataxia, and for mental deficiency, epilepsy, alcoholism and insanity. An effort should be made to estimate the quality and social competence of the immediate relatives. The developmental history of every child placed for adoption should be scrutinized and, of course, the child should be subjected to a medical examination. Special attention should be paid to the possibility of sensory defects. Serologic tests for syphilis should not be neglected.

The behavior of the child should be noted, with an eye to estimating his aggressiveness or timidity, sociability or seclusiveness, adaptability, emotional stability, response to various measures of control and other characteristics that may be of importance in determining his adjustment in a home. Organizations undertaking placement of children for adoption should furthermore have available the services of an adequately trained clinical psychologist, to insure that feeble-minded children shall not be adopted. Caution should be used, however, in giving an unfavorable prognosis with young children of low intelligence quotients who have been in institutions or in homes that have given them little opportunity for development. The intelligence quotient of such children may show an improvement after a period of placement in a good home.

Aside from children who are mentally deficient or epileptic, blind or deaf, there are few who can be considered necessarily and permanently unsuitable for

adoption There are a number who have physical defects, which, if possible, should be remedied before placement for adoption, or, if this is impossible, of which adoptive parents should be apprised

#### INDIVIDUALIZATION OF PLACEMENT

Children are individuals and must be treated as such. A child may make a failure of adjustment in one home and a success in another, yet the first home may be entirely satisfactory for the placement of another child. In considering placement for adoption, an effort should be made to consider how the needs and abilities of the particular child would be met in the home under consideration and how the prospective parents probably would receive and manage the particular faults of the child. An advance judgment, in this regard, though it may often be misleading, will reduce the number of malplacements. A child is best placed with understanding, tolerant but not effusive parents, in a family of an intellectual and cultural level suited to his probable abilities. Consideration is due the nervous stability and usual level of tension of a child. A highly strung child is usually better placed with not too high-strung parents. Consideration of the individual child's need for affection deserves attention.

With older children, the relation between the standards of behavior which they have developed and those of the prospective adoptive home deserve consideration. Recognition is taken in the Illinois law of the need for an individual adjustment of parent and child by the provision that no adoption placement is legal on a child 14 years of age or older without his consent.

An intelligent child should have the advantages and stimulus of placement with parents who have intellectual interests. On the other hand, the placement of a dull child in a home where a superior level of academic and intellectual achievement is expected is commonly a misfortune. The need for care in this matter and the imperfect reliability of intelligence ratings of young children are revealed in the following case:

CASE 5—E, a girl, aged 3 years, was referred to the institute by a child-placing agency for examination prior to adoption. Her mother was probably feeble-minded and her father was unknown. (The husband of the mother was paralyzed and could not have been the father.) The child had been living in very unfavorable surroundings until 2½ years of age, at which time she was placed with prospective adoptive parents. During the psychometric examination the child was frightened and uncooperative. The examiner estimated that her mental age was not equal to 2 years. A provisional diagnosis of feeble-mindedness was made. It was felt, however, that her retardation might be due to her bad home background and that she might show improvement in a better environment. Reexamination was advised in one year. She was reexamined eight months later. At this time by mental tests, she graded 3 years, intelligence quotient, 88, classification dull and backward. Speech was now fairly well developed. She was reexamined at the age of 4 years and 3 months. At this time her Stanford-Binet was 3 years 8 months, intelligence quotient, 86, classification, dull and backward. It was stated at this time that there appeared to be no contraindication to adoption.

She was referred for examination by her adoptive mother at the age of 16, because of school retardation, untruthfulness and aggressive overinterest in boys. The adoptive parents who had desired to send her to college, were much distressed because of her school retardation and her lack of studiousness and school interest. Psychometric examination revealed a mental age of 10 years and 2 months which gave her an intelligence quotient of 68, classification, feeble-minded. A physical examination revealed a patent hymen and a moderate amount of purulent discharge. Smears were negative for gonococci. It was felt that a factor in the girl's delinquent

behavior was disparity between the ambitions of her adoptive parents and her own ability. She did not measure up even to the minimum requirements of her adoptive mother and lived in an atmosphere of constant criticism. Most of her untruthfulness was an attempt to put on "front." Shortly after this examination the patient was picked up by the police. She had truanted from home, and her adoptive mother refused to take her back. Commitment was arranged to a privately supported training school for delinquent girls.

Children of borderline defective intelligence are not apt to make a good adjustment in the midst of intellectual competition of urban life. They may adjust satisfactorily in simple, tolerant homes where there is little emphasis on school achievement. Such homes are more frequent in rural communities, and these surroundings provide a logical avenue for graduation into self support as a farm hand.

The choice of the age at which a child should be adopted rests between the horns of a dilemma. From the point of view of the nurture of the child it is desirable that placement should occur at as early a date as possible in order that the child may develop a feeling of security with, and of belonging to, his adoptive parents, and in order that his early training may not be disorganized by unnecessary changes of placement. However, it is impossible to avoid some gross malplacements in the policy of adoption in infancy. The policy that seems best calculated to serve the interests of all is that of early placement of children of known background who seem suitable for adoption in the homes which seem the most suitable to them, and the withholding of the transfer of legal responsibility until such time as it becomes reasonably evident that the placement is in fact successful. It should not be assumed, however, that it is always easy to terminate a bad placement.

In the case of children placed so young that an estimate of their intelligence is impossible, it is probably the wisest plan to place them with adoptive parents whose level of intelligence is more or less comparable with that of the natural parents, if they are known.

There are some differences of practice regarding the information concerning the child placed for adoption which is supplied the adoptive parents. It is my belief, in common with most workers who deal with adoption problems, that adoptive parents have a right to know the background of the child for the nurture of which they undertake responsibility, that the withholding of information which might throw into question the suitability of the child for adoption, e.g., idiopathic epilepsy in a parent, is tantamount to fraud. To those who hold this view it seems apparent that an agency does not escape the responsibility for withholding such information through a general policy of noninvestigation.

CASE 6—F, a boy, was adopted from an orphanage at the age of 2 years. The adoption was completed without investigation of the adoptive home or a study of the child's background. He had been born in an army camp, the third child in the family of a private. The adoptive parents were informed that the mother died of pneumonia when the patient was 1½ years old. The father had deserted. At the age of 8 the child was referred to the institute by his adoptive father because of stealing and lying, with the request for advice as to a school placement where rigorous discipline would be used to "break the inherited trait." F was found to be underweight of average intelligence with a good level of school achievement for his chronological and mental age. It was apparent that the importance of his stealing and lying was being distorted by the adoptive parents. The adoptive mother, an extremely domineer

ing, violent tempered woman in her third marriage, was inconsistent and unpredictable in her handling of the child. She was very affectionate to her dogs, kissing their mouths and preparing the best food for them. The adoptive father had strict disciplinary ideas and expected immediate obedience to dictatorial orders. The maternal grandmother was an understanding woman but unable adequately to buffer the child, who was in constant fear of his adoptive parents, trembling violently in their presence, and who would admit acts of which he was not guilty when charged with them, because he did not dare to deny them. The adoptive mother in her temper outbursts had threatened to kill F if her husband did not "get rid of him." The adoptive parents expressed bitterness regarding facts which they learned after the adoption of the child and which they felt the orphanage had concealed from them, viz that the parents of the child were first cousins and that the mother died not of a primary pneumonia but of tuberculosis. Their conclusion was that the child necessarily would be a mental and physical defective. This hopeless attitude was apparently a factor in their total loss of interest in the child. The child frankly hated and feared his adoptive parents, his first wish was to get away from home, his second, to have enough to eat. The mother openly admitted her dislike for the boy, although she claimed that when she originally took him she was very fond of him. She admitted that she kept him locked up and would not permit him to go to school or play with other children because she was afraid he would steal. The father unhesitatingly admitted his loss of interest in the boy.

If an adoption is decided on, it is desirable, before placement for adoption, that legal responsibility for the child be transferred from the natural parents to a responsible social agency, in order that a satisfactory placement may not be disrupted by the interference of vacillating parents.

#### THE PROBATIONARY PERIOD

The placement of a child for adoption necessitates a period of adaptation by the child and the adoptive parents. No adoption should be permitted until after a probationary period, which, under ordinary circumstances, should be a year or more, during which there has been evidence of a satisfactory parent-child relationship having been established.

Unfortunately, some child-placing organizations, certain of which have excellent physical equipment and excellent standing in the eyes of the lay and medical public, permit the completion of adoption in infancy when the suitability of the child for adoption cannot be adequately ascertained, the adoption being consummated without a real investigation of the home and without a trial period. Only the failure to make a follow-up study which is characteristic of such organizations conceals the number of malplacements which inevitably result from "over-the-counter" adoption practices.

During the probationary period contact should be maintained with the home, and the success of the placement observed. If, at the end of a fair trial, it is evident that the child is not making a reasonably satisfactory adjustment, or if the effect of the adoptive parents on the life of the child is not a reasonably wholesome one, the placement should be terminated. If the success of the placement is doubtful, the probationary period should be extended. If the placement is judged to be successful and a reexamination of the child reveals it to be suitable for adoption, the adoption should be permitted. In view of the desirability of the child being rooted in the adoptive home as early as possible, and the advantage of the early completion of the adoption in favorable cases, it is recommended that the practice of permitting early adoption be as liberal as is consistent with reasonable caution.

The following practice, based on a consideration of the relative unreliability of intelligence ratings of young children, is recommended as reasonably cautious in regard to the evidence of intellectual adequacy required before the consummation of adoption.

Each child should be tested before and at the completion of the probationary period of one year. It is desirable, particularly with children under 4 years, that each examination should include two tests. The tests should be administered by an adequately trained clinical psychologist.

In cases in which the results of the tests are discrepant with the rough estimation of the child's intelligence from the observation of his behavior, judgment should be withheld until the discrepancy is dissolved.

1 With children, aged 1 year or older, indication of very superior intelligence is adequate for adoption.

2 With children, aged 18 months or older, indication of superior intelligence (intelligence quotient 110 or above) is adequate for adoption.

3 With children, aged 2 years or older, indication of intelligence at or above the presumed mean (intelligence quotient 100 or above) is adequate for adoption.

4 With children, aged 3 years or older, indication of intelligence falling in the grouping "average" or above (intelligence quotient 90 or above) is adequate for adoption.

5 With children, aged 4 years or older, indication of intelligence falling at or above the middle of the grouping "dull and backward" (intelligence quotient 85 or above) is adequate for adoption.

6 With children, aged 5 years or older, indication of intelligence above "borderline defective" (intelligence quotient 80 or above) is adequate for adoption.

Adoptions of children with an intelligence quotient between 70 and 80 are advisable only under circumstances particularly favorable to the adjustment of such children.

In certain cases the foster parents form an attachment for a child placed with them whose development does not justify the recommendation for adoption. In these cases the parents should be frankly advised of the experts' opinions, but it may be considered proper to permit the adoption of the child against advice.

Many adoptive parents seek to conceal from their adoptive children the fact of adoption. The motive for the concealment is apparently the fear that they will not be accepted as parents by the child if it learns of its adoption. If concealment were likely to be successful, the element of deception might be overlooked. Experience indicates, however, that even when the adoptive parents move to another neighborhood or to another city the adopted child, with few, if any, exceptions, ultimately learns of his adoption. The knowledge, usually coming relatively late, from an indirect and sometimes unsympathetic source, often produces an emotional crisis in the child's life, frequently with damaging results. The estrangement of child and parents may take its origin from this crisis, sometimes without recognition by the parents of the cause. The child who has been told of his adoption when young, at the age of 4 or 5, is forearmed against this type of damage. The knowledge need not interfere with the child's sense of security in his parents, indeed, clever parents sometimes capitalize the fact to add to the child's security by pointing out that he was selected because they wanted him especially. It is highly important, in order to avoid future perplexing doubts, that an adopted child be told of his identity and given any possible favorable information about his parents.

Infants and children judged to be unsuitable for adoption may be cared for by boarding-home place-



ment, under the supervision of a suitable child-placing agency, or by institutional placement, as may seem best, depending on the child and the resources available

## SUMMARY

It is the duty of physicians to familiarize themselves with the factors determining good adoption practice and, wherever possible, to cooperate with careful child-placing agencies

Before placement of a child in adoption is decided on, a canvass should be made of all possible resources for aiding the parents to maintain the child. Adoption should be resorted to only if a satisfactory arrangement of maintaining the child with one or both parents is impossible

Placement for adoption should not be permitted unless the home, after careful investigation, appears to be suitable. An effort should be made to ascertain the motive prompting the prospective parents to adopt a child. The state of health of the prospective parents should be determined, with especial attention to the detection of tuberculosis and venereal diseases. The personalities and personality defects of the prospective parents should be noted, and their ability to provide a child with the security and advantages usual to the community determined

No placement for adoption should be permitted unless the child after a careful study appears suitable. Such study should include exploration of the family history when this is possible, review of the developmental history of the child, physical examination, psychological examination and observation of the child's behavior

Placement for adoption should be individualized. It is desirable that a child be placed in a home capable of meeting his needs, and of a level of standards suitable to his abilities

Legal responsibility for the child should be transferred to a suitable social agency before placement for adoption

No legal adoption should be permitted until a probationary period reveals that a reasonably satisfactory parent-child adjustment has been established and that the child is adjusting in the home, and until reexamination of the child establishes that he is suitable for adoption. The probationary period should ordinarily not be less than a year. In doubtful cases it should be extended

Children not suitable for adoption may be cared for in boarding homes, under the supervision of suitable child-placing agencies, or in institutions

907 South Lincoln Street

**Symptoms of Rupture of Intracranial Aneurysm**—The characteristic symptomatology of aneurysms begins when rupture occurs. Premonitory symptoms of an indefinite character may precede rupture for several days. The rupture of the aneurysm is usually manifested by a sudden apoplectic seizure with loss of consciousness, vomiting and sometimes a convulsion. Death may occur at this time. If fatal hemorrhage does not occur, the patient gradually regains consciousness and complains of severe fronto-occipital headache, stiffness of the neck and perhaps pains in the extremities due to irritation of the meninges by the extravasation of blood into the subarachnoid space. The clinical picture resembles a fulminating septic meningitis. Frequently the focal signs, notably palsy of the third nerve appear at this time. The preexisting focal signs are increased owing to the formation of a clot around the aneurysm—Garvey P. H. Aneurysms of the Circle of Willis, *Arch. Ophth.* 11 1132 (June) 1934

## Clinical Notes, Suggestions and New Instruments

### CULTIVATION OF THE VIRUS OF LYMPHOGRANULOMA INGUINALE AND ITS USE IN THERAPEUTIC INOCULATION

PRELIMINARY REPORT

JOSEPH T. TAMURA, M. Sc. CINCINNATI

Heretofore, as far as I can learn<sup>1</sup> attempts to cultivate the etiologic agent of lymphogranuloma inguinale have been failures. I have been successful by utilizing the medium devised by Matland, Laing and Lyth<sup>2</sup> for the cultivation of vaccinia virus. This medium is made by placing sterile bits of rabbit tissue in Tyrode's solution. I have used guinea pig tissue instead of rabbit

#### METHOD OF CULTIVATION

When pus is removed aseptically from a bubo that has not been exposed to external contamination and is found to be bacteriologically sterile, it is diluted 1:5 with sterile saline solution. Now, when from 0.02 to 0.03 cc of the diluted pus is planted in the Tyrode's solution containing a piece of guinea pig kidney or liver and incubated at 37.5°C, a peculiar cloudiness appears throughout the supernatant fluid in from thirty-six to forty-eight hours. Control tubes of the medium incubated at the same time remain perfectly clear. This cloudiness can be transmitted from tube to tube and in one instance was carried through twenty-four subcultures, when the procedure was discontinued.

In my experience, as in that of others, cultures made from bubonic pus when planted on a wide variety of bacteriologic mediums and grown aerobically, under partial tension of oxygen or anaerobically, remain free of visible growth. When the cloudy supernatant fluid in the tissue-Tyrode medium is examined or cultured, nothing resembling ordinary bacteria is to be found. The appearance of the cloudiness is followed by a slow disintegration of the tissue. Such disintegration does not occur in control tubes.

When transfer is made from twelve day old cultures it is successful. In a fourteen day old culture the cloudiness seems to settle out and when the clear supernatant fluid is subcultured it no longer produces cloudiness.

Attempts to see the etiologic agent in cloudy fluid have failed, with the exception that peculiar granules are brought out by Giemsa's stain and these are absent in controls.

While I think I have enough proof that the cloudy culture supernatant fluid contains the etiologic agent, it is interesting to note that pus from three cases failed to produce cloudiness in the medium. However, Frei antigens prepared from the pus in these cases also failed to give positive skin reactions in other proved cases.

Subcultures from a 1:10,000 dilution of the pus did not yield growth, but from a 1:1,000 dilution did.

#### FILTRABILITY

When diluted pus or the cloudy supernatant fluid in culture is passed through the Berkefeld N filter, the filtrate will produce cloudiness on subculture.

#### PATHOCENICITY

When 1 cc of the cloudy supernatant fluid is inoculated subcutaneously into the groin of a guinea-pig a lymphadenitis is produced in from two to three days. The glands gradually increase in diameter and in ten or twelve days may measure 15 mm and the overlying skin becomes adherent to the affected glands, after which they tend to disappear spontaneously. This is comparable to that which one can accomplish by direct inoculation with human pus. Such culture subinoculations have succeeded when the fourth, sixth and eighth subcultures were

The Department of Dermatology cooperated in this work. From the Department of Bacteriology and Hygiene, University of Cincinnati College of Medicine.

<sup>1</sup> Most of the literature has been reviewed recently by Stannus H. S. A Sixth Venereal Disease. London: Bailliere Tindall & Cox 1933.  
<sup>2</sup> Matland, H. B., Laing, A. W. and Lyth, R. Brit. J. Exptl. Path. 13: 90-96 (Feb.) 1932.

used The etiologic agent has been passed from culture to guinea pig, then from guinea-pig to the medium, from this culture to a subculture, and then back to the guinea-pig, as often as four times (to date)

#### USE OF CULTURE ANTIGEN FOR DIAGNOSIS

The cloudy supernatant fluid from subcultures was heated to 60 C for two hours on one day and at the same temperature for one hour on the following day as in the well known method of preparing Frei's antigen from pus When such heated culture antigen preserved with 1 10,000 merthiolate is injected intradermally into patients, it gives just as marked reactions as does the Frei antigen When the twenty-third subculture in one series was heated for antigen it was found to be just as active as antigen prepared from earlier subcultures As in the case with the Frei antigen, the culture antigen gives no reaction in normal individuals

#### USE OF CULTURE ANTIGEN FOR TREATMENT

I have nine cases, showing active inguinal manifestation of the disease, under treatment using heated culture antigen as a vaccine administered subcutaneously Of these, three cases showed such marked improvement that they were considered cured in eight weeks Accompanying the clinical improvement there was a marked reduction in skin sensitivity Other cases appear to be following a similar course

Beneficial therapeutic effects, following the intradermal inoculation of Frei's antigen, has been reported recently by Wien and Perlstein,<sup>3</sup> who refer to the previous work of Hermans and Gay-Prieto

#### SUMMARY

When pus from lymphogranuloma inguinale is planted in the tissue-Tyrod medium used by Matland and his co workers for the cultivation of vaccinia virus it becomes cloudy The etiologic agent produces this cloudiness which is transmittable in serial cultures, or serial cultures alternating with guinea-pig inoculations The etiologic agent in pus or cloudy supernatant culture fluid passes the Berkefeld N filter The heated cultures have been used successfully in making diagnosis by the intradermal skin test and for cure by subcutaneous inoculation therapy

#### BITE BY A SNAKE IN A BUNCH OF BANANAS

MARCOS FERNANDEZ, MD MILWAUKEE

The importance of modern rapid transportation methods, such as the airplane, in the transmission of tropical diseases to nontropical lands has been dramatically demonstrated in recent years by the appearance of several exotic diseases in the northern part of the United States

The following report, demonstrating a similar paradox, illustrates the possibility of being bitten by a tropical snake in the center of a great northern city

#### REPORT OF CASE

J M a truck driver was unloading bunches of bananas in Milwaukee, March 5 1934 when he felt something sting him on the hand His search revealed a snake, 37 inches (94 cm) in length, in the bunch of bananas

I examined the victim thirty four minutes after the bite and found two small bleeding punctures 1 cm apart on the palmar surface of the middle phalanx of the third finger of the right hand The finger showed a mottled swelling extending up the hand to the metacarpal region The pulse rate was 102 and the respiration rate 28 The patient complained of pain in the affected area with beginning nausea

A tourniquet was placed just above the elbow (a single-bone extremity) and was tightened enough to cut off the venous return A fairly deep incision connecting the two puncture wounds allowed free bleeding which the victim aided by applying vigorous suction by mouth

<sup>1</sup> Wien M S and Perlstein Minnie O Intradermal Treatment of Lymphogranuloma Inguinale Arch Dermat Syph 1933 28 42 (July) 1933

From the Marquette University School of Medicine

An anti-snake-bite serum (Antivenin [Nearctic Crotalidae]-Mulford) was quickly obtained from a nearby wholesale drug house, a dose of 10 cc was given intravenously and the same amount was administered intramuscularly One-half hour later 10 cc of antivenin was given subcutaneously Whereas this anti-snake-bite serum was prepared against North American vipers, the fact that the tropical snake that had bitten the patient was a member of the viper family led me to reason that the serum would be effective to some extent at least

For two hours thereafter at intervals of fifteen minutes the tourniquet was released for periods of three minutes each and reapplied 2 inches higher up the extremity each time This was done to prevent gangrene and to permit the venom to enter the general circulation in such small amounts that it could be readily oxidized

The pain and swelling gradually disappeared and the patient was practically relieved from the symptoms at the end of six hours He returned to his work the following day

#### COMMENT

It was ascertained that the bananas had been brought from Colombia, where it is the custom to cut the bunches from the trees and lay them on the ground to be picked up later Often the bunches remain on the ground for several hours during the night Evidently the snake had entered the bunch in search of mice or other vermin and had secreted itself in the bunch when it was removed to the banana boat

To my knowledge poisonous snakes have been found in bunches of bananas on five occasions in Milwaukee alone Three of the snakes were examined and were found to be pit vipers (two Mapanas and one Lancetilla), i e, having a blind pouch between the eye and the nostril However, the reported case is the only instance in which a human being was bitten, and it is recorded because it is probable that there will be similar occurrences in the future

It is a common experience to find nonpoisonous snakes in bunches of bananas They are usually members of the boa family (boa imperator, or small boa constrictors) which climb the banana trees in search of spiders and small animals and are caught there when the bunch is cut off They do not have the blind pouch between the eye and the nostril which characterizes the pit vipers, and they are gray with spots on the back Since their fangs are not perforated and are located in the back of the mouth they have no efficient mechanism for injecting venom and are not dangerous However, they are vicious at times and can inflict a painful bite

561 North Fifteenth Street

#### FIBROMA OF VAGINA RESSEMBLING CYSTOCELE

HAMLIN MATTSON, MD MINNEAPOLIS

Soft fibromas are found especially in the skin and mucous membranes About 200 cases of fibromyoma of the vagina have been reported<sup>1</sup> Such tumors may occur at any age though usually they are found between the ages of 20 and 50 years<sup>2</sup> They are situated usually in the midline, and four out of five are in the anterior wall, it has been estimated<sup>3</sup> Such tumors exhibit central expansive growth rarely attain more than moderate size and rarely become malignant The blood vessels supplying such tumors grow out from the capillaries of the surrounding normal tissue<sup>4</sup> Hence the tumor tissue is prone to degeneration softening and ulceration Because of such characteristics it is possible that tumors of this type are assumed to be cystoceles and rectoceles and are overlooked more often than has hitherto been suspected Werner<sup>5</sup> and more recently Downing<sup>6</sup> have pointed out the similarity of the presenting evidence

<sup>1</sup> Graves W P Gynecology ed 4 Philadelphia and London W B Saunders Company 1928 p 333

<sup>2</sup> Curry A H Obstetrics and Gynecology Philadelphia and London W B Saunders Company 3 576 1933

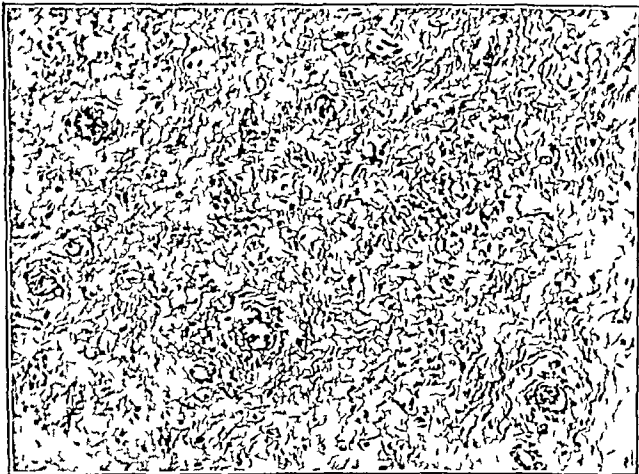
<sup>3</sup> Werner E Two Cases of Myoma in the Vesicovaginal and Uterovaginal Septum Zentralbl f Gynak 40 698 702 1916

<sup>4</sup> Bell E T Textbook of Pathology ed 1, Philadelphia Lea & Febiger 1930 p 173

<sup>5</sup> Downing Wendell Anterior Colpocele Due to Fibromyoma J A M A 98 1157 1158 (April 2) 1932

An instance of soft fibroma of the vagina that resembled cystocele in a nulliparous woman, F J, is here presented

F J, a woman, aged 31, single, a nullipara, seen Jan 18, 1931, complained that intermittently for twelve years she had been bothered by a feeling of weight in the vagina. Such a sensation would be felt for three or four hours at intervals of from four to six weeks, especially when fatigued, after severe exertion or at menstruation. After three or four hours she would feel normal again. Micturition was not disturbed. She had no other complaints. The difficulty had been thought to be due to cystocele. There was nothing significant in the



Section of soft fibroma of the vagina showing small branched connective tissue cells with some connective tissue fibers in an abundant homogeneous matrix. Slightly reduced from a photomicrograph with a magnification of 125 diameters. Hematoxylin and eosin stain.

family or menstrual history. She had neuromuscular pains at the age of 16. A tonsillectomy was performed in 1918 though she has experienced more frequent sore throats since that procedure. The appendix was removed in 1920. In March 1929 she sustained a fall, following which she was unconscious. Since the onset of menstruation she had noticed a moderate leukorrhea, though not enough to wear a pad.

The anterior wall of the vagina protruded at the introitus and when the labia were separated the appearance was typical of a cystocele graded 2 on the basis of 4. The aspects on palpation were similar to those of cystocele with the urinary bladder empty. When the bladder was distended a soft mass could be felt at the site of the protrusion, and on cystoscopic examination a hillock presented instead of the depression of a cystocele. The cervix was definitely cystic, otherwise the pelvic examination was negative. Macromastia, graded 2 on a basis of 4, was present. Urinalysis showed 4 pus cells in the high dry field after centrifugation for three minutes. Otherwise the urine was normal on routine examination. There were 4,500,000 red blood cells and 12,000 white blood cells in each cubic millimeter of blood. The concentration of hemoglobin was 128 Gm (normal 16) for each hundred cubic centimeters of blood. The blood pressure, pulse and temperature were normal.

A urethral catheter was inserted as a guide, and January 18, a rounded tumor was nucleated by blunt dissection through an elliptic incision in the anterior vaginal wall. The procedure was carried out under spinal anesthesia and was uneventful. The function of the bladder was not disturbed. A retention catheter was kept in for five days.

The tumor measured 5 by 3.5 cm and weighed 20 Gm. It was soft and gray, and grossly it had the uniform consistency throughout of whartonian jelly. Dr E. T. Bell, of the department of pathology of the University of Minnesota, diagnosed soft fibroma. The tumor showed the same microscopic structure in all sections.

Convalescence was uneventful. Feb 14 1934 the patient reported that she had felt well since the removal of the tumor.

Medical Arts Building

CREATINURIA IN ADOLESCENT MALES II THE  
EFFECTS OF THE ORAL ADMINISTRATION  
OF EPHEDRINE SULPHATE

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Edgeworth<sup>1</sup> reported the first case of myasthenia gravis in which ephedrine sulphate was used with beneficial results. Since this publication, ephedrine sulphate has at times been employed in conjunction with glycine in the treatment of this disease. Studies of its effects, when used alone, on the creatine excretion in cases of myasthenia gravis have to our knowledge not been made. Reinhold and his associates<sup>2</sup> report a probable case of progressive muscular dystrophy in which ephedrine was used in conjunction with glycine with a resulting definite increase in the twenty-four hour creatine excretion. In this paper are reported the results obtained when ephedrine was administered orally to healthy adolescent males known to excrete creatine. These boys were all students engaged in a similar daily routine of study, exercise and diet during the period of investigation.

METHOD OF INVESTIGATION

The preformed and total creatinine determinations were made according to the methods recorded in our first paper.<sup>3</sup> These analyses were again checked by duplicate determinations of controls to which known quantities of pure creatine in solution had been added. The twenty-four hour urinary collections were carried out as originally reported.

EXPERIMENTAL PROCEDURE

The subjects in these experiments made twenty-four hour collections of urine for three successive days, the first and third days serving as controls. On the second day each subject received ephedrine sulphate. In order to offset any effects of exercise, the first capsule containing 25 mg was given half an hour before rising (6:30 a.m.). Additional capsules were given at 10:30 a.m. and 2:30, 4:30 and 8:30 p.m., making a total of 100 mg during the twenty-four hour period. The capsule at 8:30 p.m. was omitted in the last three subjects.

It was noted that without exception the administration of ephedrine sulphate was accompanied by a complete disappearance

Twenty-Four Hour Creatine Excretion Following  
Administration of Ephedrine Sulphate

Subject	Age	Period	First Day Control				Second Day Ephedrine Given				Third Day Control			
			Urinary Volume Cc	Preformed Creatinine Mg	Creatine Mg		Urinary Volume Cc	Preformed Creatinine Mg	Creatine Mg		Urinary Volume Cc	Preformed Creatinine Mg	Creatine Mg	
1	16	17	1940	1510	49		1860	1540	1		1980	1515	17	
2	14	15	1350	1702	38		1410	1307	1		765	1900	23	
3	12	13	1190	1738	10		106	54	1		59	90	40	
4	14	15	920	1048	19		1100	1196	5		665	1131	61	
5	13	14	900	853	69		900	1061	6		990	857	51	
6	14	15	640	120	47		840	1200	1		1190	1300	90	
7	13	14	1090	966	132		920	962	9		1115	1000	10	
8	13	14	1120	1111	136		936	1104	4		820	1072	98	
9	14	15	1400	1768	40		1300	1340	6		1120	1407	103	
Average			1182	1140	71		1096	1189	4		1027	1168	67	

(controls indicate an error of  $\pm 10$  mg of creatine per liter of urine) of creatine from the twenty-four hour specimens when the amounts excreted during the control periods varied from 19 to 136 mg. Two additional subjects not listed in the accompanying table showed the same results, although they failed to make complete urinary collections on one of the control days. On the other hand no changes in either the average preformed creatinine or the urinary outputs were detected.

From the Medical Department of the Lawrenceville School.  
1 Edgeworth Harriet Report of Progress on Use of Ephedrine in Case of Myasthenia Gravis J A M A 94 1136 (April 12) 1930  
2 Reinhold J G Clark J H Kingsley G R Custer R P and McConnell J W Effects of Glycine (Glycocol) in Muscular Dystrophy J A M A 102 261 (Jan 27) 1934  
3 Light A B, and Warren, C R J Biol Chem 104 121 (Jan) 1934

COMMENT

No explanation is at hand to account for this action of ephedrine. The blood pressure and pulse rate of those of our subjects in which these determinations were made were definitely increased. Practically all of them complained of slight headache, a few experienced nervousness and slight weakness, and one subject noted definite nausea. Despite these symptoms, the amount of food taken, particularly the protein intake, remained the same for each day. Three subjects ate all their meals in the infirmary under the direct supervision of the nursing staff. The amount of exercise remained the same on each of the three days.

CONCLUSIONS

The oral administration of 25 mg of ephedrine sulphate three or four times daily causes a temporary cessation of creatinuria among adolescent males. On the other hand it exerts practically no influence on the twenty-four hour preformed creatinine and urinary outputs.

## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, MD  
CHICAGO

NOTE.—In their elaboration these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft prepared for publication. The series of articles will be continued from time to time in these columns.—Ed

#### THERAPY OF FURUNCULOSIS

The more severe cases require both local and general treatment. Special methods are indicated in furuncle of the external auditory meatus, of the nares and of the lips.

##### LOCAL TREATMENT

Abortive treatment, if applied early, may succeed. It consists of: 1. Avoidance of traumatism, even of the slightest degree such as pressure and friction from clothing, as well as squeezing. 2. Improving the inflammatory reaction by (a) heavy coating with full strength Tincture of Iodine, or (b) roentgen irradiation with 180 kilovolts, 300 roentgens, with a filter of 0.25 mm of copper and 1 mm of aluminum, at 50 cm distance and with 30 milliamperes, applied to a rather large field. The two (a and b) methods must not be combined.

Inevitable suppuration indicates: 1. Epilation of the skin overlying the boil, and the surrounding area, by shaving. 2. Induction of hyperemia and softening by hot boric acid compresses changed every hour or two until there is indication of the place of pointing. A simple alternative treatment, when the hot compress is not available, is application by means of adhesive plaster of a thin disk of soap the size of a thumb nail. 3. Evacuation of the abscess under local ethyl chloride anesthesia, by puncture of the thinned epidermis or excision of the top. Free incision is not desirable. Squeezing is taboo. 4. Absorbent dressings changed often enough to maintain drainage, i. e. to prevent crust formation in the upper layers of the dressing. 5. Protection of the surrounding skin by washing with ether and alcohol and the application of Paste of Zinc Oxide dusted with talcum powder. 6. Stimulation of healing, after removal of the core (which must never be done forcibly) by Balsam of Peru dressing. Dressing is continued until healing is complete and there are no crusts that might cause autoinoculation.

Recurrence of the furuncles should be prevented by: 1. Washing the affected area with Tincture of Green Soap and a face brush and hot towel, followed by alcohol or other disinfectant lotion (prescription 1).

##### PRESCRIPTION 1—Salicylic Acid Lotion

R	Salicylic acid	2.00 Gm
	Alcohol	75.00 cc
	Water	to make 100.00 cc
M	Label: Apply locally	

2. Frequent hot baths and changes of underclothing should be given. 3. The skin should be kept dry by dusting with Salicylated Talcum Powder (prescription 2). 4. For areas (back of the neck or the axillae) in

##### PRESCRIPTION 2—Salicylic Acid Dusting Powder

R	Salicylic acid	1.50 Gm
	Talcum	30.00 Gm
M	Label: Dusting powder	

which boils obstinately recur, a series of five to six roentgen treatments (85 kilovolts, no filter, 75 roentgens, once a week) often suffices for a permanent cure (possibly, in part, by antagonizing hyperhidrosis).

##### GENERAL TREATMENT

Impairment of nutrition should be corrected. In all cases of furunculosis the patient should be examined for diabetes, nephritis or anemia and appropriate treatment instituted if any one of these conditions is found. Obesity may require attention. Vitamin deficiency, if present, might be corrected by cod liver oil, general ultraviolet irradiation or sun baths and possibly by brewers' yeast.

Resistance should be improved by (a) removal of foci of infection, which may keep general resistance low. (b) Vaccine therapy with autogenous vaccine, starting several days after disappearance of the acute lesions on account of the possibility of the negative phase aggravating the condition. The dose aimed at should be such as to cause a definite but mild local reaction. If the reaction has been excessive, the dose is repeated, otherwise it is gradually increased until the patient tolerates without reaction possibly ten times the dose that at first produced a reaction. The interval between doses should be such as to permit complete disappearance of all phenomena of reaction, possibly three, five or seven days.

##### FURUNCLES IN SPECIAL LOCATIONS

In all of these localizations of furuncles, roentgen irradiation should be employed. In the acute lesions 140 kilovolts is used, with 0.25 mm of copper and 1 mm of aluminum and 300 roentgens the first day and 150 roentgens the second day. In subacute lesions 150 roentgens is used for three or four consecutive days.

*Of External Auditory Canal*—Before the pointing of the abscess, one should relieve pain, which is usually severe and increased by opening the mouth (a point of value in differentiation from otitis media) by use of a systemic analgesic (see Therapy of Pain). Irrigations, attempts at local analgesia, and early incisions are useless. 2. Alcohol (95 per cent) should be instilled hourly, the head being kept inclined to the well side for five minutes. Heat should be applied to the auricle and the side of face by fomentation, poultice or incandescent light.

The appearance of a yellowish point of softening indicates incision with the point of a bistoury. The pus should be wiped out frequently (every hour or two) with cotton applicators dipped in saturated alcoholic solution of boric acid (3 per cent).

Recurrence may be prevented after healing by 1 Boric acid alcohol instillation (prescription 3) morning

#### PRESCRIPTION 3—Boric Acid Alcohol

R	Boric acid	0.90 Gm
	Alcohol	30.00 cc
M	Label	Ear lotion

and evening 2 Relief of itching by salicylic acid oil (1 10) with prohibition of scratching by introduction of any foreign body into auditory canal 3 Autogenous vaccine, in case of recurrence in spite of these precautions

**Nasal Furuncle**—Application inside and outside of the nostril of small flat cotton compresses saturated with hot boric acid solution favors earlier opening on the inside of the nose than would otherwise occur "Picking" of the nose should be forbidden

**Upper Lip Furuncle and Facial Furuncle**—These are deservedly dreaded because, no matter how mildly they start, they may be suddenly followed by intense swelling of the lip and carbuncle formation, as well as, because of the richness of the veins in this area, they may become complicated by thrombophlebitis, meningitis, septicemia and death. Hence the most innocent looking furuncle of the lip or face should be treated by 1 Absolute immobilization of the part speaking, eating or drinking must be forbidden, feeding being done through a tube 2 Prohibition of trauma, such as scratching or squeezing 3 Energetic local and general treatment in accordance with the principles laid down, especially by frequent irrigation of the under-surface of the lip with warm boric acid solution and roentgen irradiation, as already described

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS FORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH Secretary

**HIPPURAN**—Sodium ortho iodohippurate— $C_6H_4I CONHCH_2COONa + 2H_2O$ . The sodium salt of *o*-iodohippuric acid. Hippuran contains 38.8 per cent of iodine, when calculated to the dried substance.

**Actions and Uses**—Hippuran is proposed for use as a radiopaque agent for intravenous, oral or retrograde urography. When used by the intravenous route, irritation at the site of injection is stated not to occur and systemic reactions appear to be unusual, a sensation of generalized warmth is said to be the most common side-effect, nausea occurs occasionally and vomiting rarely. Fasting and dehydration of patients preliminary to administration of the drug are usually employed. Pressure over the bladder region is employed by some clinicians, this is released immediately before the first exposure and is replaced until the next. Ordinarily the first film is exposed about ten minutes after injection and two subsequent pictures are taken at fifteen or twenty minute intervals. In case excretion is delayed, later exposures may be necessary.

Results with oral administration of the drug are less satisfactory but a sufficiently high percentage of successful pictures appear to be obtained to make this method worthy of trial in occasional cases in which intravenous or retrograde urography is not feasible. The somewhat objectionable taste of the compound usually does not militate against its ingestion. Toxic effects after oral administration have not been reported. Pictures are taken 60, 90, 120 and 150 minutes after oral administration. The use of moderate compression over the bladder region is recommended in the intervals between exposures. While the iodine in hippuran is firmly bound, the compound

should nevertheless be used with caution if at all in patients with hyperthyroidism and tuberculosis. The use of the drug is contraindicated in severe liver disorders, nephritis and uremia. In suspected cases preliminary hepatic and renal function tests should be employed.

Satisfactory visualization has been reported with hippuran when employed by the retrograde method for urethrograms, cystograms or pyelograms. There is said to be little or no tissue irritation with effective concentrations.

**Dosage**—For intravenous use, 25 cc of a solution containing 12 Gm of hippuran, previously warmed to body temperature is injected into the cubital vein. Young children are given proportionately smaller doses. For oral use, 12 Gm of hippuran is dissolved in 75 cc of simple syrup. For children, 10 Gm is employed. For retrograde use, hippuran is employed in 15 to 20 per cent solution for pyelography or 3 to 5 per cent solution for cystography. The solution may be made either by diluting the ampule solution with sterile distilled water or by dissolving the crystals in distilled water, filtering and sterilizing by heat.

Manufactured by Mallinckrodt Chemical Works, St. Louis, U. S. patent and trademark applied for.

**Hippuran (Crystals) 12 Gm vial**

**Sterile Solution Hippuran 25 cc size** 25 cc contains 12 Gm hippuran.

Hippuran occurs as a white crystalline powder possessing a faint odor and an alkaline taste, very soluble in water, freely soluble in ethyl alcohol and soluble in dilute alkali. An aqueous solution is neutral or faintly alkaline to litmus.

Fuse about 0.2 Gm of hippuran with 2 Gm of powdered sodium hydroxide; it decomposes with the evolution of iodine vapors and ammonia. Dissolve about 0.5 Gm of hippuran in 100 cc of water; add in excess of diluted hydrochloric acid; collect the resultant *o*-iodohippuric acid on a filter wash and dry at 110°C. It melts at 171 to 174°C. To 1 cc of the foregoing filtrate add 10 cc of 0.5% zinc acetate solution; a yellow precipitate results. Transfer about 0.2 Gm of hippuran to a glass stoppered cylinder; add 25 cc of a diluted nitric acid (one part diluted nitric acid and 5 parts water); shake for five minutes; filter; the filtrate yields no distinct opalescence on the addition of 2 cc silver nitrate solution (absence of inorganic halides).

Dissolve about 0.5 Gm of hippuran in 50 cc of water; add 5 cc of diluted hydrochloric acid; filter; separate portions of 10 cc each of the filtrate; yield no turbidity on the addition of 1 cc of barium chloride solution (sulphate); no coloration or precipitation on saturation with hydrogen sulphide (salts of heavy metals).

Dry about 1 Gm of hippuran, accurately weighed to constant weight at 100°C. The loss in weight is not more than 10 per cent nor less than 6 per cent. Boil about 1 Gm of hippuran accurately weighed with 10 cc of benzene for fifteen minutes; replacing the evaporated liquid if necessary; decant the supernatant liquid through filter paper and wash filter with 10 cc and 5 cc portions respectively; evaporate the combined filtrates to dryness in a tared beaker and dry to constant weight at 100°C. The residue does not exceed 0.2 per cent (uncombined *o*-iodohippuric acid). Transfer about 0.5 Gm of hippuran accurately weighed to a 500 cc kjeldahl flask; determine the nitrogen content according to the official method described in Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists, third edition, page 20, chapter 2, paragraph 22. The percentage of nitrogen corresponds to not less than 4.1 per cent nor more than 4.4 per cent when calculated to the dried substance. Weigh accurately about 1 Gm of hippuran in a tared platinum dish; add 5 cc of sulphuric acid; heat cautiously while fumes of iodine and sulphur trioxide are evolved; repeat twice using portions of 1 cc each of sulphuric acid; add about 0.5 Gm of ammonium carbonate; ignite to constant weight and weigh as sodium sulphate. The sodium found corresponds to not less than 6.8 per cent nor more than 7.3 per cent when calculated to the dried substance. Transfer about 0.5 Gm of hippuran to a Parr sulphur bomb; determine the iodine content by the Lemp-Broderson method (*J. Am. Chem. Soc.* 39, 2069); the amount of iodine found corresponds to not less than 38.5 per cent nor more than 39 per cent when calculated to the dried substance.

**DEXTROSE** (See New and Nonofficial Remedies, 1934, p. 270)

The following dosage forms have been accepted:

**Ampoules Glucose (Dextrose U S P)** Lilly, Unbuffered 25 Gm. 50 cc. Each ampule contains dextrose U S P 25 Gm in distilled water to make 50 cc.

Prepared by Eli Lilly & Co. Indianapolis

**Ampoules Glucose (Dextrose U S P)** Lilly, Buffered 25 Gm. 50 cc. Each ampule contains dextrose U S P 25 Gm in distilled water to make 50 cc. The solution is buffered with sodium citrate 0.25 per cent.

Prepared by Eli Lilly & Co. Indianapolis

**Ampoules Glucose (Dextrose U S P)** Lilly, Unbuffered 50 Gm. 100 cc. Each ampule contains dextrose U S P 50 Gm in distilled water to make 100 cc.

Prepared by Eli Lilly & Co. Indianapolis

**ERYSIPELAS STREPTOCOCCUS ANTITOXIN** (See New and Nonofficial Remedies, 1934, p. 369)

United States Standard Products Company, Woodworth, Wis.

**Erysipelas Streptococcus Antitoxin (Refined and Concentrated)**—Prepared by immunizing horses with toxin and cultures of streptococci isolated from erysipelas cases. When tests of trial bleedings indicate that the potency is sufficiently high the horses are bled and the plasma concentrated and refined by methods similar to those used for other antitoxins. The product is preserved with 0.4 per cent cresol in a 50 per cent ether solution. Potency tests are carried out by making serial dilutions of the antitoxin, with equal amounts of erysipelas toxin and determining the titer by the rabbit ear method which is a toxin neutralization test.

Marketed in packages of one syringe containing approximately 15 cc the average initial therapeutic dose.

## Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING  
REPORTS RAYMOND HERTWIG Secretary

### NOT ACCEPTABLE

#### SIMS MALT-O-WHEAT BREAKFAST CEREAL WHOLE WHEAT (COARSE BRAN REMOVED) FLAVORED WITH TOASTED BARLEY, ULTRA-VIOLET RAYED

Sims, Inc., St Paul, submitted to the Committee on Foods a packaged coarsely granular durum wheat (coarse bran and some flour removed) containing a small amount of toasted barley malt, called Sims Malt-O-Wheat Breakfast Cereal. The product is treated with ultraviolet rays and heat to destroy insects.

Analysis (submitted by manufacturer) —	per cent
Moisture	82
Ash	17
Fat (ether extraction method)	25
Protein (N X 6.25)	16.8
Crude fiber	27
Carbohydrates other than crude fiber (by difference)	68.1

**Discussion of Label**—The label carries the following statements

Malt O Wheat Breakfast Cereal ultra violet rayed  
treated by our special patented ultra violet ray process to insure absolute  
purity and cleanliness Breakfast monotony can be avoided by  
serving this healthful cereal healthful food The essen-  
tial minerals and vitamins of the whole wheat are carefully retained  
Every precaution is taken to safeguard the high stand-  
ard of healthfulness recognized by thousands of dietitians and physicians  
who use and recommend Sims The addition of caramelized malt  
creates the distinctive flavor blend No single article of food  
contains such an abundance of energy units balanced with other nec-  
essary elements—proteins minerals vitamins—as wheat

The name Malt-O-Wheat Breakfast Cereal unduly emphasizes the malt ingredient, which is present only in small quantity. The unqualified prominent claim, "ultra-violet rayed" incorrectly implies that the cereal is irradiated by this well known process for producing vitamin D. The treatment is for destroying insects only but does not insure absolute purity and cleanliness.

The cereal is not more "healthful" than other common foods. It will not correct any abnormal condition or actively improve health, nor does it possess any unique health-giving properties as implied by the designations "healthful cereal" and "healthful food." Statements such as 'the essential minerals and vitamins of the whole wheat are carefully retained' should name the mineral and vitamins, to avoid inferences that wheat contains all the 'essential minerals and vitamins'.

No evidence was furnished indicating that "thousands of dietitians and physicians use and recommend Sims." Vague alleged recommendations of physicians or dietitians deceptively convey by implication imaginary special nutritional or therapeutic values to the product. Recommendations for a food should specifically state why the food is recommended or for what purpose. The added toasted malt should not be given the unrecognized name 'caramelized malt.' Wheat does not warrant being singled out from common foods as containing a special 'balance' of energy units, proteins, minerals, vitamins" thereby incorrectly suggesting unusual nutritional values due to uniquely proportioned 'minerals, proteins, vitamins'.

The label claims in considerable part are misinformative and misleading. Advertising should truthfully and appropriately, in terms readily understandable by the public present the values of foods.

The company was informed of the criticisms and recommendations of the Committee but has not demonstrated compliance. This cereal will therefore not be listed among the Committee's accepted foods.

### NOT ACCEPTABLE

#### WARFIELD ENERGIZED PURE COCOA WITH VITAMIN B ADDED

The Warfield Chocolate Company, Chicago, submitted to the Committee on Foods a powdered cocoa mixed with a small amount of dried yeast, called "Warfield Energized Pure Cocoa with Vitamin B Added."

**Discussion of Name and Label**—The label carries the following statements

Warfield's Energized Pure Cocoa with Vitamin B Added is high quality rich cocoa made better by the addition of vitamin B the energy building element. Thus to the natural nutritive qualities of expertly made fine cocoa we have added by a special process an element which makes it even more healthful for drinking, baking and cooking.

The name "Energized Cocoa with Vitamin B Added" deceptively suggests that the product contains more "energy" than usual cocoa and that vitamin B per se has been added instead of a small quantity of dried yeast containing some vitamin B. The added dried yeast should be declared in conjunction with the name "Cocoa." Vitamin B is not an "energy building element," does not "give energy," nor is it a "chemical element" as implied. The small amount of yeast ingredient containing vitamin B does not make the product "more healthful," implying a positive promotion of health, nor does it increase the vitamin B content of the cocoa enough to warrant prominent vitamin B claim for the product.

The name and label are grossly deceptive in that they falsely imply that the food article has unusual nutritional or therapeutic "health giving" properties and a high vitamin B content. The company was informed of the opinion of the Committee, but has not demonstrated that steps have been taken to revise the name and label to make them appropriate and truthful. This product will therefore not be listed among the Committee's accepted foods.

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG Secretary

#### MALDEN BRAND PURE EVAPORATED MILK

**Distributor**—Northern Products Company, Inc., Malden, Mass.

**Packer**—The Defiance Milk Products Company, Defiance, Ohio.

**Description**—Canned unsweetened sterilized evaporated milk, the same as Defiance Pure Evaporated Milk, THE JOURNAL, March 3, 1934, page 693.

#### HIGH UP BRAND CRYSTAL WHITE SYRUP

**Distributor**—The Guymon-Petro Mercantile Co., Dodge City and Hutchinson, Kan.

**Packer**—The Hubinger Company, Keokuk, Iowa.

**Description**—Table syrup, corn syrup flavored with sucrose syrup and vanilla extract. The same as Hubinger Crystal White Syrup, THE JOURNAL, Jan 27, 1934, page 293.

**Claims of Manufacturer**—Recommended for use as an easily digestible and readily assimilable carbohydrate supplement to milk in infant feeding and as a syrup for cooking, baking and the table.

#### KEYSTONE BRAND EVAPORATED MILK

**Distributors**—(1) United Wholesale Grocery Company, Pottsville, Pa., (2) Sunbury Wholesale Grocery Company, Sunbury, Pa.

**Packer**—The Page Milk Company, Merrill, Wis.

**Description**—Canned unsweetened sterilized evaporated milk, the same as Page Brand Evaporated Milk (Sterilized, Unsweetened), THE JOURNAL, May 30, 1931, page 1872.



# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 11, 1934

## VITAMIN D AND CALCIUM IN FOODS

The efficacy of the commonly used sources of vitamin D in the cure and prevention of infantile rickets has led to the tacit assumption that it would be well from the nutritional point of view to add this food factor to the diet of all persons. This suggestion has not escaped adverse comment. However, the attention given to the vitamin D potency of cod liver oil and halibut liver oil with viosterol, and of egg yolk and liver has raised the question of the efficacy as anti-rachitic and mineralizing agents of some common foods less widely heralded in this respect. Kohman, Sanborn, Eddy and Gurin<sup>1</sup> have called attention to the paucity of information on this point and reported the results of an experimental study.

A mixture of five commercially canned foods—sweet potatoes, spinach, peas, carrots and roast beef—was chosen as more or less similar to an ordinary human diet. To this ration was added calcium lactate until the content of calcium and phosphorus as well as the ratio of one to the other was similar to that of the well known Steenbock rachitogenic ration. When this diet was fed to laboratory animals, it was found that the proportion of ash in the bone was influenced little, if any, by the addition of vitamin D in the form of cod liver oil, indicating that in ordinary foods there is an adequate amount of this factor even for the needs of young growing animals. That vitamin D was present in this diet in significant concentration was then shown by mixing the food mixture in equal parts with the severely rachitogenic diet of Steenbock, here again addition of cod liver oil exerted little influence on the percentage of bone ash.

A further study having a bearing on the foregoing observation was carried out. Several generations of experimental animals were given three diets: a mixture of raw foods, the same after so-called home cooking, and a similar mixture after having been canned (commercially). The reproduction, including consideration of birth and weaning weights of the young, was def-

initely superior in the group given the cooked and canned foods. Furthermore, the young fed the canned food grew far better than those given the raw diet. The authors are inclined to attribute the favorable effect of cooking to the change produced in the cellulose, thus preventing it from absorbing calcium, which would then be lost in the feces. There is no doubt that, when milk is added to both the raw and the cooked food, there is a definite increase in bone ash on all three diets and the differences between raw and cooked foods is eliminated.

These observations indicate again that in foods chosen to be generally representative of our national dietary there is an appreciable lack of calcium. However, the deleterious influence of indigestible residue on calcium absorption can be largely overcome by providing an additional source of this mineral element in readily available form. Furthermore, it appears that in ordinary dietary mixtures chosen in conformity with modern precepts of nutrition there are present adequate amounts of the appropriate accessory food factors for the promotion of satisfactory utilization of calcium and phosphorus.

## COMMON COLDS AND THE WEATHER

Analysis of the factors influencing the so-called common cold are exceedingly complex. Even when attempts are made to correlate the respiratory attack rate with weather variations alone, much difficulty is encountered in dissociating the "weather" components.

Smiley<sup>1</sup> in 1926 reviewed twelve years of monthly records of illness available for 4,000 male students of Cornell University. He found that the peak months for acute respiratory infection, year after year, were December, January, February and March. Of these months, January most commonly carried the peak, four times out of twelve. Just how season was related to incidence of acute respiratory infections was not so clear. He plotted the curves of acute respiratory infections over this period against the mean temperature curves and arrived at a relationship roughly reciprocal. By plotting the average daily precipitation for each month against the average number of acute respiratory infections per school day for that month, only an indefinite relationship between the two was shown. When the average daily hours of sunshine for each month were plotted against the average number of acute respiratory infections per school day for that month, a roughly reciprocal relationship as definite as that between temperature and respiratory infections was obtained. He therefore concluded that apparently there was a definite reciprocal relationship between the incidence of the acute respiratory infections and the mean outside atmospheric temperature. There seemed to be also a relationship between the respiratory infections and the average daily hours of sunshine.

<sup>1</sup> Kohman E F, Sanborn N H, Eddy W H and Gurin C Z. *J Indust & Engin Chem* 26: 758 (July) 1934.

<sup>1</sup> Smiley D F. Seasonal Factors in the Incidence of the Acute Respiratory Infections. *Am J Hyg* 6: 621 (Sept) 1926.

More recently a further attempt to analyze the weather conditions in relation to the common cold has been published by Gover and her co-workers<sup>2</sup>. The complicated nature of the problem is well recognized by these workers, who say

Because summer and winter, in terms of meteorological conditions, are a composite expression of many varying factors, the problem of relating the incidence of disease to atmospheric conditions is a complicated one. It is obvious that the mere increase in mortality in the fall and winter when there is a decrease in the hours of sunshine cannot be assumed to express any causative relationship. The same is true of temperature and other weather conditions that may, on closer examination, be found to be associated with the incidence of respiratory diseases. Aside from the fallacy of assuming causative relationship, it cannot be assumed that there is any very close association between such variables as respiratory disease incidence and temperature or hours of sunshine until the usual or normal seasonal variation has been eliminated from the picture. So many weather conditions show the same seasonal swing that any one or all might appear to be closely correlated with respiratory affections unless examined apart from seasonal variation.

The data used in this study were obtained from a survey made on the weekly incidence of respiratory disorders among students in various universities of the United States in a period of eighteen months from November 1923 to April 1925. The six university groups comprising the study were well distributed geographically: Boston, Washington, D. C., Columbus, Ohio, Chicago, New Orleans, and Berkeley, Calif. Weather conditions with respect to mean temperature, daily temperature range, relative humidity, absolute humidity, hours of sunshine, wind velocity, precipitation, and the respiratory attacks were considered in weekly intervals. A full twelve months period was also presented to give a climatic background for each city. An examination of the weather variables by statistical methods did not reveal any close association between the magnitude of the respiratory attack rate and weather conditions, though there was a tendency to slight association of some of the items. Thus, for the year ended May 2, 1925, in each city except Boston, the attack rate showed a small negative correlation with the mean temperature. This appears to be statistically significant as judged by its probable error. Daily temperature range, however, showed a significant correlation in only one of the cities. It was concluded that no definite association of respiratory attack rates with marked variations in climate could be determined. Weekly deviations from the "norm" of the respiratory attack rate showed a small association with deviations from the "norm" in mean temperature for the corresponding week and also for the preceding week. A respiratory attack rate above normal was associated with a mean temperature below normal, this association was higher during the early fall months than at any other time of the year.

It has been difficult to collect reliable information of the incidence of respiratory disturbances in relation to

weather conditions on a large enough number of persons to have significance. Climatic and geographic distribution has also been difficult to obtain, but, as the most extensive study so far made on the subject, the report of Gover and her collaborators offers some corroboratory basis for the common impression that "colds" are more frequent in cold weather.

### SPONTANEOUS RECOVERY IN MESENTERIC VASCULAR OCCLUSION

The prognosis in superior mesenteric thrombosis usually is gloomy. Occasionally, however, recovery occurs following surgical intervention, or it may be spontaneous. Sargent<sup>1</sup> recently reported the case of a man, aged 74, who suddenly had intense pain in the upper part of the abdomen above and to the left of the umbilicus. The abdomen was tender on palpation over this area and slightly rigid. He gave no account of previous attacks of abdominal disease. Soon after admission to the hospital, the patient passed a stool suggestive of melena. A diagnosis of partial intestinal obstruction was made and a laparotomy was performed. About four feet of the ileum was found to be dilated and of a dark plum color. The blood vessels in the mesentery felt like thickened cords, and nowhere did they pulsate. In view of the patient's age and the amount of tissue involved, an attempt at resection was not made and the abdomen was closed. The patient was gravely ill for several days, but a week after the operation the hiccuping, vomiting and pain suddenly ceased and a normal stool was passed. In another week the patient had almost completely recovered. The facts in this case apparently fit a diagnosis of superior mesenteric thrombosis, although the condition may have been volvulus, as was suggested to the author.

Mesenteric vascular occlusion may arise following some abdominal infection, particularly appendicitis, or it may be the result of some disease of the circulatory system, such as arteriosclerosis, endocarditis, phlebitis or aneurysm. The absence of an infectious etiology is a favorable factor. In view of the history it seems that the case described by Sargent was not the result of infection. In 1931 Meyer<sup>2</sup> reviewed the literature on mesenteric vascular occlusion for the previous ten years and found that ninety-two proved cases had been reported. Among these cases were nine instances of spontaneous recoveries. An exploratory operation alone was done seventeen times, and six of the patients recovered. There were forty-three cases in which resection was done, followed by a mortality of 32.6 per cent. Three patients recovered following almost complete removal of the small intestine.

In THE JOURNAL<sup>3</sup> recently was reported the case of a man, aged 60, who had a sudden mesenteric throm-

<sup>1</sup> Sargent R. M. Spontaneous Recovery in Superior Mesenteric Thrombosis. *Brit. M. J.* 2: 64 (July 14) 1934.

<sup>2</sup> Meyer J. L. Mesenteric Vascular Occlusion. *Ann. Surg.* 94: 88 (July) 1931.

<sup>3</sup> Curry G. J. and Backus G. R. Superior Mesenteric Thrombosis with Recovery. *J. A. M. A.* 102: 839 (March 17) 1934.

<sup>2</sup> Gover Mary, Reed L. J. and Collins S. D. Time Distribution of Common Colds and Its Relation to Corresponding Weather Conditions. *Pub. Health Rep.* 49: 811 (July 13) 1934.

basis, which was not associated with any previous abdominal complaints or with infective process. He was operated on about five hours after the onset of symptoms, and about two and a half feet of the small intestine was resected. The favorable result in this case may have been due to the early operative intervention.

## Current Comment

### STANDARDS OF PRENATAL CARE

In February the Children's Bureau published a revised pamphlet<sup>1</sup> containing the minimum professional care which, in the opinion of the advisory committee, pregnant women should receive. The first edition of these standards was issued in 1925, at which time it was recognized that if all the requirements considered desirable or necessary by a number of different specialists were included, the material would be too bulky to be of use to the medical profession. As a result of intelligent compromise, an outline has been produced that includes essentials of past history, obstetric history, physical and laboratory examinations, and instructions to patients, which fills only four pages. In this edition the only change has been the addition of the hemoglobin test to the physical examination. As a guide, especially to those not specializing in obstetrics, this pamphlet should be particularly useful. In view of the widespread interest in and comment on maternal mortality, it would seem that every physician would desire to be at least as thorough as the suggestions of the outline. It seems probable, in recognition of the published analyses of the causes of maternal deaths, that thoroughness of prenatal care alone would have some effect on the number of maternal deaths.

### THE LEGION AWARD CITATION TO WILLIAM AND CHARLES MAYO

The citation by the American Legion of Drs. William J. and Charles H. Mayo for distinguished public service, with the award made by the President of the United States in person, is a great honor for American medicine. It has been said that opportunities and great occasions make men. An exception to this rule is presented in the work and life of these distinguished medical leaders. They have made a small village become one of the notable medical centers of the world wholly through a genius for surgery and for medical leadership. Throughout their careers they have devoted themselves to the advancement of organized medicine. The medical society of the county in which they practice was founded by their father. Both have been presidents of the American Medical Association. In 1906, when Dr. William J. Mayo delivered his presidential address to the American Medical Association, he forecast and considered some of the hazards that concern medical practice today. He attacked the abuse of medical care by public service corporations and the

abuses of public charity and of private institutions by those able to pay, and he condemned all systems of hospital and medical care dominated by laymen. He concluded his address with a plea for harmony in the medical profession, recognizing that only a strongly united opinion could gain for medicine the place in our civilization which it merits. Recognizing their leadership, their service to mankind and the spirit that has motivated Drs. William J. and Charles H. Mayo throughout their long and successful careers, *THE JOURNAL* congratulates the American Legion on bestowing its highest honor where that honor is so fully deserved.

### UREA AND ECONOMY OF WATER

Of the manifold recognized functions of the kidney, the one among the earliest to be recognized and, perhaps, most to be taken for granted is that of concentration. Urine contains nothing new, all its constituents, with the probable exception of ammonia, appear preformed in the blood. The renal apparatus does, however, excrete these solutes in much higher concentration than exists in the blood, with a resultant conservation of water. This activity of the kidney has recently been given quantitative expression by Gamble and his associates<sup>1</sup> at the Harvard Medical School. By equating the concentration of substance under investigation in the diet of experimental animals with that in the urine, the amount of water withdrawn per unit of solute was determined. The unit of solvent employed was the osmumol, so that direct comparisons could be made on the basis of osmotic pressure. The ions  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Cl}^-$ ,  $\text{HCO}_3^-$ ,  $\text{H}_2\text{PO}_4^-$  and  $\text{SO}_4^{=}$ , with urea, creatinine, dextrose and galactose, were used alone and in pairs. It was observed that, for all the substances examined except urea, the water requirements established for the individual solutes can be added together when the substances are used in mixtures to predict the observed values. In the case of urea, however, much less water is excreted than would be expected from the individual values. The conservation of water is a prime necessity for terrestrial animals, and urea for mammals at least, is the leading metabolic waste product. There is in this combination of circumstances a peculiarly effective mechanism, one of a multitude of such whereby the higher organism is adjusted to its environment.

## Association News

### MEDICAL BROADCASTS Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, Central daylight saving time. The next three broadcasts and the speakers will be as follows:

August 16	Black Widow	W. W. Bauer, M.D.
August 23	Infantile Paralysis	W. W. Bauer, M.D.
August 30	Your Child Enters School	Morris Fishbein, M.D.

<sup>1</sup> Gamble, J. L., McKhann, C. F., Butler, A. M. and Tuthill, E. *Am. J. Physiol.* **109**: 139 (July) 1934.

<sup>1</sup> Standards of Prenatal Care. Bull. 153. U. S. Dept. of Labor, Children's Bureau, February 1934.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION PUBLIC HEALTH ETC)

### CALIFORNIA

**Plague-Infected Rodents in Modoc County**—According to *Public Health Reports*, plague-infected ground squirrels have been found in Modoc County as follows: June 26, six, July 5, one, and July 9, one.

**Restriction on Manufacture of Convalescent Serum**—In view of the recent death of a child and the severe illness of another from the prophylactic use of human serum against infantile paralysis, the state department of health issued a regulation restricting the manufacture and distribution of human convalescent serum to laboratories that are approved by the state board of health. This applies to the equipment, training of personnel, technique and process of manufacture of the serum by public and private laboratories. The regulation is effective for sixty days, beginning June 27.

**Immunization Campaign**—An immunization campaign against diphtheria and smallpox will be conducted for six weeks in San Francisco with the opening of schools, under the auspices of the San Francisco County Medical Society and the city department of health. A campaign was inaugurated August 6, to acquaint the public with the objectives of the plan. Physicians have agreed to immunize free of charge all those who cannot pay, the health department furnishing the vaccine and toxoid. The department will also furnish cards to physicians for reporting the completion of each immunization and vaccination. Cards for reporting Schick tests will be issued after six months. Physicians will follow up their own patients for return appointments for injections of toxoid and vaccine but will return to the department of health the cards of those who fail to return after a period of four weeks. The department will then attempt to have the patient return to the physician. The department will also notify each patient to return to his physician when the Schick test is due. Hours during which this special immunization is done will be left to the convenience of the physician.

### COLORADO

**Personal**—Dr. George H. Curfman, Salida, received the merit award of the Northwestern University Alumni Association on "illumination night" in Evanston, preceding the annual commencement, June 15. The award is given annually to alumni for "worthy achievement which has reflected credit upon their alma mater."—Dr. Benjamin E. McBrayer, Arvada, was named health officer of Jefferson County, succeeding the late Dr. Richard Russell.

### FLORIDA

**Dengue Fever in Miami**—Eighty cases of dengue fever were reported in Miami, according to the *New York Times*, July 31. Special efforts are being made to control the spread of the disease by eradicating mosquitoes.

**Society News**—At the semiannual meeting of the Central Florida Medical Association in Leesburg, June 8, speakers included Drs. Gaston H. Edwards, Orlando, and Edwin H. Andrews, Gainesville, on "Treatment of Chronic Pelvic Infections" and "Use and Abuse of Urinary Antiseptics" respectively.—Speakers before the Dade County Medical Society in Huntington, July 6, were Drs. Michael P. DeBoe, Miami, on hobbies, and Mathew Jay Flipse, Miami, agranulocytosis.—A symposium on the urinary tract in infancy and childhood constituted the program of the Duval County Medical Society in Jacksonville, June 5. Speakers were Drs. Elijah T. Sellers, Robert B. McIver, W. M. Shaw, and Luther W. Holloway.

### ILLINOIS

**Appointed Dispatch Secretary to Virgin Islands**—Dr. Arthur I. Edison, Maywood, has been appointed resident medical officer and government secretary of the island of St. John, Virgin Islands, with the title of dispatch secretary. Dr. Edison sailed for the island July 5. In addition to other duties he plans to engage in medical research. Dr. Edison was formerly health officer of Broadview and Westchester.

**Sale of Food Banned at Circus**—During the appearance of the Ringling Brothers-Barnum and Bailey Circus in Evanston, beginning August 2, the sale of food on the show grounds was banned by health authorities, on account of the recent outbreak of typhoid among performers. The disease was believed to have been contracted in New Castle, Pa. One death occurred in Dayton, and another in Detroit (*THE JOURNAL*, August 4, p. 350).

### CHICAGO

**Dr. Gellhorn Awarded Alvarenga Prize**—Dr. Ernst Gellhorn, professor of physiology, University of Illinois College of Medicine, was awarded the Alvarenga Prize for 1934 for his essay entitled "The Influence of Parathormone on the Neuromuscular System: An Experimental Analysis." The prize, amounting to about \$300, is awarded by the College of Physicians of Philadelphia.

### INDIANA

**State Board Election**—Dr. Edmund M. Van Buskirk, Fort Wayne, was elected president of the Indiana State Board of Health, July 16, at a meeting in the State House, Indianapolis. Other members of the board are Dr. Verne K. Harvey, Indianapolis, secretary, reelected, Dr. Ernest Rupel, Indianapolis, vice president, and Dr. John C. Glackman, Rockport, the retiring president. Dr. Van Buskirk served for many years as health officer of Allen County.

**Books Given to Hospital**—Sixty medical books were recently given to Indianapolis Methodist Episcopal Hospital by Mrs. John Henry Eberwein, Indianapolis. The books belonged to her father, Dr. J. B. Clark, who practiced medicine for more than fifty years in Economy. Included among them is a series of lectures given before the medical students in the University of Pennsylvania in the year 1859. Dr. Clark won this book, autographed by the author, as a prize the year he graduated. Dr. John William Hofmann recently presented the hospital's library with fifty volumes, and Dr. Robert O. McAlexander with thirty, together with about 250 medical magazines. Dr. David H. Sluss has also donated books recently.

### IOWA

**Annual Clinic**—The Iowa County Medical Society sponsored its third annual heart and chest clinic at Marengo, June 22. Dr. F. M. Smith of the University of Iowa College of Medicine and Dr. John H. Peck, Des Moines, president of the Iowa Tuberculosis Association, conducted the clinic. Physicians were privileged to designate patients for examination, these being visited in advance by a nurse to obtain the history. A banquet was held preceding the clinic. Dr. Smith discussed "Treatment of Heart Disease," and Dr. Peck, "Our Responsibility in Pulmonary Tuberculosis."

**Society News**—Dr. Marvin Sukov, Clarinda, among others, addressed the Southwestern Iowa Postgraduate Medical Association in Clarinda, June 7, on "Current Concepts of Schizophrenia."—Dr. Furman P. Ralston, Knoxville, was elected president of the Des Moines Valley Medical Association at its sixty-first annual meeting in Ottumwa, June 18, and Dr. Edward B. Hoeven, Ottumwa, was reelected secretary.—The Grundy County Medical Society was host to the Sixth Councilor District Medical Society, July 5, speakers included Drs. Milford E. Barnes, Iowa City, on "Application of Preventive Medicine to the Public Milk Supply," and Ransom D. Bernard, Clarion, "Proposed Basic Science Law."

### KENTUCKY

**Personal**—Dr. Edward T. Thompson, formerly administrator of Indiana University School of Medicine, Indianapolis, has been appointed superintendent of Norton Memorial Infirmary, Louisville.—Dr. Robert K. Galloway, Henderson, director of the Henderson County health department for four years, has been appointed assistant to the director of county health work of the state board of health.

**Society News**—Drs. William O. Floyd and Milton Smith, Lewis, Nashville, addressed a joint meeting of the Todd and Christian county medical societies at Trenton, July 19, on "Management of Hernia" and "Factors That Influence Infant Mortality in the First Month of Life," respectively.—Dr. Irvin Abell, Louisville, addressed the Henderson County Medical Society, Henderson, recently, on cancer of the uterus.

**University News**—The bacteriologic laboratory of the city of Louisville has recently been amalgamated with the bacteriologic laboratory of the Louisville City Hospital, which is affiliated with the University of Louisville School of Medicine, with James A. Kennedy, Ph.D., recently of the University of

Georgia School of Medicine, as director Dr Harry S Andrews, instructor in pediatrics at the medical school, has been made director of service at the Children's Free Hospital, also affiliated with the school. Recent promotions at the university include

Dr Alice N Pickett associate professor of obstetrics  
Dr William T McConnell associate clinical professor of obstetrics  
Dr William O Johnson assistant clinical professor of gynecology

### LOUISIANA

**Personal**—Dr Oscar W Bethea, professor of clinical medicine, Tulane University of Louisiana School of Medicine, New Orleans, was awarded the honorary degree of master of pharmacy by the Philadelphia College of Pharmacy and Science at its one hundred and twelfth commencement, June 6. Dr Bethea delivered the commencement address.

### MARYLAND

**Model Health Unit Discontinued**—With the withdrawal of the Johns Hopkins School of Hygiene and Public Health and the Rockefeller Foundation from participation in the model health department in Anne Arundel County on the expiration of their agreement, July 31, the unit was abandoned. Established in 1931, the department was cooperatively maintained by the foundation, the school and the county and state health departments, to work out programs of preventive medicine with particular emphasis on sanitation problems. Anne Arundel County was selected because of its large population, its proximity to Baltimore, and the complicated health problems created by its many rivers and shore lines. Activities of the unit will be absorbed by the public health district instituted in 1932 in accordance with a recommendation of Dr Joseph Mountain in his public health survey of Baltimore. This district includes the sixth and seventh wards and was created to make the residents the subject of medical experimentation in the public health field. A grant of about \$25,000 for two or more years by the Rockefeller Foundation, through the school of hygiene and public health, provides for the training of public health workers. These institutions, it was stated, saw no reason for continuing their partial support of the Anne Arundel unit when the city health center can serve their purposes more conveniently and without duplication of expenditures. The county's activities will be taken over by the state and county health authorities.

### MINNESOTA

**State Medical Election**—Dr William A Coventry, Duluth, was elected president of the Minnesota State Medical Association at its annual meeting in Duluth, July 15-18, to take office in January. Dr Alfred G Chadbourn, Heron Lake, and Dr E Sydney Boleyn, Stillwater, were named vice presidents, and Drs Edward A Meyerding, St Paul, and William H Condit, Minneapolis, reelected secretary and treasurer, respectively. The next annual session will be held in Minneapolis.

### MISSOURI

**Heat Wave Causes High Death Rate**—Telegraphic reports to the U S Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended July 28, indicate that the highest mortality rate (34) appears for St Louis and that the rate for the group of cities as a whole was 12.3. The unusually high death rate was attributed to the prevailing heat wave. Other high rates were for Cincinnati, 32; Omaha, 29; Kansas City, Mo., 26.2; Indianapolis, 23.9; and Memphis, 21.6. The mortality rates for these cities for the corresponding weeks of 1933 were: St Louis, 13; Cincinnati, 14.6; Omaha, 9; Kansas City, 11; Indianapolis, 12.1; Memphis, 21. The annual rate for eighty-six cities was 11.9 for the thirty weeks of 1934 as compared with 11.3 for the corresponding period of 1933. Caution should be used in the interpretation of these weekly figures as they fluctuate widely. The fact that some cities are hospital centers for wide areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

### NEW JERSEY

**New Translation of Galen Found at Princeton**—In the course of cataloguing a collection of Arabic manuscripts on deposit in the library of Princeton University, Princeton, a translation of the treatises of Galen from Greek into the Arabic has been discovered. It was recently reported. The translation, made by Hunayn Ibn-Ishaq, bears the date 1774, according to newspaper accounts.

**Epidemic of Bacillary Dysentery**—More than 100 persons have been stricken in an epidemic of bacillary dysentery, which began in Jersey City, July 21. Five deaths have occurred among children. The health department, the Red Cross and other agencies have sent nurses into the homes of victims to give instruction in sanitation and preparation of food. The capacity of the isolation wards of the Jersey City Medical Center is said to be practically exhausted, with sixty six cases, and efforts were being made to obtain additional room at the Essex County Hospital for Contagious Diseases, Belleville, according to the New York Times.

### NEW MEXICO

**Personal**—Dr William W Peter, White Plains, N Y, who for years engaged in health work in China, has been appointed medical director for the Navajo Indian Reservation.

**State Medical Election**—Dr Charles W Gerber, Las Cruces, was named president-elect of the New Mexico Medical Society at the annual meeting in Las Vegas, July 20. Dr Charles F Milligan, Clayton, became president and Drs George W Jones, Clovis, and Lea B Cohenour, Albuquerque, vice president and secretary, respectively. The 1935 meeting will be held in Albuquerque in May.

**Public Health Meeting**—The New Mexico Public Health Association held its annual meeting in Las Vegas, July 17-18. Guest speakers were Carl E Buck, Dr P H, New York, who recently made a health survey of the state, Dr Gerrit Heusinkveld, Denver, who discussed training of midwives, and Dr John W Brown, health officer of Texas, Austin. Dr Buck also discussed the health survey at a public health meeting at Ifield Auditorium, New Mexico Normal University.

### NEW YORK

**Scarlet Fever Following Picnic**—Twenty cases of scarlet fever were reported in the village of Catskill following a picnic, June 29. In three cases the illness began the next day and the others set in July 2 and 3. Both adults and children were attacked. All cases are said to have been mild. The state health department is conducting an investigation in cooperation with the local health officer, Dr William M Rapp.

### New York City

**Illegal Practitioner Given Suspended Sentence**—Mrs Winifred Danielson, Brooklyn, pleaded guilty to illegal practice, July 9, in the court of special sessions and was sentenced to six months in the workhouse, July 19. The sentence was suspended pending good behavior. Mrs Danielson was arrested last March on the complaint of two inspectors for the state department of education.

**Health Center Accepted by City**—The East Harlem Health Center, founded in 1921 by the New York chapter of the American Red Cross, was presented to the city, June 21. Mayor La Guardia was present. Dr Livingston Farrand, president of Cornell University, Dr John L Rice, health commissioner and Homer Folks, secretary of the State Charities Aid Association, gave addresses.

**Personal**—Dr Julius J Valentine was recently decorated by the government of Venezuela for services rendered to that country. Dr Valentine is a past president of the Pan American Medical Association. Dr Raymond B Allen, associate director, New York Post-Graduate Medical School, has been appointed associate dean in charge of graduate studies at Columbia University College of Physicians and Surgeons. Dr Joseph W Miller has recently been reappointed an honorary consulting surgeon to the New York City Police Department. Dr Jacob J Golub sailed for Europe, July 5, on his way to spend two months as consultant to the Hebrew University in Palestine in connection with the building of the Hebrew University Hospital in Jerusalem.

**Social Workers Stationed in Courts**—The experiment of having social workers stationed in magistrates' courts as advisers in mendicancy cases, sponsored by the Welfare Council of New York, will be continued as a regular function of the department of public welfare, it was recently announced. Of the number of mendicants examined it was said that 58 per cent were alcoholic addicts, 12 per cent were drug addicts, 22 per cent had venereal diseases and 15 per cent were mentally impaired. The majority were more than 40 years old and unmarried. After arrest and conviction the beggars are examined by a physician and a report is laid before the magistrates to assist him in deciding on appropriate action. Many professional beggars have been exposed, the sick have been sent to health and welfare agencies, and those who resorted to begging because they were ignorant of sources of aid have been helped through relief channels.

## NORTH CAROLINA

**Society News**—A symposium on cancer was presented before the Buncombe County Medical Society, Asheville, June 18, by Drs James M Lynch, Charles S Norburn and George Curtis Crump. Dr Walter R Johnson addressed the society, June 4, on cancer of the stomach—Dr Merle D Bonner, Jamestown, spoke on medical and surgical treatment of tuberculosis before the Guilford County Medical Society, Greensboro, June 7—Speakers before the final meeting for this season of the Mecklenburg County Medical Society, Charlotte, June 19, were Drs Andrew J Crowell, on "Diagnosis and Treatment of Malignancies of the Prostate" Oren Moore, "Inversion of the Uterus," and James W Gibbon, "Operative Treatment of Cancer of the Rectum."

## OHIO

**Hospital News**—A plaque was presented to Charity Hospital in Cleveland, June 20, during the annual meeting of the Catholic Hospital Association of the United States and Canada honoring the institution as the oldest hospital in the city—The Good Samaritan Hospital, Cincinnati, closed its outpatient clinic, June 30, because of financial stringency, it is reported—St Alexis Hospital, Cleveland, celebrated the fiftieth anniversary of its founding, July 17-19. The hospital has cared for 74,291 patients in the half century, it was announced.

**Society News**—Speakers at the annual meeting of the eighth district of the Ohio State Medical Association in McConnelsville, June 21, were Drs Verne A. Dodd, Columbus, on "Surgical Aspects of Ulcers and Cancer of the Stomach", Arthur G Helmick, Columbus, "Nutritional Fads and Facts from the Viewpoint of the Clinician", James M Appel, North Royalton, "Collapse Therapy in Tuberculosis", Reo M Swan, Cambridge, "Amebic Dysentery," and Harry E LeFever, Columbus, "Intracranial Hemorrhage"—Dr Samuel J Ellison, West Union, among others, addressed the Adams County Medical Society, West Union, June 27, on prevention of scarlet fever—Drs Harry H McClellan, Dayton, and George B Faulder, Wapakoneta addressed the Auglaize County Medical Society, July 12, at Wapakoneta, on "Physical Causes of Nervous and Mental Diseases" and "Version versus Forceps," respectively—The Ohio State Medical Association is preparing a series of study outlines for the use of county societies as suggestions for program material. The first two, dealing with scarlet fever and peritonitis, appeared in the August issue of the *Ohio State Medical Journal*.

## OREGON

**Eyesight Swindlers**—The Oregon state police recently reported that two men, using methods varying only slightly from others previously mentioned in THE JOURNAL, had swindled a Mr and Mrs Joseph Aubel, Grants Pass, out of \$912.50 by promising to cure Mr Aubel's eyes with radium. They assured Mr Aubel that radium would cure his eyes in twenty-one days the cost to be \$412.50. That amount was paid with an additional \$500 for the rental of a so-called radium belt, which was represented to be a positive cure for diabetes. The latter sum was to be refunded in twenty-one days. One man who called himself Dr Miles was about 45 years old, 5 feet 9 inches tall, of stocky build and weighing about 170 pounds, smooth shaven, believed to be of Italian extraction. The other was slender, had a long face and light complexion, light hair and blue eyes, freckled face and hands. THE JOURNAL, March 17, page 849 printed a similar report, in which one man gave the name Dr Miles, Concord and Grove Avenues, Chicago, a fictitious address.

## PENNSYLVANIA

**Society News**—Dr John W Shirer, Pittsburgh, addressed the Somerset County Medical Society, Johnstown, July 18 on the mortality of appendicitis—Dr Max Levin, Harrisburg, addressed the Cumberland County Medical Society, Carlisle, July 10, on medical aspects of mental hygiene.

**Personal**—Dr Donald Guthrie Sayre, president of the Medical Society of the State of Pennsylvania, has recently been elected to membership in the Royal Academy of Medicine in Rome—Dr William H Kunsman, Morrisville, recently celebrated the fiftieth anniversary of his entrance into medical practice.

## Philadelphia

**Personal**—Dr Charles F Nassau has been appointed honorary president of the John Chalmers Da Costa Foundation. The late Dr William W Keen formerly held this office—Dr Charles H Frazier was recently elected a member of

the board of trustees of the University of Pennsylvania—Dr Harry Z Hibshman was promoted from clinical professor to professor of proctology at Temple University School of Medicine, June 1.

## TENNESSEE

**Compulsory Inspection of Automobiles**—A system of compulsory mechanical inspection of automobiles introduced last April in Memphis is credited with a 25 per cent reduction in deaths from automobile accidents as compared with the number for 1933. Brakes, lights, windshield wiper, steering and wheel alignment are to be tested every six months, according to the new arrangement. If a car fails to pass inspection, seven days is allowed for the owner to have repairs made. On the first test, only 28,340 of the 48,500 automobiles in Memphis passed the inspection, but a report published in June stated that 44,914 vehicles had received the sticker of approval.

**Society News**—Drs Edward T Newell and Walter G Bogart, Chattanooga, addressed the Hamilton County Medical Society, August 9 on "Irradiation and Cautey Excision in the Treatment of Malignancies" and "The Past Fifty Years in Medicine," respectively—At a meeting of the Hardin-Lawrence-Lewis-Perry-Wayne Counties Medical Society in Waynesboro, June 26, speakers were Drs J T Keeton, Clifton, on hypertension, Nathaniel S Shofner, Nashville, hyperthyroidism, James Frazier Binns, Nashville, diarrhea, and James V Hughes Jr, Savannah, rat bite—Drs Martin E Blanton and Edward M Fleenor, Johnson City, addressed the Washington County Medical Society, August 2, on "Injuries to the Eye" and "Early Diagnosis of Appendicitis in Children," respectively—Drs Arthur G Quinn and Otis S Warr, Memphis addressed the Tri-County Medical Association (Henderson, Decatur and Chester counties), Henderson, June 14, on "Feeding of the New-Born Infant" and "Diseases of the Colon," respectively.

## TEXAS

**Personal**—Dr William W Dunn has been appointed health officer of Beaumont—The Venezuelan medal of honor was recently conferred on Dr John O McReynolds, Dallas, in recognition of his services to the cause of education "as a mark of the gratitude of the people of Venezuela."

**Society News**—Dr Stuart T Wier, Beaumont, among others, addressed the Jefferson County Medical Society, Port Arthur, June 11, on "Amputation of the Forearm under Local Anesthesia"—Dr Ray M Balyeat, Oklahoma City, addressed the Grayson County Medical Association, June 12, on diagnosis and treatment of allergic conditions—At a meeting of the Twelfth District Medical Society at Hillsboro, July 10, speakers included Drs Titus H Harris, Galveston, on "Psychiatry as Related to Medicine in General", Leslie E Kelton Jr, Corsicana, "Amebiasis," and Roy G Giles, Temple, "Roentgen Therapy in Carcinoma of the Breast."

## VERMONT

**Society News**—The annual meeting of the New England Surgical Society will be held at Burlington, September 28-29—Dr George R Eades, Keene, N H, addressed the Windham County Medical Society, Brattleboro, June 13, on acute otitis media—Dr Clarence A Bonner, Danvers, Mass, addressed the Windsor County Medical Society, Windsor, May 17 on "Modern Trends in the Treatment of the Insane"—At the quarterly meeting of the Northeastern County Medical Society, Barton, in May, Dr Fraser B Gurd, Montreal, delivered an address on "Rectal Conditions as Met by the General Practitioner."

## WEST VIRGINIA

**Society News**—Maj Gen Harry L Gilchrist, Washington, D C, addressed a joint meeting of the Ohio County Medical Society and the Fort Henry chapter, Reserve Officers Association in Wheeling, in May, on chemical warfare—Drs Frederick R Whittlesey, Morgantown and Justus C Pickett, Pursglove, addressed the Monongalia County Medical Society, Morgantown, June 5, on heart disease and disability resulting from injuries to the vertebral column, respectively.

**Sterilization Law to Be Enforced**—A law authorizing sterilization of inmates of various state institutions gives heads of those institutions the right to petition the Public Health Council for permission to enforce the law, according to a ruling handed down by the council at a meeting July 11. The sterilization law was passed in 1929 but has never been enforced because of certain details that have not been sufficiently studied, it was said. The ruling paves the way for inaugurating a program of sterilization of the mentally unfit of which there



are reported to be more than 400 in the state. The statute provides for hearings on each case in the county in which the patient resides.

### WYOMING

**State Medical Election**—Dr Joseph L Wicks, Evanston, was named president-elect of the Wyoming State Medical Society at the annual session in Casper, July 16, and Dr Herbert L Harvey, Casper, was installed as president. Dr Chester Harris, Basin, was elected vice president and Dr Earl Whedon, Sheridan, reelected secretary. The 1935 meeting will be held in Lander in June.

### GENERAL

**Society News**—The National Medical Association will hold its annual meeting in Nashville, Tenn., August 13-18, under the presidency of Dr Midian O Bousfield, Chicago.—The American College of Physicians will hold its nineteenth annual clinical session in Philadelphia, April 29-May 3, 1935.

**News of Epidemics**—About 150 cases of malaria have occurred in an outbreak in Georgetown County, South Carolina, newspapers reported, July 12.—Nine cases of typhoid with three deaths were reported in Fremont, Ohio, July 6, the source was not determined.—Whooping cough was said to be epidemic in Erie, Pa., with fifty five cases reported in June, as compared with five cases for June, 1933.—Thirty-eight cases of typhoid, with seven deaths, have occurred in Monmouth County, N. J., since May 1, the source has not been definitely determined, but two carriers were found working in food shops.—Twelve persons were reported to be suffering from typhoid in Decatur, Ala., as a result of using water from a contaminated well.

**Financial Aid for College Students**—Twelve per cent of the students of non-profit making colleges will be assisted in earning their way through school during the coming winter through the student aid program of the Federal Emergency Relief Administration, it was recently announced. The number aided will be about 100,000, it is estimated. Last year 10 per cent of the enrolments, or about 75,000 were helped. FERA funds will be allotted through state emergency relief administrations to certain qualifying institutions and paid to the students for part time work on socially desirable projects. It is suggested that medical students may aid in the health work and nutrition projects carried on by the relief administration. L. R. Alderman, director of the educational division of the relief administration, is in charge of the student aid program. Students may earn up to \$20 a month each.

**American Public Health Association**—The sixty-third annual meeting of the American Public Health Association will be held in Pasadena, Calif., September 3-6. The preliminary program includes the following speakers and addresses:

Elmer V McCollum, Ph.D., Baltimore: Nutritional Aspects of Milk Pasteurization.  
Dr Maurice L Tainter and Windsor C Cutting, San Francisco: Use of Diminophenol in Nutritional Disorders.  
R. R. Parker, U. S. Public Health Service, Hamilton, Mont.: Rocky Mountain Spotted Fever: Result of Ten Years Prophylactic Vaccination.  
Dr William W. Bauer, Chicago: Role of Milk in Diets.  
Dr John E. Gordon and G. F. Badger, Detroit, and George B. Darling, Jr., Dr P. H. Battle Creek, Mich.: Reaction of Familial Contacts to Scarlet Fever Infection.  
Dr Francis W. O'Connor, New York: The Concern of the United States with Tropical Diseases.  
Emery W. Dennis, Ph.D., American University of Beirut, Syria: Dysenteries and Diarrheas of Childhood in the Near East.

A symposium on amebic dysentery will be presented by Karl F. Meyer, Ph.D., Drs Alfred C. Reed and Jacob C. Geiger, all of San Francisco, and the subject will also be discussed in a symposium on municipal public health engineering by Joel I. Connolly and Arthur E. Gorman, Chicago, sanitary engineers. During the four days preceding the association's meeting, Dr Iago Galdston, New York, will conduct the third Institute on Health Education.

### FOREIGN

**Orthopedic Prize**—The Rizzoli Orthopedic Institute in Bologna, Italy, announces the opening of competition for the Umberto I prize of 3,500 lire for "the best orthopedic work or invention." Foreign physicians are invited to submit entries which will be judged by the provincial council of Bologna. Regulations governing the competition may be obtained from the president of the Rizzoli Institute. Entries must be submitted before December 31.

**Tuberculosis Campaign in China**—The National Anti-Tuberculosis Association of China was formed within recent months, with Dr Way S. New, Shanghai, as chairman of the

administrative board and with headquarters in the building of the Chinese Medical Association. According to regulations adopted to govern the association, the administrative board is to have fifty-five members and there will also be a supervisory board of eleven members. A general secretary will execute the work of the association, which will have both individual and group memberships.

**Radiologic Institute in Madras**—The Madras Government Institute of Radiology was opened March 26, in connection with the Madras Government General Hospital at Madras. The institute, a two story building, is connected with the surgical block of the hospital and is expected to become an important training center for India. It provides rooms for all types of roentgenologic work, clinical photographic and electrocardiographic departments, a hydrotherapy section, ultraviolet ray center, a radium theater, radon laboratory, a radium safe room and halls for remedial exercises and electrical and heat treatments.

**Society News**—The fourth conference of the International Association of Preventive Pediatrics (the medical section of the International Save the Children Union) will be held in Lyons, France, September 27-28. Themes to be considered are prevention of malaria in children and prevention of rickets and spasmophilia. Further details may be obtained from the secretary of the association, 15 rue Levrier, Geneva.—A congress on colibacillosis and other infections and intoxications of intestinal origin will be held September 23-24 at Chatel Guyon, France, under the presidency of Prof. Paul Carnot. This meeting was first announced for May 20-21. The secretary of the congress is Dr Pierre Balme, Societe des Eaux Minerales, Chatel-Guyon.

**Personal**—The honorary degree of doctor of science was recently conferred on Sir Henry Wellcome, head of the Wellcome Research Foundation, London, by Marquette University, Milwaukee.—Dr Samuel E. Whitnall, Robert Reford, professor of anatomy, McGill University Faculty of Medicine, Montreal, has been appointed professor of anatomy at the University of Bristol, England, to succeed Prof. Edward Fawcett.—Sir Frederick Gowland Hopkins, president of the Royal Society of England since 1931, has been awarded the Albert Medal of the Royal Society of Arts for 1934 "for his researches in biochemistry and the constituents of food." This medal was instituted in 1826 and is awarded annually for merit in promoting arts, manufactures or commerce.—Salvatore Ottolenghi, director of the Italian Scientific Police and professor of legal medicine, University of Rome, died recently, in Rome.

## Government Services

### Veterans' Home to Be Converted to Neuropsychiatric Facility

The Veterans' Administration Home at Danville, Ill., will shortly be remodeled into a neuropsychiatric facility, the administrator of veterans' affairs recently announced. Extensive alterations will provide for an ultimate capacity of 1,800 beds. Heating, plumbing and electrical work will be replaced, fireproof stairways will be built, the dining hall and kitchen building are to be rearranged and repaired, and adequate quarters for personnel will be provided. It is expected that this project will obviate the necessity for additional construction at other neuropsychiatric hospitals in the Middle West.

### U S Public Health Service

Medical Director Claude C. Pierce, relieved from duty in the bureau of the public health service, Washington, D. C., and directed to Paris, France, for duty in the office of the American consul general and to assume supervisory charge of service activities in Europe.

Asst. Surg. William H. Gordon, relieved at Ellis Island and assigned to duty at the marine hospital, Baltimore.  
Asst. Surg. Melvin H. Pike, relieved at the marine hospital, New York and assigned to the marine hospital, Baltimore.  
Asst. Surg. W. P. Dearing, relieved at the marine hospital, Stapleton, N. Y., and assigned at the National Institute of Health, Washington, D. C.  
Passed Asst. Surg. Gordon A. Abbott, relieved at Baltimore and assigned at the marine hospital, New Orleans.

The following have been promoted and commissioned as passed assistant surgeons in the regular corps of the service:

Thurman H. Rose	Alfred B. Geyer
Victor H. Vogel	Roy E. Butler
Joseph G. Pasternack	R. C. Arnold
Robert H. Onstott	John L. Wilson
William G. Workman	George G. Van Dyke

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

July 14, 1934

#### The Registration of Foreign Physicians

The destruction of liberty of opinion in certain European countries and the persecution of scientists and physicians has produced an influx of refugees into this country, mainly from Germany. The medical refugees aroused some concern in the British Medical Association, which was expressed at the conference of overseas members, held during the Dublin meeting last July. It was said that any foreign national who was a graduate of medicine in his own country might after a short period of clinical study at a British school obtain registration in this country and practice in the colonies and dominions. The dominions committee of the association asked the council to consider the advisability of approaching the qualifying bodies with regard to the time required by those bodies for study in this country by foreign medical graduates prior to the qualifying examination and to urge that these should be required to undergo a minimum of three years' clinical study in Great Britain or Ireland before being admitted to the qualifying examination. At a recent meeting of the council of the association it was stated that the total number of foreign qualified physicians in this country going through the short course which entitled them to take the final examination of one examining body—the Conjoint Board of Scotland—was approximately 180. Of those who qualified, 150 were expected to remain in Great Britain and Ireland. An attempt would be made to place them judiciously, if they were Jews (which all of them were not) in cities where there was a large element of Jewish population. Of the remainder some might go to South America, but there was every reason to believe that none would go to Australia, New Zealand or South Africa. Therefore the problem was not that of safeguarding the dominions and colonies from persons qualified by reason of a short period of study but of dealing with the position of 150 persons at the most who would be settling in this country during the next eighteen months. The length of time one of the qualifying bodies allowed persons to study in this country before taking their final examination was the subject of consideration by a good many persons and conferences had taken place between the qualifying bodies. The council of the British Medical Association is definitely of the opinion that foreign medical graduates should be required to undergo a minimum of three years' clinical study in Great Britain or Ireland before they are admitted to a qualifying examination.

#### The British Graduate Medical School

The formation of the British Postgraduate Medical School to supply a long felt want, a medical school and hospital devoted to postgraduate teaching worthy of the metropolis of the empire has been described in previous letters. Appointments to the staff have now begun with three professorships. Dr F R Fraser has been appointed professor of medicine. He is at present university professor of medicine at St Bartholomew's Hospital. Graduating at Edinburgh in 1910 he was appointed assistant in medicine at the Hospital of the Rockefeller Institute, New York in 1912 and assistant physician to the Presbyterian Hospital in 1914. In the war he was consulting physician to the Rhine army. In 1920 he became assistant director of the medical professional unit at St Bartholomew's Hospital and later in the same year director in succession to Sir Archibald Garrod. In 1925 he revisited the medical schools in the United States and Canada at the invitation of the Rockefeller Foundation. In 1927 he delivered the

Goulstonian lectures at the Royal College of Physicians on cardiac dyspnea. In 1928 he lectured in Australia on the invitation of the Melbourne Postgraduate Committee. In 1933 he again visited the United States as Abraham Flexner lecturer at Vanderbilt University. He has written principally on polyomyelitis, heart disease and exophthalmic goiter.

Dr James Young has been appointed professor of obstetrics and gynecology. He is obstetric physician to the Edinburgh Royal Maternity Hospital and gynecologist to the Edinburgh Royal Infirmary. Since 1920 he has been lecturer in clinical obstetrics and gynecology in the University of Edinburgh. He is the author of a well known textbook on gynecology and he has collaborated in the Combined Textbook of Obstetrics and Gynecology, which has emanated from the Scotch school. He has devoted special attention to maternal mortality and reported on the maternity services of Holland, Denmark and Sweden. He has investigated the toxemias of pregnancy and the histologic changes in the uterus during menstruation and pregnancy.

Dr E H Kettle has been appointed professor of pathology. He is university professor of pathology at St Bartholomew's Hospital. He was pathologist to the Cancer Hospital and assistant pathologist to St Mary's Hospital. His textbook on the pathology of tumors is well known. His published work has been on cancer and splenomegaly and he is now engaged in experimental researches on silicosis and other industrial diseases.

#### Research in Bacterial Chemistry

The Medical Research Council has made arrangements for combined chemical and bacteriologic investigation into the conditions that govern the life and multiplication of pathogenic microbes. These investigations have been made possible by cooperation of the Middlesex Hospital Medical School, the trustees of the late Lord Leverhulme and the Sir Halley Stewart Trust. Accommodation and facilities are being provided at the Middlesex Hospital in the Bland Sutton Institute of Pathology and the adjoining Courtauld Institution of Biochemistry. The investigation will be directed by Dr Paul Fildes, FRS, who has been appointed a member of the scientific staff of the Medical Research Council. The other workers are Dr G P Gladstone, Dr G M Richardson and Mr Knight. The arrangements took effect June 1 and the support given is sufficient for an initial period of five years.

#### The British Medical Association and the Use of Drugs by Midwives

The question of the use of drugs by midwives has been under the consideration of the British Medical Association for some time. In 1923 the council of the association represented to the Central Midwives Board that midwives should not be allowed to administer chloroform except under the supervision of a physician. The board agreed with this view. The association has also on many occasions protested to the Ministry of Health and to the Central Midwives Board against the assumption that a midwife should be allowed to administer drugs other than a simple aperient or ergot after delivery. Under the present regulations the midwife receives instruction in the use of drugs, but the association contends that she is thereby led to assume dangerous responsibilities for which there is no real need. In the short time at her disposal, her training on this subject must obviously be directed merely to the immediate effect of a few drugs on certain conditions. There can be no training on the remote and general action of drugs on the patient—a thing requiring the training of the medical curriculum. Drugs that need to be administered during the course of a confinement, such as opium, chloral and solution of pituitary are potentially dangerous. The association holds that conditions in which drugs of this nature seem to be needed are indications that a physician should be summoned.

The council of the association has informed the Ministry of Health and the Central Midwives Board that it views with apprehension the proposed extension of the freedom of the midwife to administer drugs on her own responsibility. The rule of the Central Midwives Board at present governing the use of drugs by midwives is as follows: "A midwife must not on her own responsibility use any drug unless in the course of her training she has been thoroughly instructed in its use and is familiar with its dosage and methods of administration or application. The board would regard the giving of pituitary extract before the birth of the placenta, except under a grave emergency, as treatment outside a midwife's province."

#### The Toll of the Roads

During the week ended June 30, 140 people were killed and 5,000 injured on the roads of Great Britain. This brings the total for the first six months of the year to 3,224 killed and 101,694 injured. In other words, eighteen people have been killed and 600 injured every day. In the last eight and one-half years 54,138 persons have been killed and 1,522,704 injured. The figures for the first six months of this year are an increase on those of the previous year for the same period, and every year for some time has shown an increase on the previous one. The following table gives the figures for the last eight years:

Year	Killed	Injured	Total
1926	4,886	133,888	138,774
1927	5,329	148,575	153,904
1928	6,138	164,838	170,976
1929	6,696	170,917	177,613
1930	7,305	177,895	185,200
1931	6,691	202,119	208,810
1932	6,667	206,450	213,117
1933	7,202	216,328	223,530

#### Memorial to Manson and Ross

The incorporation soon after the death of Sir Ronald Ross of the Ross Institute in the London School of Hygiene and Tropical Medicine was reported in a previous letter. The official ceremony took place at the school. The earl of Athlone, chancellor of the University of London, unveiled a memorial tablet to Sir Patrick Manson and a bust of Sir Ronald Ross. Lord Athlone said that Manson had the vision and courage to inspire teaching and research in tropical medicine. He was a pioneer in new paths of medicine. He left Scotland at 21, went to Formosa and worked there and in China for nearly a quarter of a century in isolation. He discovered that the mosquito acted as a host in the transmission of filaria. He also discovered several new diseases and parasites of man. On returning home he founded the London School of Tropical Medicine. Sir Ronald Ross was inspired by Manson, the father of tropical medicine, to investigate his theory that the mosquito carried the germs of malaria. His success led to the investigation of insects as carriers of disease.

#### The Sterilization of Mental Defectives

It was stated previously, that a committee of experts appointed by the government to inquire into the sterilization of mental defectives reported unanimously in favor of voluntary sterilization. The matter next came before the Mental Hospitals Committee of the London County Council, which by a majority approved of this recommendation. This decision then came before the General Purposes Committee, which arrived at the conclusion that the facts in possession of the Council were not sufficient to warrant it in expressing an opinion. Finally the matter has just come before the whole council, when a discussion took place. In moving that the council support the unanimous opinion of the government committee, a member stated that it was a strong one. The voluntary aspect was emphasized and the treatment was hedged round by every safeguard. A growing percentage of mental defectives and

their high fecundity were pointed out. However, a labor member moved an amendment that "the knowledge of the facts do not warrant the council in expressing an opinion." This was carried by 63 votes to 44, a majority which corresponds to the predominance of the labor party on the council. The party did not officially oppose sterilization but allowed a free vote. But, on the whole, the labor party is against sterilization, as it regards mental deficiency, like other social evils, as due to "the capitalist system" and to be remedied by getting rid of that. The labor member who moved the amendment said that the inheritance of mental deficiency had not been proved and suggested that unsatisfactory environmental conditions were the cause, for which of course he held capitalism responsible.

#### PARIS

(From Our Regular Correspondent)

June 13, 1934

#### Urologists in High Favor, Faure an Exception

Prof. Jean-Louis Faure has been chosen a member of the Academy of Sciences, which is one of the five sections of the Institut de France. The Academy of Medicine, with its hundred members, created much later than the institute, does not form part of it. In the Academy of Sciences, in which one finds sections of mathematics, physics, chemistry and several others, the section of medicine and surgery has only six seats. Membership is much sought after, as a supreme distinction, by eminent physicians who already have been honored by the Academy of Medicine. The selection of members by a group consisting chiefly of mathematicians, physicists and the like who have little knowledge of medicine, is sometimes surprising. The public has often been malicious enough to remark that the institute, many of whose members are aged, showed a marked preference for specialists in urology, probably because they could use their services to care for their prostates and bladders. Also the three members who represent surgery in the "Institut" are nearly always urologists. Guyon and Bazy, for example, gained entrance without difficulty, although hardly representative of the science and art of surgery as a whole. An election was held three months ago in which Gosset, a comparatively young man, although he had performed many prostatectomies, was admitted on the first count, easily defeating Jean-Louis Faure and Hartmann. At the recent election Jean-Louis Faure was again a candidate, in competition with Hartmann and two young urologists, Marion and Chevassus. He won in the contest in spite of the fact that he is a gynecologist and hence unable to render any special service to the electing body. His success was therefore all the more meritorious. It is probable that the members have had their eyes opened to the fact that their traditional preference for urologists is a cause of many smiles. Jean-Louis Faure is, moreover, an eminent surgeon, aged 70, who succeeded Pozzi in 1919 in the chair of clinical gynecology at the Faculté médicale de Paris. His publications are numerous and his lectures at the Hôpital Broca are highly appreciated. He has often represented France in foreign countries (particularly in America) at congresses and on scientific missions. He possesses a high literary culture and has published a book, "L'Âme du chirurgien," whose perfection of style and loftiness of thought would seem to mark him as a successful candidate for membership in another section of the "Institut", namely, the French Academy.

#### The Disposal of Garbage

The problem of disposing of garbage from households has been solved differently in different countries. In Paris, where the garbage amounts to thousands of tons a day, household garbage is placed in metal receptacles at the curb, these being provided with tight fitting covers to keep out the rats. Before

dawn these collections of garbage are transferred to huge autotrucks and transported to crematories outside the city. The garbage is passed over screens in order to retrieve materials that are still usable. The remainder is burned in incinerators at a high temperature, which leaves only the mineral elements, and these are immediately transformed into bricks, which are sold as excellent construction material, which pays in part the great expense of this important sanitary service. At Aix-en-Provence another system has been adopted, which, by utilizing a process of spontaneous fermentation, secures a residue that does not need to be sterilized by high temperature but can be used in a different form. The household garbage of the city is transported to an establishment, where it is divided into several classes by means of interesting machines and is then transferred to large compartments, in which the material is allowed to ferment for twenty-one days, after which it is stored in its new form in a large warehouse and left for another month. It is later reduced by mechanical processes to a black powder resembling humus and termed "zymos." During the course of fermentation in the large compartments, the temperature reaches 80 C (176 F), which destroys absolutely the ova of parasites and all saprophytic or pathogenic organisms. Professor Carrieu and Dr. Papas emphasized that a general use of this method would do away with the accumulations of malodorous substances in areas just outside the city.

## BERLIN

(From Our Regular Correspondent)

June 18, 1934

### Is a Federal Cancer Law Needed?

For some time there has been discussion, in this era of advanced health protection legislation in Germany, as to whether a law pertaining to cancerous disease should be enacted. The Düsseldorf dermatologist Prof. Thomas Schreus is taking special interest in the subject. The essential feature of his endeavors is to prepare the way for a publicity crusade by providing for free examination of all cancer suspects. It is evident, he says, that such free examination must form a basis of all cancer control. For no matter what remedy is employed after the disease is diagnosed and irrespective of the potency of remedies that may be discovered, the prompt recognition and the early treatment of all cancerous persons must constitute the basis of all organized combating of cancer. Schreus takes a broader view of the situation than other authors (Professor Lönne, for example), who have confined their suggestions to the gynecologic aspects of the problem. Schreus recommends that the following features be added: 1. Issuance of a general warning, often repeated, to the whole population to submit to examination. 2. Assurance of the examination by an annually renewable gratuitous examination permit, given out by the Krankenkasse or by the public authorities, for this would be scarcely feasible without legislative enactment. 3. Establishment of a fixed form of examination. In order to preserve all records in a systematic manner every German on attaining age 40, should be provided with a record book, which should contain information on cancer, and a copy of the cancer protection law, and, finally, the questionnaire on hereditary and familial conditions. After the death of the holder these health record books should be turned over to the federal bureau of health. In the presence of cancer or suspected cancer, compulsory notification should be required. Care should be taken to provide physicians and medical students with adequate instructions. 4. Assurance of the necessary treatment for all persons affected—that is a notification system with centrals at various bureaus.

Schreus scouted the idea that the distribution of health record books might awaken among the population a chronic

fear of cancer and ventured that cancer and the fear of cancer together are not so bad as ignorance of cancer. For normal persons with a keen zest for life, who demand protection in this field as in all others, the health record book would be the talisman that would procure for them quiet sleep. It is not known that such legislative measures are being considered, but experts are emphasizing that predisposition to cancer is a concrete factor that must be reckoned with, and which today (for example, in the matter of advice to candidates for marriage) plays already a significant role.

### Unrecognized Tuberculosis in the Storm Troops

Dr. Kattentidt pointed out before the Münchner Aerztlicher Verein recently that among the national socialist storm troops and in the work camps there are many persons with open tuberculosis, although they are ignorant of the fact. These cases must be taken seriously, because the population of the work camps mingle closely, and the rural population is much more sensitive. Unrecognized tuberculosis is destructive because it has time to extend itself uncontrolled. Grave tuberculous processes may be found in persons who distinguish themselves in sport. There is a well known football player with tuberculous cavities, and a young woman who has made a record as a swimmer in spite of the fact that she is tuberculous. Exceedingly grave processes do not necessarily present manifestations that attract the attention of the bearer. About three fourths of the unrecognized cases of tuberculosis cannot be diagnosed either by percussion or by auscultation but only roentgenologically. The number of unrecognized cases of tuberculosis increases with every older age group. In Munich 27,000 students have been examined fluoroscopically in recent years. In every 200 students a case of open tuberculosis was found, in every fifty students extensive but healed scar tissue was observed, and in every fifteen students a small scar was noted. It is difficult to decide how best to combat the disease. The first measure should be a thorough chest examination for every person. Roentgen examination is especially important for physicians working among the storm troops and among athletes. No physician should say that a person is healthy until he has subjected him to a fluoroscopic examination. The systematic examination of the sputum is not always feasible, because few people seem to know that they have an expectoration. The danger of infection among the storm troops and in the work camps is greater than in the families. There will be many claims for damages against the state if the examinations made when candidates entered the work camps were not carefully done and did not exclude the unfit. A "light" work service is a misnomer, and only healthy persons should be enrolled. Urinalyses are likewise necessary, for in 1,500 examinations of urine fifteen serious urinary observations were made, for example, a renal tuberculosis, although the examinee did not feel ill. The serial examinations are cheap. In a day as many as 150 persons can be examined with the fluoroscope. Interpretation of the lights and shadows should be made by a physician with special training. The actual cost of such examination is about 20 cents per person. The method is not practicable if hospitals charge from 15 to 20 marks (\$5.70 to \$7.60, current). In all Germany there are probably 350,000 open cases of tuberculosis, which are susceptible of improvement or cure whereas in the sanatoriums there are only 30,000 beds, many of which are vacant.

### The Electrical Potential of the Skin in Relation to Colds

Professor Munk addressed recently the Berlin Medizinische Gesellschaft. In winter and in the transitional periods, disorders occur that, without discrimination, are grouped under the head of 'colds.' There is scarcely a medical school that has not advanced a theory concerning colds. Munk has reported

the outcome of experiments that clarify a previously unknown function of the skin. If one places an electrode at each of two points on the skin (for example, the forehead and the palm of the hand), he will observe a difference of potential that is measurable with the galvanoscope and remains constant during the lifetime of the person. Between two symmetrical points of the body there is no difference of potential.

Similar processes in plant physiology have long since been known. The system has a high degree of stability. Thus, in a multiple sclerosis patient in whom malaria treatment was tried, the potential difference remained the same during an increase of temperature from 37.1 C to 40.1 C. If one checks the secretion of the sweat glands with atropine, or if one induces perspiration with acetylsalicylic acid, the potential difference does not change. These constants may be demonstrated also in the frog and in the guinea pig. The constancy is, however, interrupted if one endeavors, as did Munk, to reproduce the process of taking cold by removal of the shoes, placing the feet in hot or cold water, or by exposure to draft of air. The act of sneezing is conceived of by Munk not only as due to removal of an unpleasant tickling sensation but also as a first reaction and warning. Through the act of sneezing the disturbed equilibrium of the electromotor force is restored. It is not known whether temperature stimuli or other currents produce these changes in the electromotor force. In any event, through the process of taking cold the system of electromotor force as a function of the skin is markedly disturbed—more than the heat regulatory apparatus.

Munk has conceived the possibility that, just as bacteria require a certain optimum, the undisturbed electromotor force of the skin constitutes a certain protective apparatus that makes the invasion and action of bacteria impossible.

## BELGIUM

(From Our Regular Correspondent)

May 31, 1934

### The Social Services and the Hospitals

At the third *Congres international des hopitaux*, Dr. Daels of Ghent emphasized the importance of an understanding between the hospital and the medical social services and the public. The hospital must not assume a monopolizing attitude. It should recognize that certain diseases may be better treated at home than in the hospital. A clinical service is not complete if it is not aided by a visiting nurse who is familiar with the home and the financial situation of the family. It is desirable that the ward nurse give to the visiting nurse the most necessary information in the case in which urgent aid is needed. The hospital should not allow patients to be interrogated by several persons with regard to their financial situation. It is highly desirable that the ward nurse shall gain the confidence of persons whom she is to serve. Thus she will obtain from patients the necessary information more easily than a visiting nurse.

The private organizations giving medical and social aid are excellent, but they are, at the most, of secondary importance, for it is absolutely necessary that continuity of the aid be assured and that precise methods be employed in the investigations and the rendering of medical social aid.

### The Antivenereal Crusade in the Hospitals

The third *Congres international des hopitaux* passed a series of resolutions that may have a significant result in the antivenereal crusade.

1 From a medical and social point of view, patients affected with syphilis and gonorrhea should be admitted to all general hospitals that have a qualified technical personnel. No moral distinction should be made between venereal patients and other patients, even though the former are treated at public expense.

2 The *l'Union internationale contre le peril venerien* should be asked to study and report on the question as to what measures can be taken to bring about a closer union between the practicing physician and the hospital services concerning scientific progress in the diagnosis and treatment of syphilis and gonorrhea.

3 Because a large number of patients with syphilis and gonorrhea enter the hospitals in the services of internal medicine, gynecology, obstetrics and the like, and because the relations between syphilis and gonorrhea, and the acute diseases are often obscure, it is earnestly recommended that the custom be encouraged of asking the specialist in venereal diseases to participate in the examination of all obscure cases.

4 It should be emphasized and the prophylaxis of congenital syphilis should become universal in the hospitals through an active collaboration between the syphilologic service and the obstetric service.

## The Red Cross in Luxemburg

The Red Cross in the Grand Duchy of Luxemburg has developed its program of action in a remarkable manner. It conducts each year an extensive publicity campaign and drive for members, and every week talks on hygienic subjects are broadcast under its auspices. Its visiting nurses go to adjacent foreign countries for graduate work in their profession. It has organized a prenatal consulting service and a dispensary of mental hygiene at Luxemburg, a day nursery at Esch-sur-Alzette, and at Redange a center for placement in families.

The detection of cancer cases is taken over by the Red Cross and arrangements for their treatment have been provided at Strasbourg. Active collaboration exists between the Red Cross of Luxemburg, on the one hand, and the *Ligue antituberculeuse*, the *Ligue antialcoolique*, the *Association des camps d'ete* and the *Societe d'hygiene populaire et scolaire*. It provides aid for persons in distress—particularly for German refugees. The Red Cross has begun the construction near Luxemburg of a maternity, with a home for mothers and a school for the training of midwives.

## BUCHAREST

(From Our Regular Correspondent)

June 21, 1934

### The Death of Professor Cantacuzino

The death of Prof. Jean Cantacuzino of Bucharest University, a renowned bacteriologist, has been announced. A descendant of the once ruling Cantacuzino family, he attended the secondary schools in Paris, where later he acquired the title of doctor of philosophy in the natural sciences. In 1894 he became a doctor of medicine. From 1894 to 1896 he was professor of animal morphology at the philosophical faculty of the University of Jassy, Rumania. On the invitation of Professor Metchnikoff he went to the Pasteur Institute in Paris in 1896 and there carried on research until 1902, when he was offered the position of vice director. He did not accept this position because in Bucharest the chair of experimental pathology had become vacant and he was invited to accept it. He remained in this position until he died.

In 1905, together with Professor Athanasiu, he founded the Rumanian Biological Society and in the same year launched the *Revista stiintelor medicale*, which is regarded as the foremost medical journal in Rumania. In 1908 he was appointed director of the board of public health. In 1913 he acted as chief epidemiologist in the Bulgarian war. In 1920 he founded the serum and vaccine institute named after him and in 1928 launched another periodical, the *Archives mensuelles roumaines de pathologie experimentale*, appearing in French. He brought to life the Rumanian Society for the Prophylaxis of Tuberculosis. In 1931 he was minister of public health. His favorite

study was the mechanism of immunity. His book on the role of phagocytosis in the struggle of the organism against the cholera vibrio aroused wide interest.

Professor Cantacuzino was the first to transmit scarlet fever infection to laboratory animals, which he did in 1911. He was a zealous advocate of the Calmette vaccination. Up to 1932, half a million babies received the BCG vaccine, 350,000 of these were in France, 70,000 in Rumania and 80,000 in the rest of the world. His serum and vaccine institute is conducted in the most exemplary manner and under the most scientific supervision. In this institute, three university professors and thirty physicians are employed. Cantacuzino's hobby was music and art. He owned one of the greatest art collections in Europe. His simple views were reflected in his will, in which he requested an unpretentious funeral.

#### A New Medical Monthly

*Sibul medical* is the name of a new medical monthly published in Sibiu, Transylvania. The editorial committee consists of Drs. Capitanovici, Filipescu, Preda and Stoichita. The paper is going to deal with scientific problems, but its chief topics will be social hygiene and propaganda for a more effective public health service. The paper is independent and is not subordinated to any magistrate or association. The first issue appeared on the first of June. The price of subscription is only 100 lei (one dollar) a year.

#### The Military Service of Physicians

Up to now the Rumanian military system has favored physicians who have not had to undergo military drill. They have been obliged to serve only after having graduated and then only in military hospitals for four weeks with the salary and rank of a lieutenant. Now the service will be extended to one year, the four weeks being insufficient to learn military medical practice.

#### The First Psychoanalytic Society in Rumania

Under the name *Societate Romană de Cercetări Psihologice* a scientific association was founded last month for the purpose of furthering psychoanalytic science in Rumania. Professor Radulescu Motru has been elected president of the association, which already has forty-five members. It is going to meet monthly.

#### The University of Cluj

The University of Cluj made public data for the 1933-1934 school year showing that 4,469 students enrolled an increase of 345 over the previous year. Of these 984 were medical and 387 pharmaceutical students. 2,722 were Rumanians (60 per cent), 922 Magyars (20 per cent), 447 Jews (10 per cent), 445 from Saxons (7 per cent), 112 Russians (2 per cent), 2 French and 6 Czechoslovakians. The budget of the university for the year amounted to 65,307,180 lei (about \$653,071).

#### The New Polish Registration Law

Rumania is an immediate neighbor of Poland. Their common frontier is only a few hundred miles. In southern Poland, near the Rumanian frontier there is no university but there is one nearby in Czernowitz in Rumania. Some Polish students study in Czernowitz. According to the new law the number of foreign diplomas has been restricted to 10 per cent of the number of diplomas issued within the country. Since in Poland about 300 physicians get a diploma annually, only thirty foreign diplomas will be recognized. Foreign applicants for recognition have to attend three terms and pass all examinations at a Polish university. The new law also prescribes that those who have graduated abroad may file petition for recognition only after the lapse of ten years and those who will graduate in 1936 after the lapse of twenty years. This stringent measure was made on the instigation of the medical chambers to

limit overproduction of physicians. According to authoritative statistics the ratio of physicians to population in Wolhynia and Little Poland is 1:6,000. A committee has been formed in Paris to protest against the Polish law and to do everything possible for its repeal or at least mitigation of its provisions.

### NETHERLANDS

(From Our Regular Correspondent)

May 31, 1934

#### Europeans in the Dutch East Indies

Dr. C. W. F. Winckel has published a study on the European population of the Dutch East Indies. During the eighteenth and nineteenth centuries, the mortality was high. It was not easy to collect statistics, for only in recent years has a bureau of statistics been organized. In 1920, 91.7 per cent of the Europeans in the Dutch East Indies were Netherlands, 4.7 per cent were Americans and Australians, 2.5 per cent were Japanese, 0.3 per cent were Chinese and 0.8 per cent belonged to groups of Europeans of the second generation. Since Jan. 1, 1934, it has no longer been the department of justice that has charge of the collection of statistics on Europeans but the Central Bureau of Statistics. The same is true with regard to the collection of statistics on the causes of deaths. These are first reported to the local health officer, who forwards them to the central bureau.

#### STUDY OF THE SITUATION ACCORDING TO THE DIFFERENT AGE GROUPS

There are more European men than women in the East Indies. Not until one approaches age 70 does one find more women than men. The majority of the European population belongs to the 20-56 age group. The number of children increases with the group of school age, which is explained by the system of adoption and legislation. The number of aged persons is small because many persons return to their native country at the end of their career.

#### BIRTHS

The number of births is difficult to establish because of the large number of emigrants who return to their native country with their children after completing their sojourn in the Indies, and because of the large number of illegitimate children who are recognized and legitimized. Over a period of three years there were 22,374 births, which represents a birth rate of 31.18 per thousand of population. In 1926 the infant mortality was 65.4 per thousand, and in 1929-1931 it was 69.2 per thousand.

#### CAUSES OF DEATH

Among the chief causes of death may be mentioned typhoid, malaria and dysentery. Measles is less grave than in the Netherlands. Tuberculosis is chiefly of the pulmonary type. Malignant tumors are rare. Biliary cirrhosis is frequent. Many persons die from an unknown cause, since not every one calls in a physician during his last illness.

#### Classification of Causes of Death

	Number of Deaths per 10,000 of Population
1 Typhoid	186
2 Malaria	181
3 Dysentery	119
4 Pulmonary tuberculosis	540
5 Apoplexy	309
6 Cirrhosis of liver	41
7 Smallpox	4
8 Pneumonia	362
9 Unknown causes	1101

It appears that (1) the mortality rate of Europeans in the Dutch East Indies is one and one-half times that of the Netherlands, (2) the high mortality is due to certain acute diseases (malaria and abdominal infections), otherwise the mortality would be no higher than that of the Netherlands, compared



with the past, when the colonies were in an alarming state, the present mortality rate may be regarded as ideal, although the organization of public health still leaves much to be desired (the improvement dates more particularly from the last two decades, which is not surprising when it is recalled that hygiene in general, and tropical pathology in particular, are just beginning to bear fruit), and (4) mortality is not the only basis for an estimate of the state of health of a people, but it is an important factor

### Malaria in the Rhine Delta

At a meeting of the health section of the League of Nations, Mr Swellengrebel discussed malaria in the Rhine delta in the Netherlands. If the Rhine delta has become a malarial region, it is because it has been utilized for a purpose for which nature did not intend it. The formation of tracts of low land has brought about the creation of hiding places for the larvae of *Anopheles*. The systematic retrieving of land areas has its dark and its bright side. Such areas are more or less unhealthful but present nevertheless certain sanitary advantages. These advantages have accrued not to the retrieved area but to the hinterland. Each new tract has served to protect its hinterland against encroachments of the sea. Likewise, the surface waters of the hinterland have lost their salinity, and *Anopheles maculipennis* has been able to establish itself here. Consequently new areas must be recovered in order to protect the old areas, that is to say, one creates constantly new lurking places by suppressing those that existed previously. The recovery of lands, which is going on at the present time in the region of the Zuider Zee, represents an effort to remedy this evil by eliminating the malaria of the hinterland without the new areas becoming malarial. This method has for its basic purpose the creation, in the center of four "polders," of an immense reservoir protected from the sea by a dike extending from the province of North Holland to that of Friesland. If this experiment succeeds, the province of North Holland, at present the principal focus of malaria in the Netherlands, will be the first to get rid of its brackish waters and of its fauna of *Anopheles maculipennis*, var *atroparvus*.

### Institute for Research on Heredity

A Netherlands institute for research on the characters of heredity in man and the biology of the races was recently created. It is divided into three sections: (1) biogenealogy, (2) medical statistics on the examination of hereditary characters, and (3) anthropologic study on the biology of the races.

### BUENOS AIRES

(From Our Regular Correspondent)

June 1, 1934

### Recording the Cardiac Sounds

Orias and Braun Menendez made graphic records of the cardiac sounds in 100 medical students from 19 to 23 years of age by the method of Wiggers and Dean. Only the first and second sounds were present in thirty-four, the third sound was clearly recorded during the final instants of diastole in thirty-two, an auricular sound, besides the two normal sounds, was recorded in three, four sounds, the auricular and the first, second and third sounds, were perfectly recorded in nine. The recording of the phonocardiogram, simultaneously with the venous pulse, is a great advantage. They analyzed, by means of the simultaneous recording of the phonocardiogram and the venous pulse, the cardiac sounds of twenty patients with gallop rhythm who had clinically improved. In about half of the cases the extra sound occurred at the final moment of diastole simultaneously with the final portion of the descending line of the V wave of the phlebogram. In one fourth of the cases the extra sound occurred at the moment of the auricular

contraction, simultaneously with the a wave of the phlebogram. The moment of production of the gallop rhythm has been determined by the simultaneous registration of this rhythm with the electrocardiogram. However, by this method one is liable to interpret as presystolic murmurs those which the phlebogram proves to be related to the diastole.

### Phrenicectomy

Phrenicectomy is frequently resorted to in the treatment of pulmonary tuberculosis. Drs Finochietto and Vaccarezza have developed a technic using incisions only 8 to 10 mm long. They have performed the operation in nearly 300 cases without hospitalizing the patient. The operation is not difficult if special instruments are used and the technic is carefully followed. The scar is insignificant.

### Hospital Physicians

The law providing for promotion for physicians in the hospitals was received with great enthusiasm in spite of some of its queer sections. For instance, each physician must either present some work during the year or publish two medical articles a year. But when the time for enforcing this comes, there are many exceptions, and several new appointments have been made without fulfilling the regulations. This fact has brought about criticism and uneasiness among the physicians of the hospitals.

### University News

Dr F. Lejarza has been appointed head of the University of Litoral.

Dr Piñero Garcia was appointed director of the School of Medicine but he resigned, Dr C. Alvarez was then given the appointment.

The appointments made by Dr Izzo in 1928 were annulled and the chairs occupied by Drs Abalos, Rueda, Coulin, Vignolles and some others are now vacant.

A contest has been opened in the University of Cordoba to appoint a director of the institute and a professor of physiology. Drs O. Orias, D. Bariları and A. Sartori are candidates under consideration.

The Academia Nacional de Medicina of Buenos Aires has appointed Drs Romagosa of Cordoba and E. Finochietto, P. Chutro and A. Zabala of Buenos Aires honorary academicians.

### Deaths

Dr Angel Gallardo, rector of the University of Buenos Aires, member of the Academy of Medicine of Buenos Aires, minister of foreign affairs and formerly representative of Argentina to several countries, aged 67, died, May 13.

Dr Jose Lignieres, member of the Academy of Medicine of Buenos Aires, a French bacteriologist, pupil of Nocard, recently died. He was opposed to the general vaccination of children with BCG vaccine. He believed that only children from tuberculous parents should be vaccinated with this vaccine.

Dr Carlos Heuser, a well known radiologist, died, aged 56.

## Marriages

WALTER SWAN BURRAGE, Brookline, Mass., to Miss Katharine Sanford Riley of Worcester, June 22.

CHARLES EDGAR BALLARD, Belmont, N. C., to Miss Marie Almeda Wyatt of Easley, S. C., in June.

WILLIAM BERMAN to Miss Ruth Jonette Einson, both of Yonkers, N. Y., June 15.

JOHN JAMES DELANY, Galveston, Texas, to Miss Jenneva Jaynes, Temple, June 3.

HARRY LOUIS BERMAN to Miss Ella Stein, both of Chicago, June 24.

Deaths

**Theodore H Weisenburg** ☉ Philadelphia, professor of neurology at the University of Pennsylvania Graduate School of Medicine since 1907, and editor in chief of the *Archives of Neurology and Psychiatry* from its foundation in 1919, died suddenly, August 3, of carcinoma of the liver, aged 58. Dr Weisenburg, a native of New York, was graduated in medicine from the University of Pennsylvania School of Medicine in 1899. In 1901 he went to the Philippine Islands as assistant surgeon in the United States Army, where he served for two years, returning to begin practice in Philadelphia in 1903. He was appointed instructor in neurology and neuropathology at his alma mater in 1904 and became professor of neurology in the graduate school in 1907. Dr Weisenburg held various offices in organizations concerned with his specialty. He served as secretary of the Section on Nervous and Mental Diseases of the American Medical Association for two years 1905-1907, and in the latter year was made chairman. In 1917 he was president of the American Neurological Association and at the time of his death was president of the Association for Research in Nervous and Mental Diseases. He was also a member of the American Psychiatric Association. During the World War Dr Weisenburg served in the Army Medical Corps. His hospital affiliations included the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, Graduate Hospital of the University of Pennsylvania, Wills Hospital and Philadelphia General Hospital. In addition to his editorial activities, Dr Weisenburg contributed to scientific journals many articles on nervous and mental diseases.

**Henry Anthon Lewis Ryfkogel** ☉ San Francisco, University of California Medical Department, San Francisco, 1894, fellow of the American College of Surgeons, clinical professor of surgery, Stanford University School of Medicine, past president of the California Medical Association, formerly member of the state board of medical examiners, medical superintendent of the San Francisco Polyclinic, for many years visiting surgeon to the San Francisco Hospital, aged 60, died, June 11 of heart disease.

**James Vance Ferguson** ☉ El Dorado Ark., Tulane University of Louisiana School of Medicine New Orleans, 1923, fellow of the American College of Surgeons, past president of the Union County Medical Society, Henry C Rosamond Hospital, aged 33, died, July 8, at the Mayo Clinic, Rochester, Minn., of perforation of an ulcer of the stomach.

**George Benjamin Collier** ☉ New Orleans, Tulane University of Louisiana School of Medicine New Orleans 1915, member of the American Academy of Ophthalmology and Otolaryngology, fellow of the American College of Surgeons, on the staffs of the Southern Baptist Hospital and the Eye Ear Nose and Throat Hospital, aged 44, died July 9 of acute gastro-enteritis and acute nephritis.

**Jacob H Heimark**, Moorhead, Minn., Minneapolis College of Physicians and Surgeons medical department of Hamline University 1903, member of the Minnesota State Medical Association, at one time secretary of the Clay-Becker Medical Society, formerly health officer of Moorhead, on the staff of St Ansgar Hospital, aged 57, died June 25 in Minneapolis, of heart disease.

**Frank William Romaine** ☉ Major, M C, U S Army, Spokane Wash., Georgetown University School of Medicine, Washington D C 1905, fellow of the American College of Surgeons, served during the World War entered the medical corps of the regular army as a captain in 1920 and in 1929 made a major, aged 56, died May 7 of heart disease.

**Joseph Mayer Rice** Philadelphia College of Physicians and Surgeons, Medical Department of Columbia College New

York, 1881, editor of the *Forum*, 1897-1907, author of "The Public School System of the United States" and "Scientific Management in Education", aged 77, died, June 24, in the Jefferson Hospital, of heart disease.

**Peter Taylor Grant** ☉ Grand Rapids, Mich., University of Louisville (Ky) School of Medicine, 1909, member of the American Academy of Ophthalmology and Oto-Laryngology, served during the World War, aged 50, on the staff of St Mary's Hospital, where he died, July 16, of streptococcal infection.

**Taylor Hurst**, Hazard, Ky, University of Louisville School of Medicine, 1909, member of the Kentucky State Medical Association, member of the board of education, part owner of the Hurst-Snyder Hospital, aged 54, died, July 5, in St Joseph's Hospital, Lexington, of carcinoma of the transverse colon.

**Daniel Laurence Healy**, Framingham, Mass., Harvard University Medical School, Boston, 1898, member of the Massachusetts Medical Society, formerly member of the school committee, on the staffs of the Framingham Union and Natick hospitals, aged 62, died, June 22, of chronic myocarditis.

**William Newbold Watson** ☉ Philadelphia, Medico-Chirurgical College of Philadelphia, 1892, aged 69, at various times on the staffs of the Children's Hospital, Methodist Episcopal Hospital and the Joseph Price Memorial Hospital, where he died, July 1, of carcinoma of the colon.

**Solomon Horwitt**, New York, Cornell University Medical College, New York, 1907, member of the Medical Society of the State of New York, on the staffs of the Bronx Maternity and Mount Sinai hospitals and the Vanderbilt Clinic, aged 55, died, July 1, of cancer of the stomach.

**Edwin Sylvester Cornwell** ☉ La Salle, Mich., University of Louisville (Ky) School of Medicine, 1897, past president of the Monroe County Medical Society, aged 67, on the staff of the Monroe (Mich) Hospital, where he died, June 30 of interstitial nephritis and myocarditis.

**Eugene P Ellenson** ☉ Chippewa Falls, Wis., Rush Medical College Chicago, 1892, past president of the Chippewa County Medical Society for three years, health officer of Chippewa Falls, on the staff of St Joseph's Hospital, aged 65, died, June 17, of heart disease.

**Herbert Miller Robertson**, Santa Ana, Calif., Southern Homeopathic Medical College, Baltimore, 1897, member of the California Medical Association, for many years member of the state board of medical examiners, aged 61, died, June 1, of carcinoma of the stomach.

**Hallward J Thornby**, Moorhead, Minn., Minneapolis College of Physicians and Surgeons, Medical Department of Hamline University, 1909, member of the Minnesota State Medical Association, on the staff of St Ansgar Hospital, aged 52, died June 17.

**Wilford J Austin**, Spokane, Wash., University of Minnesota Medical School, Minneapolis, 1905, member of the Washington State Medical Association, aged 59, died suddenly, June 19 of diabetes adenoma of the prostate perirectal abscess and pulmonary embolism.

**George Hillard Hill** ☉ Worcester, Mass., Harvard University Medical School Boston, 1894, fellow of the American College of Surgeons, formerly on the staffs of the Memorial and Worcester City hospitals, aged 65, died, May 18, of pneumonia.

**Robert Abraham Douglas**, Tulsa, Okla., Starling Medical College Columbus, 1892, member of the Oklahoma State Medical Association, served during the World War, aged 67, died June 16, in the A C H Hospital, Shawnee, of angina pectoris.

**Joseph Herman Karsch**, Memphis Tenn., Vanderbilt University School of Medicine, Nashville, 1896, member of the Tennessee State Medical Association, aged 59, died suddenly, June 14, while in Baltimore, of cardiovascular renal disease.



THEODORE H WEISENBURG, M.D.  
1876-1934

**Samuel S Kittrell**, Louisville, Tenn, Chattanooga Medical College, 1894, member of the Tennessee State Medical Association, aged 66, died, June 6, in the Riverside-Fort Sanders Hospital, Knoxville, of otitis media and streptococcic septicaemia

**Robert Lee Wilkins**, Alexandria, Va, University of Virginia Department of Medicine, Charlottesville, 1901, member of the Medical Society of Virginia, aged 68, on the staff of the Alexandria Hospital, where he died, June 10, of septicaemia

**James Sterling Dimmitt** ♂ Sherman, Texas, University of Texas School of Medicine, Galveston, 1921, fellow of the American College of Surgeons, on the staff of the Wilson N Jones Hospital, aged 43, died, June 26, of Hodgkin's disease

**Harry Whipple Johnson**, Bangor Maine College of Physicians and Surgeons, Baltimore 1908 member of the Maine Medical Association, aged 54, died, April 16, of septicaemia, acute nephritis and empyema of the gallbladder

**William G Shaw** ♂ Wagram, N C, College of Physicians and Surgeons Baltimore, 1892 past president of the Scotland County Medical Society, for many years member of the county board of education, aged 66, died, June 11

**Gustof Adolph Persson**, Mount Clemens, Mich, Illinois Medical College, Chicago, 1898, member of the Michigan State Medical Society, aged 58, died May 19 in the Harper Hospital Detroit, of pneumonia, following an operation

**John Allen Hamer**, Clio S C, Medical College of the State of South Carolina, Charleston, 1904 member of the South Carolina Medical Association aged 54 died, July 11 in a hospital at Charleston, of chronic nephritis

**Aram Garahed Hejmanian** ♂ Anamosa, Iowa Rush Medical College Chicago 1893, fellow of the American College of Surgeons, bank president, on the staff of the Mercy Hospital, aged 71, died July 5 of coronary thrombosis

**William David Dorminy**, Fitzgerald, Ga, Atlanta College of Physicians and Surgeons, 1900 member of the Medical Association of Georgia, for many years president of the board of education, aged 63, died, June 4

**Isaac Errett Wolfe** ♂ Coeburn, Va University of Louisville (Ky) School of Medicine 1909 served during the World War, aged 58, died June 20, in St Elizabeth's Hospital, Richmond, of carcinoma of the sigmoid

**Allen Jasper Harter**, Allendale, S C, Medical College of the State of South Carolina Charleston, 1887, member of the South Carolina Medical Association, aged 69, died June 27, of carcinoma of the throat

**Dan German Jr**, Franklin Tenn, Vanderbilt University School of Medicine, Nashville, 1931 member of the Tennessee State Medical Association, aged 26, was instantly killed, July 1, in an automobile accident

**Eugene Walters**, Winnipeg, Manit, Canada University of Minnesota Medical School Minneapolis 1895 Manitoba Medical College, Winnipeg, 1907, on the staff of the Victoria Hospital, aged 69, died, May 9

**Albee Amos Skeels**, St Albans Vt McGill University Faculty of Medicine Montreal, Que Canada 1897, served during the World War, aged 61, died, June 20, of diabetes mellitus and myocarditis

**Daniel Robert Lee**, Arcadia, Neb, State University of Iowa College of Medicine, Iowa City, 1890 aged 77, died suddenly, June 18, in Fort Collins, Colo, of angina pectoris and bronchopneumonia

**William H Pounds**, Paulsboro, N J, Hahnemann Medical College and Hospital of Philadelphia, 1886, formerly mayor of Paulsboro, aged 84, died, June 2, of cardiac decompensation and chronic nephritis

**Robert Coleman Rudy**, Detroit University of Michigan Homeopathic Medical School, Ann Arbor, 1886, aged 71, died June 13, in the Grace Hospital, of cerebral hemorrhage and arteriosclerosis

**William H Kinnicutt**, Cleveland, Cleveland College of Physicians and Surgeons, Medical Department of Ohio Wesleyan University, 1898, aged 69, died, June 21, of lobar pneumonia

**Thomas Henry O'Toole** ♂ Norwood, Mass Jefferson Medical College of Philadelphia, 1897 aged 58 on the staff of the Norwood Hospital, where he died, April 4, of intestinal obstruction

**Miles Dawson Kelly**, Lonoke, Ark, University of Arkansas School of Medicine, Little Rock, 1913 aged 54, died, June 11, of uremia, carcinoma of the stomach and chronic nephritis

**Andrew Beattie Eadie**, Hemet, Calif, Trinity Medical College, Toronto, Ont Canada, 1886 Bellevue Hospital Medi-

cal College, New York, 1886, aged 74, died, May 29, of angina pectoris

**Rolando Kuehn**, Philadelphia Jefferson Medical College of Philadelphia, 1883, aged 74, died, May 11, in the Philadelphia General Hospital, of arteriosclerosis and heart disease

**Charles A Thompson**, Raymond, Ohio, Starling Medical College, Columbus, 1887 member of the Ohio State Medical Association, aged 72, died, June 6, of cerebral hemorrhage

**Albert Victor Widman**, Newark, N J, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1887, aged 73, died, June 1, of cardiorenal disease

**William Shidaker Wire**, Norwood, Ohio, University of Cincinnati College of Medicine, 1930, aged 30, died, June 2, in the Good Samaritan Hospital, Cincinnati, of heart disease

**John Conant Stewart**, York Village, Maine Dartmouth Medical School, Hanover, N H, 1877, also a lawyer, aged 84 died, June 4, in the York Hospital, of coronary thrombosis

**Ezra Oscar Price**, Ladoga, Ind Kentucky School of Medicine, Louisville, 1889, aged 68, died, July 3, in a sanatorium at Martinsville, of cerebral hemorrhage and arteriosclerosis

**Lawrence George Geraghty**, Jersey City, N J, Georgetown University School of Medicine, Washington D C, 1937 aged 29 was killed, May 17, in an automobile accident

**Alexander Roth Robertson**, Pass Christian, Miss, Tulane University of Louisiana Medical Department, New Orleans 1895, aged 66, died, April 28, of cerebral hemorrhage

**Isaac Calvin Hollinger**, Boonville, Ind, College of Physicians and Surgeons, Baltimore, 1882, served during the World War, aged 79 died, June 14, of cerebral hemorrhage

**Robert J Woods** ♂ Smithville, Mo, Central Medical College of St Joseph 1898 aged 60, died May 4, in the Grandview Sanitarium, Kansas City, Kan, of heart disease

**Ernest Frederick Robinson**, Newton, Mass, University of Buffalo School of Medicine, 1891 aged 64 died, June 6, of agranulocytic angina, septicemia and pneumonia

**Francis William Hartley-Hellyer**, Baltimore (licensed in Maryland in 1894), aged 76 died, May 23, in the University Hospital, of hypertensive cardiovascular disease

**Elton Howard Nelson**, Mount Healthy, Ohio, Miami Medical College Cincinnati 1903, member of the board of education, aged 58, died, May 13, of heart disease

**Benjamin C Harris**, Lobata, W Va, Kentucky University Medical Department, 1905, aged 55 died, July 12, in Hot Springs National Park Ark, of heart disease

**George W Wallis**, Fayetteville, Ga, Atlanta Medical College, 1886, member of the Medical Association of Georgia, aged 72, died, June 17, of diabetes mellitus

**John Ralph Good**, Chaplin, Sask, Canada, University of Manitoba Faculty of Medicine, Winnipeg, 1919, aged 41, died May 3, in a Moose Jaw (Sask) hospital

**Thomas E Alyea**, Earlville, Ill, College of Physicians and Surgeons, Keokuk, Iowa, 1880 also a druggist aged 81, died June 15, of shock, as the result of a fall

**John J Comer**, Willis, Kan, Rush Medical College, Chicago, 1893, member of the Kansas Medical Society, aged 67 died, May 15, of carbolic acid poisoning

**John Julius Rudolph**, Hoboken, N J, Baltimore University School of Medicine, 1898, aged 57, died suddenly May 25 in Roselle Park, of heart disease

**J Emile Daigneault**, Sherbrooke, Que, Canada School of Medicine and Surgery of Montreal, 1912, aged 48, died July 11, of coronary thrombosis

**Warren Brown Hill**, Mount, Va, Baltimore University School of Medicine, 1892 aged 72, died, May 13, of carcinoma of the neck, chest and abdomen

**Solomon Francis Rudolf**, Green Bay Wis Northwestern University Medical School, Chicago, 1905, aged 54, died, May 15, of cerebral thrombosis

**George Townley Pryor** ♂ Sheffield Pa University of Buffalo School of Medicine, 1882, aged 74, died, May 26, of chronic myocarditis

**Leon M Prichard**, Catlettsburg, Ky, Hospital College of Medicine, Louisville, 1897, aged 61, died, May 17, of chronic myocarditis

**Matthew M Hill**, Winfield, Kan, Rush Medical College, Chicago, 1901, aged 63, died, July 6, of cerebral hemorrhage

**George Oscar Pratt** ♂ Detroit Detroit College of Medicine 1905, aged 67, died, June 5, of carcinoma of the stomach

**Andrew J Coey**, Chicago, Chicago Medical College, 1880 aged 76, died, June 29, of carcinoma of the larynx

# Bureau of Investigation

## MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE The abstracts that follow are given in the briefest possible form (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the composition, (4) the type of nostrum, (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product]

**Collins Plasters**—Potter Drug & Chemical Corp Malden Mass Composition Essentially oleoresin of red pepper, starch and rubber spread on a cloth fabric attached to two metal strips one of zinc the other of copper For rheumatism weak back stomach cramps simple bone fractures etc Fraudulent therapeutic claims—[N J 20568 February 1934]

**St John's (I L) Magnetic Brand Oil**—Frank L Bridinger Tiffin Ohio Composition Essentially small amounts of turpentine oil and rosin with chloroform alcohol and water Cure all Fraudulent therapeutic claims—[N J 20571 February 1934]

**Silrizol**—Strizol Co Inc Ossining N Y Composition Essentially borax and common salt with small amounts of essential oils including menthol thymol eucalyptol and methyl salicylate Not antiseptic as vaginal douche as claimed Fraudulent therapeutic claims—[N J 20574 February 1934]

**Menthymol**—Crezoin Chemical Co Merchantville N J Composition Essentially petrolatum and liquid petrolatum with 25 per cent of volatile oils including menthol thymol and eucalyptol For asthma hay fever bronchitis tonsillitis etc Fraudulent therapeutic claims—[N J 20575 February 1934]

**Crezoin Balsam Formula No 1**—Crezoin Chemical Co Merchantville N J Composition Essentially an alcoholic solution of volatile oils including menthol and eucalyptol with gums such as benzoin and tolu and creosote For asthma hay fever bronchitis tonsillitis etc Fraudulent therapeutic claims—[N J 20575 February 1934]

**Rawleigh's Rheumatic Tablets**—W T Rawleigh Co Freeport Ill Composition In each tablet potassium iodide (0.06 gram) sodium salicylate (0.03 gram) and plant drug extract Fraudulent therapeutic claims—[N J 20579 February 1934]

**Moses' Herb Expectorant**—Moses Remedy Co Cambria Va Composition Essentially extracts of plant drugs including horehound and wild cherry with sugar and water For coughs croup asthma bronchitis etc Fraudulent therapeutic claims—[N J 20583 February 1934]

**Moses Herb Discovery**—Moses Remedy Co Cambria Va Composition Essentially extracts of plant drugs alcohol (72 per cent by volume) sugar and water For asthma blood diseases female disorders tuberculosis etc Fraudulent therapeutic claims—[N J 20583 February 1934]

**National Yeastolized (Medicated) Salt**—National Feeders Corporation Tiffin Ohio Composition Contained little if any yeast cod liver oil or epsom salt and no potassium iodide Adulterated because below the professed standard under which it was sold and misbranded because of false and misleading statements as to composition—[N J 20584 February 1934]

**O K Lax**—Live Food Products Co Hollywood Calif Composition Essentially ground leaves barks roots and fruits including a laxative drug For catarrh asthma diabetes etc Fraudulent therapeutic claims—[N J 20587 February 1934]

**Grissold's Family Salve**—Sisson Drug Co Hartford, Conn Composition Essentially a lead compound such as lead oleate and rosin For boils ulcers tumors ague etc Fraudulent therapeutic claims—[N J 20588 February 1934]

**A C H Ku Rill**—A C Hynd Corporation Buffalo N Y Composition Essentially small amounts of common salt carbolic acid amyl acetate and acetone alcohol and water colored with a pink dye Germicide Fraudulent therapeutic claims—[N J 20590 February 1934]

**Ka Di Ok Compound**—LeDure Medicine Co Columbus Ohio Composition Essentially extracts of plant drugs including a laxative drug glycerin alcohol and water Cure all Fraudulent therapeutic claims—[N J 20592 February 1934]

**Vans (Billy B) Pine Tree Ointment**—Commercial Laboratories Inc Newark N J Composition Petrolatum small amounts of camphor menthol and pine oil colored with a green dye For catarrh eczema piles whooping cough etc Fraudulent therapeutic claims—[N J 20595 February 1934]

**Yum for Headache**—E L Lax Manufacturing Co Brooklyn N Y Composition Contained in each tablet 2 grains each of phenacetine and aspirin and 1/2 grain of caffeine For la grippe Fraudulent therapeutic claims—[N J 20593 February 1934]

**Sheppard's Magic Liniment**—C L Sheppard Sanatorium & Remedy Co Findlay Ohio Composition Essentially a light petroleum oil with a small amount of turpentine oil Cure all Fraudulent therapeutic claims—[N J 20600 February 1934]

**Dickson's Compound for the Kidneys and Bladder**—Dorothy Dawn Inc Chicago Composition Tablets containing methenamine a laxative drug resins and juniper oil coated with sugar starch and calcium carbonate and colored with iron oxide Fraudulent therapeutic claims [N J 18085 August 1931]

**Bennett's New Life**—Bennett Medicine Co, Norfolk Va Composition Essentially epsom salt iron chloride, small quantities of podophyllum rhubarb and leptandra, traces of salicylic acid and methyl salicylate with about 91 per cent of water For tonic purposes stomach troubles, etc Fraudulent therapeutic claims—[N J 18087 August 1931]

**Tonall**—Tonall Medicine Co Lancaster Pa Composition Extracts of sarsaparilla senna, uva ursi licorice nux vomica and wild cherry with glycerine alcohol and water For stomach and kidney disorders Fraudulent therapeutic claims—[N J 18092 August 1931]

**Sul So Tar**—Industrial Research Association Mobile Ala Composition Mostly water containing sulphur dioxide (0.162 per cent) For lung stomach and kidney disorders Fraudulent therapeutic claims [N J 18094 August 1931]

**Tanlac Rheumatism Treatment**—International Proprietaries Inc, Dayton Ohio Composition Liniment containing 45 per cent of alcohol with chloroform methyl salicylate camphor eucalyptus oil mustard oil soap and water tablets containing aspirin (4.2 grains each) and extracts of plant drugs Fraudulent therapeutic claims—[N J 18099 August 1931]

**Brigadell's Camphorole**—Camphorole Laboratories Atlantic City N J Composition Ointment containing petrolatum camphor menthol and eucalyptol For catarrh hay fever etc Fraudulent therapeutic claims—[N J 18100 August 1931]

**Vitalizing Tablets**—Parker Medicine Co Tampa Fla Composition Extracts of plant drugs including a laxative such as cascara sagrada with nux vomica and damiana coated with calcium and iron compounds Tonic and cure all Fraudulent therapeutic claims—[N J 20173 June 1933]

**Vanex**—E Fougere & Co Inc New York Composition Essentially volatile oils such as menthol and lavender with alcohol (approximately 65 per cent by volume) and water For nasal disorders False and misleading therapeutic claims Misbranded also because alcohol content not conspicuously declared in some cases or at all, in others—[N J 20556—February 1934]

**LaSalle's Life Salt**—LaSalle Medicine Co Los Angeles Composition Essentially compounds of sodium and potassium tartrates carbonates phenolphthalein citric acid and sugar For stomach and liver disorders etc Fraudulent therapeutic claims—[N J 20557—February 1934]

**LaSalle's Compound Cough Syrup**—LaSalle Medicine Co, Los Angeles Composition Essentially extracts of plant drugs (sugars 71 per cent), alcohol (55 per cent by volume) and water Fraudulent therapeutic claims—[N J 20557—February 1934]

**LaSalle's Antiseptic Powder**—LaSalle Medicine Co Los Angeles Composition Essentially zinc sulphate (13.8 per cent) boric acid (85 per cent) salicylic acid (0.6 per cent) and volatile oils including thymol For vaginal disorders etc Adulterated because below professed standard of strength and quality Misbranded because of fraudulent therapeutic claims—[N J 20557—February 1934]

**Tablets Flu Enza**—Direct Sales Co Inc Buffalo N Y Composition 279 grains acetphenetidin and 28 grains of salol per tablet and a small proportion of mercuric iodide For influenza pneumonia etc Adulterated and misbranded because acetphenetidin content wrongly declared and because of fraudulent therapeutic claims—[N J 20558—February 1934]

**Simmons (R H) "SM" Antiseptic Powder**—S M Laboratories, Inc Seattle Composition Essentially boric acid and zinc sulphate with small amounts of salicylic acid and menthol and a trace of berberine Not germicidal as claimed Misbranded and adulterated Fraudulent therapeutic claims—[N J 20565—February 1934]

**Simmons (R H) "SM" Vaginal Suppositories**—S M Laboratories, Inc Seattle Composition Essentially a cocoa butter with small amounts of quinine sulphate and boric acid Fraudulent therapeutic claims—[N J 20565—February 1934]

**Simmons (R H) Neofem**—S M Laboratories Inc Seattle Composition Essentially alcohol glycerin phenolphthalein and volatile oils including apiol and savin oil and water, flavored with licorice and colored with chlorophyll For female disorders Fraudulent therapeutic claims—[N J 20565—February 1934]

**Simmons (R H) Neofem Capsules**—S M Laboratories Inc Seattle Composition Essentially extracts of plant drugs including a laxative drug and small amounts of apiol and savin oil Female regulator Fraudulent therapeutic claims—[N J 20565—February 1934]

**Simmons (R H) Silver and Mercury**—S M Laboratories Inc Seattle Composition Essentially water containing colloidal silver and mercury stabilized by a protein For disorders of the genito urinary tract Fraudulent therapeutic claims—[N J 20565—February 1934]

**You Tha Gan**—You Tha Gan Co Houston Texas Composition Essentially sugar and water with a small amount of hydriodic acid Aphrodisiac. Fraudulent therapeutic claims—[N J 20566—February 1934]

**Andes**—International Products Co Inc Lexington Ky Composition A small amount of extracts of plant drugs including a laxative drug and a bitter drug with sodium acetate (0.2 per cent) sugar (1.8 per cent) alcohol (67 per cent by volume) and water (approximately 91 per cent) System Purifier and Tonic Fraudulent therapeutic claims—[N J 20566—February 1934]

## Correspondence

### ARTIFICIAL RESPIRATION

*To the Editor*—Many lives are being saved annually by the Red Cross and industrial organizations by teaching the "prone, face down method" of artificial respiration for drownings electric shock and asphyxia. However, I believe this method could be made more effective by the simple expedient of placing the head "down hill" when feasible on a 10 to 15 per cent incline, as all physicians know the extreme value of letting the head down in shock on the operating table. The cerebral vital centers get more blood and under increased pressure and the Lewis pendulum swing will often restore when all else fails. Furthermore, the added drainage from the lungs and stomach make it more necessary in drownings.

I have recently performed artificial respiration by this method on conscious people and there is no possible hindrance because of the weight of the abdominal viscera against the diaphragm. I presume that from 1 to 3 per cent more recoveries might be possible by this simple expedient of letting the head down during resuscitation and yet it would not complicate the treatment when it is entrusted to lay people—the mere placing of the body with the head down hill when feasible artificial respiration to proceed nevertheless from the beginning until the inclined position may be effected. All physicians and surgeons with whom I have mentioned this have the same opinion of its added advantage over the level position of the subject.

As these organizations are principally of lay people I believe that the medical profession should carefully consider this expedient and instruct them accordingly.

JAMES G. POE, M.D., Dallas, Texas  
Anesthesiologist, Baylor University Hospital

### STIMULATION OF SUBCORTEX OF THE BRAIN

*To the Editor*—In THE JOURNAL, April 28, appeared an editorial on a new method of physiologic research based on the article of Light and Chaffee (*Science* 79:299 [March 30] 1934). In the editorial you made no mention either of Hess of Zurich, who reported to the International Physiological Congress at Boston in 1929 a method of stimulating the subcortex electrically in more or less normal animals, or of the paper of R. B. Loucks of this laboratory. I enclose a reprint of the latter's work. Loucks described a technic similar to that of Light and Chaffee three months earlier.

W. HORSLEY GANTT, M.D., Baltimore

**COMMENT**—We are glad to refer to the facts in relation to the interesting new procedures that remove the restrictions of time, anesthesia and restraint from experimental explanation of functions susceptible to electrical excitation as described in the editorial "A New Method of Physiologic Research" (THE JOURNAL, April 28, p. 1400). At the Boston meetings of the International Physiological Congress in 1929, Prof. W. R. Hess of the physiologic institute at the University of Zurich demonstrated a method of stimulating the subcortex of the brain. The demonstration is referred to in the abstracts of communications to the congress published in the *American Journal of Physiology* in October 1929, but no details are given. They can be found, however, in a monograph by Hess (Beitrage zur Physiologie des Hirnstammes. I. Teil. Die Methodik der lokalisierten Reizung und Ausschaltung subkortikaler Hirnabschnitte, Leipzig, Georg Thieme, 1932). The scheme consists in the surgical attachment of stimulating devices to the skull of cats. Wires were employed, however,

to connect the animal with the requisite external apparatus. The author stresses the advantage of his technic in the circumstance that the animal is free to move and all ordinary restraint is averted. Cats were used as subjects of investigation. Hess admits that monkeys would be superior but he states that he has avoided this animal because of the large expense involved as well as the highly developed "organization" of the animal, which would afford special difficulties in interpretation. On the other hand, Light and Chaffee, whose work was reviewed in the editorial, have used monkeys with remarkable success and with advantages that must be evident. The principle of remote control, which the Yale University studies especially stress, differed from Hess's technic in the circumstance that the latter could exercise such influence only through the use of wired electrical connection.

The investigations of Loucks (Preliminary Report of a Technic for Stimulation or Destruction of Tissues Beneath the Integument and the Establishing of Conditioned Reactions with Faradization of the Cerebral Cortex, *J. Comp. Psychol.*, 16:439 [Dec.] 1933), to which our correspondent refers, make no reference to the prior work of Hess, which has just been reviewed. It criticizes the principle of the latter as follows:

In experiments where it is desired to stimulate electrically over a period of weeks tissues located beneath the integument wires brought out through the skin may prove very troublesome. Fine wires are easily broken, heavy wires may induce sloughing or infection. To obviate these inconveniences it has been found feasible to bury a collodion coated coil just beneath the skin and to lead insulated wires from this coil to electrodes located at the point to be stimulated. When the primary of a common laboratory inductorium is laid on the skin external but adjacent to the subcutaneous coil the electromagnetic field passing through the skin induces a faradic current in the collodion coated coil which is transmitted along the insulated leads to the electrodes.

The technic of the Baltimore investigators therefore represents a step in advance, as the inductorium is "laid on the skin" instead of being attached through wires brought through the skin. Dogs have been used as the experimental animal. Proximity of the inductorium to the animal is apparently essential. In the scheme of Light and Chaffee (Electrical Excitation of the Nervous System—Introducing a New Principle: Remote Control, Preliminary Report, *Science* 79:299 [March 30] 1934) the animal is placed within the magnetic field entirely detached and free from the specially designed primary circuit. This fact clearly justifies the designation of their method as a new principle of remote control.

All the newer devices represent a step in the direction of progress in fields that have not been easy to cultivate because of the experimental difficulties involved. There are real merits in all the investigations, and the investigators are deserving of praise. We shall await with interest the reports of the progress made by all the competing procedures.—Ed

### THERAPY OF CONJUNCTIVITIS

*To the Editor*—Permit me to add one or two random, but I think practical hints to the excellent article on the therapy of conjunctivitis by Dr. Sanford R. Gifford in THE JOURNAL, July 7. In the treatment of gonorrheal ophthalmia, of infants and adults, as well, the chlorine compounds are very valuable either as drops or diluted, as irrigation fluid. My teacher, the late Dr. Emil Gruening used the official, *Aqua Chlorini (recentur preparata)* diluted to one tenth strength. Today there are the various calcium and soda chlorine preparations, chloramine, surgical solution of chlorinated soda, and so on, which seem to have an almost specific action against the gonococcus. Pressure on the cornea with resultant necrosis is often due at least in part to hot and tensely swollen lids with retention of pus secretion. A liberal tarsotomy may work wonders. Free blood letting does no harm and what might have seemed a desperate remedy is in experience amply justified by the results. In irrigating 'babies' sore eyes' pus is apt to spurt, especially when an attempt is made to force the lids apart with the

fingers "It is the physicians' duty to instruct nurses" of this hazard and to advise wearing protective goggles as well as to inculcate the danger of the gonococcus to adult eyes and the need of scrupulous cleanliness both for self protection and to avoid spreading this serious infection. In addition to the other etiologic factors of conjunctivitis mentioned in Dr Gifford's summary, minute foreign bodies should not be forgotten. This should always be thought of and excluded—or eliminated—especially in case of unilateral conjunctivitis. The symptoms are often quite misleading but there are few things a patient resents as much as the overlooking of a foreign body and continued treatment without removal of the cause.

PERCY FRIDENBERG, M.D., New York

### HEAVY METALS IN SYPHILIS

*To the Editor*—The article "Standard Treatment Procedure in Early Syphilis," by John H. Stokes and others (*THE JOURNAL*, April 21), seems somewhat ambiguous on the question of treatment with heavy metals.

On page 1271 the statement is made that "from the data thus presented it appears, then that the modern treatment of early syphilis should be continuous, and in accordance with the principles generally recognized in the treatment with heavy metal for one year after all symptoms and signs of the disease have disappeared."

The authors can scarcely mean that this would imply, viz., that heavy metal is given for a full year without interruption. Moreover, this is not in accordance with the scheme published on the same page.

Perhaps one of the authors would be willing to clarify this.

FRANKLIN P. PYLES, M.D., Rio De Janeiro, Brazil

[The question was referred to the authors of the article, who reply.]

*To the Editor*—Attention should be called first to the fact that the statement as rendered by the inquirer is a misquotation. The actual wording reads:

The modern system for the treatment of early syphilis must be continuous. It must employ an arsphenamine and a bismuth compound the latter intramuscularly. It must call for not less than twenty and unless special resistiveness is encountered hardly more than thirty injections of the arsphenamine and in accordance with the principles generally recognized in the treatment of the disease the system should call for continued treatment with heavy metal for one year after all symptoms and signs of the disease have disappeared.

Taken in its entirety, this statement means that treatment should be continuous during the period when arsphenamine and bismuth compounds are being used. If after the thirty injection arsphenamine requirement with alternating courses of a bismuth compound is satisfied symptoms of the disease still remain heavy metal treatment should be continued (not "continuous") "in accordance with the principles generally recognized in the treatment of the disease, which means that when a heavy metal is used alone for any purpose there must be an alternation of periods of treatment with periods of rest appropriate to the drug and preparation used, to prevent the development of serious cumulative effects. It was taken for granted that it would not be necessary to explain this elementary principle in the use of heavy metal alone."

Work on this material recently completed indicates that a prolongation of alternating continuous arsphenamine and heavy metal therapy is preferable to the tapering off with heavy metal alone outlined in this presentation. Thus the quoted schedule provides for and the criticism that schedule and text do not exactly correspond must be answered by saying that both are within the range of variation permitted by present known facts and authoritative opinion.

JOHN H. STOKES, M.D. ET AL.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted, on request.

### POSSIBLE INFECTION WITH POLIOMYELITIS AT SWIMMING POOL

*To the Editor*—A 10 year old girl apparently in perfect health, went swimming in a private pool two days before she became ill with anterior poliomyelitis. She died four days after the onset. She had not been out of town and the only other case had occurred one month previously. No new cases have occurred in the ten days since her death. Is it likely that she contracted the disease in the pool? Is it likely that those in the pool with her were exposed? If so, was the virus transmitted through the air by droplet infection or through the water? How long would the virus be active in a pool in which the chlorine is kept between 0.2 and 0.5 parts per million? Have any cases been traced to transmission by swimming pools? Our policy in regard to the pool will be affected by your answer. Please omit name.

M.D., Colorado

*ANSWER*—It is not likely that the patient contracted infantile paralysis from the water in the pool. She may have contracted the disease from contact with carriers at the pool. It is possible that persons at the pool with the patient may have received infection from her by the droplet method. There is good reason to believe that the virus would be destroyed in a short time in the chlorinated water of the pool. So far as is known, cases of infantile paralysis have not been traced to the water in swimming pools.

### PERENNIAL TREATMENT OF HAY FEVER

*To the Editor*—A white man aged 29 came to me in May 1933 with a history of fall hay fever. He had symptoms for the first time in 1932. He was found to be very sensitive to the Ambrosiaceae group and was given eighteen injections between May 15 and September 15. The doses began with 6 units and were increased gradually until he received 3,600 units for the fifteenth, sixteenth, seventeenth and eighteenth doses. I used Parke Davis and Company's Bio 364. He agreed to take a treatment monthly but did not come in regularly receiving doses October 17, December 6, April 13 and June 5. Each of these doses was 3,600 units. He had no symptoms during the regular fall season and had only slight reactions to the other doses. He wants to continue treatment and I should like to know what schedule of doses he should receive. Please omit name and address.

M.D. Iowa

*ANSWER*—The perennial treatment of hay fever is being adopted more and more by most specialists in this field. It has the advantage of keeping up the patient's immunity throughout the year. It is also more convenient for the patient and for the physician, for by its use higher dosages may be reached, should they be desired, than by the preseasonal method formerly in vogue. However, in order to be effective, injections must be given more or less regularly, and most men feel that the interval between treatments should be about two weeks rather than a month. This shorter interval markedly lessens the chances of a constitutional reaction, that is, asthma, hay fever or urticaria, or combinations, which may occur after injections of pollen extracts.

It has been noticed that the patient under consideration took injections in October, December, April and June, apparently with no reactions. The fact that he escaped constitutional reactions with such long intervals intervening between injections would seem to point to the fact that either he is only mildly sensitive to the ragweeds (Ambrosiaceae) or else the extract used for injections had deteriorated. Perhaps it was not kept at a sufficiently low temperature. Such long intervals, especially the one between December and April, amounting to more than four months are to be vigorously condemned as they lead to constitutional reactions in most cases in which potent extracts are used.

The question of the proper procedure at this time will depend on the extract used. If the same one is to be injected, the 3,600 unit dosage would probably be all right, and if there is no reaction the dosage may be increased once a week until the hay fever season arrives, that is, about the middle of August. If treatment is to be continued then, which is advisable, the highest dose reached may be repeated once a week until the end of the hay fever season and then once in two weeks all the year round.

If, on the other hand, a new extract is to be used, it is strongly advisable to reduce the dose sharply to not more than 1,800 units at the maximum. The dosage may then be increased once again if no reactions occur. Solutions of epinephrine hydrochloride should always be available in case of a constitutional reaction and the patient should not be permitted



to leave the office for at least twenty or thirty minutes after injections

An average increase of dosage is about 50 per cent, not over. It is better to err on the side of safety than to push the dose too rapidly.

In addition to the series of injections of ragweed pollen extract, it is advisable in all hay fever and asthma cases to have complete skin tests carried out, including pollens, epidermals, foods and miscellaneous substances. About two out of three hay fever cases will give positive reactions to proteins besides the pollens. The elimination of these proteins during the hay fever season will increase markedly the percentage of successful results.

#### PIGMENTATION AFTER BISMUTH THERAPY

To the Editor—I have a 28 year old colored patient with syphilis whom I have been treating with nearsphenamine and preparations of bismuth. Ever since he has been getting the bismuth preparations numerous black spots have appeared in his skin presumably deposits of metallic bismuth. Can anything be done to make these spots disappear? These spots appeared after the fourth or sixth intramuscular injection of bismuth salicylate in oil. I have tried other forms of bismuth in aqueous tartrate solution and also mercuric bismuth. In each instance the spots have become more numerous. However there is no evidence of any discoloration of the gums. Apparently the mouth and gums have escaped any deposition. Please omit name. M D Virginia

ANSWER—In certain papular syphiloderms a pigmentation may be left at the site of the papules after both arsenical and bismuth therapy. Such pigmentation generally disappears within a few months to a year. The query also arises whether the patient has been taking any form of phenolphthalein which may also cause such pigmentation—independently of either syphilis or heavy metal therapy. It is true however that isolated examples of pigmentation of the skin following bismuth therapy of syphilis are reported in the literature. A good review of the subject appears in Jadassohn's *Handbuch der Haut- und Geschlechtskrankheiten* Berlin Julius Springer 18 466, 1928. Courcoux and Boutelier's patient after arsenphenamine and bismuth therapy, developed an urticaria which in leaving, left pigmented spots. Quevrat's patient, after bismuth injections, had pigmented spots the size of the palm over the buttocks. Buschke's patient with large papular syphilids, had black pigmented spots several months after on the site of all the former syphilids. Brytscheff's patient with an arsenphenamine dermatitis, recovered with a course of bismuth therapy but a strong pigmentation was left as the result of deposits (?) of bismuth in the skin. Feldmann had a similar case in which three months following treatment there were deep brownish black spots. Microscopic examination showed in the subpapillary layer of the skin dark brown masses, which impregnated the endothelium of the vessels and which he took to be deposits of bismuth, but no chemical examination of the deposits was made and it is quite possible that they were simply pigmented cells or granules.

The inquirer's case is interesting and deserves further study. The patient may be treated for the time being with courses of arsenphenamine or nearsphenamine and alternating courses of mercuric salicylate injections or mercury inunctions. It would be well to remove sections of skin from such pigmented spots and have them examined by a competent dermatosyphilologist. Microchemical tests would help much to reveal the true type of pigment present.

#### DIABETES INSIPIDUS IN PREGNANCY

To the Editor—A primigravida woman aged 22 in previous good health has developed diabetes insipidus during the sixth month of pregnancy. She is of the tall thin asthenic type. She drinks about sixty glasses of water every twenty four hours and passes from  $3\frac{1}{2}$  to 4 gallons of urine during this time. A stereoroentgenogram of the skull shows no deepening of the sella turcica. The blood sugar is normal. Posterior pituitary powder intranasally has thus far not controlled the symptoms although treatment has been started and the dosage will have to be increased. What complications if any can one expect at the time of labor? Would there be any tendency to hemorrhage after the placenta is delivered through inability of the uterus to contract owing to this condition? Would this condition tend to diminish the severity of the uterine contractions? And should any other treatment be given in addition to postpartum extract? Please omit name and address.

M D California

ANSWER—Diabetes insipidus is extremely rare during pregnancy, and individual cases are worthy of being reported. The textbooks by De Lee and Williams and the large system of Halban and Seitz on the biology and pathology of women do not even mention the association of this disease and pregnancy. In women who have diabetes insipidus the genital organs remain

morphologically and functionally intact unless there are great changes in the hypophysis. Hence there should be no difficulties during pregnancy, labor or the puerperium. This is borne out in the few reported instances. In the case reported by Anselmino and Hoffman (*Zentralbl f Gynak* 54 2061 [Aug 16] 1934) the patient was afflicted with diabetes insipidus during two pregnancies and was free from the disease between gestations. Aside from the excessive thirst and the extraordinarily profuse output of urine, the patient had no discomforts. Labor was uncomplicated both times. The first child died for an unknown reason shortly after birth but the second, born at full term, remained alive and healthy. The subjective and objective symptoms of the diabetes insipidus disappeared suddenly during the first few days of the puerperium. In the case reported by Artaud (*Bull Soc d obst et de gynec* 22 196 [Feb] 1933) labor started spontaneously at seven and a half months and was quickly completed. The only complication was a laceration of the fourchette in spite of the fact that the fetus weighed but 1,300 Gm. The author attributed the tear to dryness of the tissue due to the elimination of large amounts of fluid from the body. The puerperium was normal and the symptoms of the diabetes insipidus disappeared after labor. Theoretically there is danger of starting premature labor by administering posterior pituitary hormone. Artaud purposely avoided giving his patient solution of pituitary because of this fear, yet his patient had a spontaneous premature termination of pregnancy. In addition to giving posterior pituitary preparations, it is advisable to administer soporifics, so that the patient's sleep may not be disturbed much by urination. Prophylactically posterior pituitary substance should be given immediately after delivery of the baby.

A few years ago, Hann expressed the view that in diabetes insipidus there is not only an insufficiency of the posterior hypophysis but also a disturbance in the function of the anterior hypophysis. Jacobi elaborated on this idea and came to the conclusion that there was an antagonism between the anterior and posterior pituitary lobes in controlling the water balance of the body. If the function of the anterior pituitary lobe increased unduly diabetes insipidus resulted. In the case reported by Anselmino and Hoffman, the disease disappeared suddenly on the fifth day. This is the day on which the Aschheim-Zondek pregnancy test usually becomes negative following labor and indicates the day on which the increased activity of the anterior pituitary lobe ceases.

#### ARTIFICIAL INSEMINATION

To the Editor—I will appreciate it if you will give me all the details of the best and most practical method of performing artificial insemination. Please omit name. M D

ANSWER—Before undertaking insemination it is important to make a careful pelvic examination to rule out the presence of infection in the vulva, the vagina, the cervix or the fallopian tubes. Of course insemination should not be performed in the presence of any infection. Furthermore, before resorting to this procedure it must be certain that the tubes are patent and this can readily be determined by the Rubin test. Assuming that the wife is suitable for insemination, a careful examination of the spermatozoa must be made to be sure they are viable. Furthermore, there must be no evidence of infection in the semen.

The husband and wife should be informed that attempts to impregnate the woman artificially will most likely have to be carried out many times over a period of months. Even then there may not be a successful result. The most favorable time to carry out this procedure is the ten days midway between the first day of one menstrual period and the first day of the next expected menses. The ideal time for conception to take place is at the time of ovulation, which usually occurs about midway between menstrual periods. Since ovulation may occur any time from the tenth to the eighteenth day of the cycle and since the exact day for any particular woman cannot as yet be determined definitely, it is advisable to inseminate three four or five times during these ten days. The husband should be instructed to wash the penis with soap and water before coitus and the wife should take a sodium bicarbonate or salt water douche. There are four methods of procuring semen: masturbation, coitus interruptus using a small jar coitus condomatus and natural coitus followed by aspiration from the vagina. The most aseptic method and the one that is not too obnoxious, is to have a small sterilized jar at hand before intercourse. At the time of the orgasm the semen should be ejaculated into the jar. The latter should be kept moderately warm or cool and immediately brought to the physician's office. The patient is placed in the lithotomy

position as for a vaginal examination and the vagina is carefully cleansed. The cervix is exposed with a bivalve speculum and the external os is further cleansed. However, it is not advisable to apply any antiseptic, because this may destroy the spermatozoa that are to be injected. The cervix is grasped with a tenaculum, and a uterine cannula is gently inserted into the uterine cavity. The semen in the jar is drawn up into a luer syringe and 1 or 2 cc of it is deposited in the uterine cavity very slowly. If the semen is injected too quickly it will be expelled by uterine contractions. After the injection is performed, the cannula should be removed slowly and the patient should lie quiet on the examining table for about thirty minutes. It is best to examine some of the semen just before each insemination to make certain that it is satisfactory.

#### ANGINAL PAIN

*To the Editor*—A man aged 70 has a mitral musical murmur of the heart. The heart is only slightly enlarged. The blood pressure is normal. He has had pain in the chest for the past four years. He speaks of it as a soreness in the chest rather than a pain. He has been taking glyceryl trinitrate tablets for relief. Also diathermy is being used over the chest 1 000 milliamperes for a period of thirty minutes once or twice a week which appears to give some relief. About half an hour after eating even though he is not exercising the discomfort comes in the chest. Please explain the probable cause of pain at this time. Will you also advise as to the best treatment and what value and benefit might one expect from surgical treatment?

THEODORE DODD M.D. Steubenville Ohio

**ANSWER**—The symptoms complained of are probably due to attacks of angina pectoris and do not necessarily bear any relation to the mitral lesion. Anginal pain is often described as a "soreness" and need not be either acute or severe. Such pain is more prone to occur after meals. It is assumed to be due to a blood supply to the heart that is inadequate for the needs at the moment. Such a change in the blood supply may be due to vascular disturbances in the heart muscle or to a decrease in the coronary flow resulting from coronary vasoconstriction or may be due to passive changes in the coronary flow consequent on changes in the systemic blood pressure.

The patient should be placed on an easily digestible diet and one that will not cause gas. He should be instructed to rest before meals and to rest for an hour or so after meals.

As regard medication, the use of the purine base diuretics is to be advised. They offer a greater probability of help than any other medication. They tend to dilate the coronary vessels and to increase the coronary flow. Their continued use has been shown by Smith to increase coronary anastomoses and collateral circulation. They do not relieve pain but they tend to improve the underlying condition. Their use should be persisted in for months, even if no relief is experienced at first. They are best taken during the meals, to avoid untoward symptoms.

#### QUARANTINE IN SCARLET FEVER

*To the Editor*—A child with scarlet fever develops an otitis media which is further complicated by a mastoiditis. The mastoid cells are drained by operation. The child slowly improves but has a purulent discharge for several months. At what time during this period of convalescence do you consider it safe to release this child from quarantine so that other children can come to the home and this child be allowed with safety to enter other homes? Please omit name.

M.D. Illinois

**ANSWER**—Health authorities insist that scarlet fever patients shall be quarantined until all discharges, including those from the ear, have ceased. There is no arbitrary time after which ear discharges following scarlet fever are free from danger. Disastrous outbreaks of scarlet fever have resulted from the introduction of a patient with such a discharge which had persisted many months, into a group of susceptible children. The infectious property of the discharge resides in the specific scarlet fever streptococcus. So long as it is present, the discharge is a source of danger. Its presence can be determined only by a bacteriologic examination. When cultures from the discharge on blood agar plates no longer show colonies of hemolyzing streptococci it may be considered that the danger is over. These negative cultures must be secured several days in succession and caution must be used not to make the cultures near the time when antiseptics have been introduced into the ear. While not all hemolyzing streptococci are scarlatinal in the absence of facilities for testing their specific character, as shown by their serologic reactions and toxin production those in discharges which follow scarlet fever must be considered as probably specific.

#### CARBON DISULPHIDE POISONING—DERMATITIS FROM FORMALDEHYDE

*To the Editor*—A local concern, which manufactures caps for bottles made from cellulose the process being similar to that used in the manufacture of rayon, is having trouble with the men who work in the "viscose" department of the plant. After the wood fiber sheets are removed from the shredder they are put in a constant temperature room for two days and then into a tank containing carbon disulphide. The workmen complain of becoming dizzy their heads seem to swell a numbness and tingling sensation spreads to the hands and down the legs to the feet, and they feel as though they were drunk. This sensation soon passes off if they can get out into the open air but it has created a marked mental reaction in three of the men in that they have a perfect horror of returning to the job. In fact, one man left the work and has never returned even for his pay. I have talked to several of the men in regard to this fear and they seem at a loss to explain this reaction. One man however stated that he believed it was merely his nerves. I was talking to the wife of one of the men who has been in this department for about two months and she said that her husband had become increasingly irritable and had lost his appetite and did not sleep soundly at night. This particular man stated that the main reaction was his dread of returning to work for his shift stating that he would do almost anything if he did not have to go back to that smell again. I went out to the plant and inhaled enough of the gas as to experience the same sensation and I found that it was similar to the inhalation of ether and gave me a sensation like that of an ether jag. In the *American Journal of Public Health and National Health* (20: 598 [June] 1930) is discussed the hazards of hydrogen sulphide in industry. I presume that the effects from carbon disulphide are similar to those produced by hydrogen sulphide. As the company is building a new plant and is anxious to safeguard the employees in this department I would appreciate any information you can give me in regard to the prevention of this poisoning and the treatment especially of these nervous mental symptoms. In another department where girls work to sort cut and pack the finished caps there has been a skin disorder that has proved most annoying. These girls are handling wet cellulose caps which have been soaked in a solution of water glycerin and about 1 per cent formaldehyde. They first notice patchy, papular eruptions usually occurring on the backs of the hands between the fingers and on the lower third of the forearms. These patches vary in size from the head of a large pin to areas about 30 mm in diameter. These patches consist of small bright red papules which itch to a moderate degree and then may disappear except between the fingers where the skin becomes indurated fissured and quite painful. I have never seen the primary lesion as I have but recently been asked to help out with their difficulty nor have I seen the conjunctivitis, which I believe is similar to the 'gas eyes' found in workers exposed to hydrogen sulphide. This condition responds readily to treatment, I understand but necessitates the employee being away from work for two or three days.

M.D. Wis

**ANSWER**—The first of the clinical pictures presented in the query is quite typical of mild carbon disulphide intoxication but not of hydrogen sulphide as implied. The bizarre mental conditions are not factitious but are at least likely to be genuine. A lengthy literature records a wide variety of manifestations of carbon disulphide poisoning almost as protean as are the results of lead poisoning or syphilis. However, throughout almost all, the dominant feature centers about mental and nervous disorders. In the minor case there may occur nothing more than headache, vertigo, excessive fatigability and transient excitement. In the well established case there may exist definite psychoses with intermittent mania and depression, various neuritides, blindness and marked loss in weight, along with a great variety of other possible features.

As little as one part of carbon disulphide in a million parts of air has been credited with causing minor disturbances. When the concentration reaches only slightly higher levels, clear-cut intoxication is believed to be possible. This places carbon disulphide in the category of highly dangerous industrial poisons.

Obviously, prevention demands the continuous barring of these poisonous vapors from the atmosphere breathed by workers. In the particular industry mentioned in the query, which is only one of several in which this substance may be used, the chief opportunities for exposure are

- 1 The escape of vapors from the vats wherein the cellulose xanthate is produced

- 2 Exposure to vapors connected with the cleaning out of vats, which process must take place at intervals

- 3 Leaks from pipes, which leaks readily come about, since carbon disulphide possesses the property of dissolving the greater number of joint sealing materials in common use

- 4 Exposure provided at the time of dumping the contents of vats into sewers or partly open systems

Protection against these various exposures may to some extent be procured through the following steps

- 1 Spot suction appliances installed at every point wherever vapors may be introduced into the general atmosphere. The ultimate discharge of such exhaust systems should be such that no carbon disulphide may reenter the workroom

- 2 In cleaning out vats workers necessarily exposed should be equipped with positive pressure helmets of such construction

as not to be affected by carbon disulphide. Cork thus may be preferable to rubber.

3 Vat material should be discharged only into completely enclosed systems, which, in turn, discharge this dangerous material at points sufficiently remote so that no injury is to be anticipated. The final test of satisfactory conditions is the actual analysis of workroom atmospheres for the purpose of determining the content of carbon disulphide. No precise standard may be cited as constituting the threshold of danger, but the stand is taken that only a few parts of carbon disulphide, such as 3 or 4, per million of air, have been condemned as dangerous.

The second portion of the query, referring to a dermatitis among workers handling wet cellulose caps, correctly associates this industrial skin disorder with formaldehyde as the cause. Similar outbreaks are known to have arisen in various plants carrying out similar operations. The true chemical dermatitis has in some instances been aggravated and prolonged by the secondary invasion by mycotic organisms. The prevention of this condition is most difficult. The content of formaldehyde should be reduced as far below 1 per cent as is consistent with technical requirements. Certain portions of the work may be carried out under glass frames, closed on three sides and equipped with exhaust systems. This may prevent the escape of irritating gases such as might affect the eyes but manifestly will not greatly protect the hands of workers directly in contact with the wet solution. Some workers are far more sensitive than others, which fact, for their own good, should lead to their exclusion from this employment. Brunette types ordinarily are less susceptible. Much would be gained if formaldehyde might be eliminated through the substitution of some less irritating substance meeting the technical requirements for which the formaldehyde is employed.

#### METAPHEN IN PEPTIC ULCER

To the Editor—What is the latest teaching concerning the treatment of peptic ulcer with 1:2,500 metaphen solution? When is it best administered?

M L SLATE M D High Point N C

ANSWER—C M Trippe published in the *Annals of Internal Medicine* in January 1933 a report on the oral administration of metaphen in the treatment of eighty-two cases of peptic ulcer. He administered from 3 to 4 cc of 1:500 solution three times daily before meals for gastric ulcers, and after meals for duodenal ulcers. The patients all suffered from psychoneuroses in addition to their organic trouble and the author reports relief of the mental symptoms as a result of the direct attack on the gastro intestinal lesion. He also states that no toxicity was demonstrated even after the use of as much as 16 cc of 1:500 solution daily for months. Large traces of mercury were found in the stools and none in the urine or blood. There is no definite proof at present that metaphen has any unusual advantages in the treatment of peptic ulcer, and more thorough trial must be made before any recommendation can be given for its therapeutic value. This article asserts that twenty-seven cases show roentgenologic evidence of ulcers and disappearance after the use of metaphen. If this statement is true, one should seriously question the efficacy of any treatment, because it is well known that roentgenologic evidence of duodenal ulcer is not materially altered by treatment of any kind except for relief of associated spasm.

#### INDUSTRIAL HAZARDS IN THE MANUFACTURE OF EXPLOSIVES

To the Editor—Will you kindly send me a report of industrial results of handling explosives such as trinitrotoluene as required in government work at the Savanna ordnance depot (Illinois)?

GEORGE H COTTRAL M D, Savanna Ill

ANSWER—The extent of information implied in this query exceeds the space limitations of Queries and Minor Notes. If the reference to "industrial results" contemplates only the possible ill effects on the health and well being of exposed persons, still it is to be recognized that a varied lot of little related problems arise. These embrace, among others, the nature and toxicity of gases produced after detonation, the results of concussion on the auditory organs and other tissues, the nature and extent of accident hazards, the action on the body of the products of the slow decomposition of explosives and the effects of various chemicals used in the reclaiming of damaged lots of explosives. If, in fact, any explosives are manufactured, the most important consideration of all is to be directed to the intermediates employed, such as toluene.

Information of this character in extended form appears in many federal publications. A communication directed to the Commanding Officer of Edgewood Arsenal, Edgewood, Maryland, setting forth requests for specific information will lead to the citation of pertinent publications that are available through the Superintendent of Public Documents, Washington, D C. In any urban library there is likely to be available listings year by year of scores of governmental publications bearing on the topics covered by this query.

#### TRYPARSAMIDE IN SYPHILIS OF THE OPTIC NERVE

To the Editor—I am fully aware of the fact that tryparsamide is said to be contraindicated in optic atrophy. However in view of the fact that syphilis of the optic nerve is a progressive disease which eventually terminates in blindness would it be justifiable to use this drug in a case presenting failing vision of the left eye for the past three years with the restlessness irritability forgetfulness and impaired judgment of the patient with dementia paralytica and the physical signs of external strabismus of the left eye weakness of the left internal rectus vision decreased in the left eye until only light is perceived and visual acuity zero in the left eye? The visual acuity of the right eye is 20/20. The pupils are fixed to light. The fundi show primary optic atrophy more advanced in the left eye and other neurologic signs and the spinal fluid are indicative of dementia paralytica. The patient has been placed on malaria therapy with no improvement in vision. In the past he has had intensive courses of arsphenamine bismuth compounds and intra spinal therapy (the exact nature of the latter is unknown) with continued progression of the disease process in the left eye. Swift Ellis treatment is not available. 1 In view of the fact that Woods and Moore have shown improvement with tryparsamide in cases of optic atrophy provided weekly examinations of the visual fields visual acuity and fundi are taken and the preliminary subjective complaints of sensitivity to the drug watched for would it not be wise to use tryparsamide in this case?

2 What is the present status of the Swift Ellis treatment in the treatment of neurosyphilis, especially optic atrophy? 3 Have any benefits been observed from the use of fever therapy in arresting optic atrophy? 4 Is there any other treatment that you could suggest to arrest advancing impairment of vision and perhaps restore sight? 5 How would you differentiate clinically between spasticity or rigidity of extrapyramidal origin and pyramidal tract disease? What are the characteristic signs and symptoms of each? It is the belief of most investigators that the benefit in dementia paralytica is due to the fever induced by malaria. However, several cases have been reported in which remissions have occurred with malarial therapy and without any appreciable rise in temperature the parasites however being found in the blood stream. I would appreciate any references on the subject.

W W Pike Binghamton N Y

ANSWER—1 Under the conditions, it would not be unwise to use tryparsamide.

2 There is no known treatment which can cure optic syphilitic atrophy.

3 No.

4 No.

5 In pyramidal tract disease the Babinski reflex should be present. Extrapyramidal rigidity is characterized mainly by tremor and rigidity.

The benefits derived from malarial therapy are thought to be mainly due to the rise of the temperature and its persistence.

#### CRAMPS IN LEGS

To the Editor—A man aged 43, who had sciatica in youth but not severely after the age of 18 went on a mountain climb four years ago which was an unusual experience. After traveling about five hours he suffered very severe cramps in both legs which subsided after half an hour's rest. He succeeded in completing the trip a mile and a half more by resting every few rods. Since that time he has had pain with weakness and occasional stiffness in the muscles of both legs extending from the middle third of the thighs to the middle third of the legs which seems most painful anteriorly in the thighs and posteriorly in the legs. It is accompanied at times by considerable weakness and fatigue in the knee joints. The condition is persistently better in the mornings and worse in the latter part of the day although a period of forced rest of two weeks in bed did not result in improvement. The patient's arteries seem normal for his age, his blood pressure is inclined to be low and all other systems seem normal. Tobacco and alcohol have never been used and the blood Wassermann reaction is negative. Treatment has consisted of salicylates which seem to help temporarily and hydrotherapy which has helped little if at all. The patient has felt that he is better after dancing but worse after exercise that involves stooping, lifting or pushing. Is this intermittent claudication or myostitis and what curative treatment preferably local treatment can be relied on? Please omit name.

M D, Washington

ANSWER—The pains of intermittent claudication, which are characteristically induced by uninterrupted walking disappear promptly on cessation of this activity. They do not occur while the patient is at rest or as a result of prolonged periods of standing or of interrupted walking short distances as exemplified by the activity of a clerk in a store. It is highly improbable that the symptoms described are those of intermittent claudica-

tion, although the correspondent fails to state the relationship of the distress to walking. If pulsations in the dorsalis pedis, posterior tibial and popliteal arteries are normal, the distress is certainly not that of intermittent claudication.

The symptoms mentioned may be evidence of a general exhaustion state such as neurasthenia or chronic nervous exhaustion. The patient may have peripheral neuritis due to lead, arsenic or diabetes or he may have an inflammatory lesion or compression of the lumbosacral plexus. Arthritis of the spine might be responsible. If examination fails to disclose evidence of the conditions mentioned, it is a fair assumption that the distress originates in the muscles. The teeth, tonsils and prostate gland should be examined for evidence of infection, which should be eradicated if present. A vaccine made from organisms present in these areas may be of value. The local application of heat by an electric pad, the ordinary baker in which the source of heat is carbon filament electric light bulbs, or any of the various electrical devices for this purpose may be of distinct value. Massage is indicated, and rubs with warm methyl salicylate may give symptomatic relief. If the distress is mild, the regular administration of anodynes such as acetophenetidin or acetylsalicylic acid may increase the comfort of the patient. The intravenous injection of typhoid vaccine in amounts of from 10,000,000 to 25,000,000 killed organisms may be beneficial in a nonspecific manner.

#### TREATMENT OF BURNS

*To the Editor*—I would appreciate your advising me regarding the method of treating burns with horse serum, the merits of substituting cow serum for horse serum in such treatment and the method of producing a sterile cow serum provided a cow serum can be beneficially used.

CARL A. LINDBLAD, Providence, R. I.

**ANSWER**—The use of horse serum in the treatment of granulating wounds following burns was first advocated by E. P. Robinson in 1917. The technic consists of spraying the margins of the wound with normal horse serum and then covering the treated areas with rubber tissue. This procedure is repeated several times daily. After ten days, epithelization should be well advanced and treatment may be discontinued. Robinson states that tricesol, which is used as a preservative, may be safely omitted from the serum if tubes containing only enough serum for a single application are used. Omission of the tricesol prevents painful smarting during the spraying process and, he believes, possibly accelerates cell proliferation.

Horse serum is advocated on the theory that it provides nutrition to growing epithelial cells. If this theory is correct, there is no reason why cow serum cannot be used.

Serum should be collected under strictly aseptic conditions and may be preserved by the addition of 0.3 per cent tricesol. Before this method of treatment is tried it would seem logical to determine by means of skin tests whether or not the patient is sensitive to the serum that it is proposed to use.

#### TREATMENT OF ELECTRICAL SHOCK

*To the Editor*—Aside from artificial respiration and the application of external heat for apparently lifeless victims of electrical shock, what other treatment is indicated and contraindicated? In a recent discussion of this subject the manager of the local light and power company stated that the latest information sent by the safety council advised against the use of any hypodermic stimulants in these cases on the ground that such stimulants might have a paralyzing effect on the heart and respiratory centers. It has always been my opinion that caffeine, epinephrine and other cardiorespiratory stimulants were indicated in cases of this type. What drugs are indicated and contraindicated in cases of asphyxiation from ammonia? Can you give me any references on these two subjects? Does the U. S. Bureau of Public Health publish any information on these subjects? Please omit name.

M. D., Missouri

**ANSWER**—In a forthcoming article in *THE JOURNAL* on resuscitation, sponsored by the Council on Physical Therapy, all subcutaneous, intravenous or intracardiac medication is expressly disapproved. It is recommended that measures of resuscitation be confined to artificial respiration, inhalation of carbon dioxide (7 per cent) and oxygen, external heat cautiously applied and absolute rest. Respiratory stimulants are generally cardiac depressants, and cardiac stimulants are not really beneficial. Immediate reactions may be induced stimulating recovery, but the patient is the worse for them next day.

After exposure to an irritant gas, absolute rest is the measure of prime importance, supplemented by inhalation of oxygen, without carbon dioxide, if the patient is cyanotic. After exposure to ammonia edema of the glottis may necessitate intubation or tracheotomy.

#### EFFECTS OF PERMANENT WAVING ON HAIR

*To the Editor*—Will you kindly let me know whether so-called permanent waving of the hair or repeated setting of the hair is considered harmful to the hair or scalp? Kindly omit name.

M. D., New York.

**ANSWER**—Permanent waving is accomplished by the application of a solution of ammonia, which softens the hair. Heat is then applied to fix the hair in the position desired. This process necessarily dries the hair and tends to make it brittle, the amount of such damage depending on the skill of the operator.

Setting the hair by the use of a mucilaginous preparation is a much simpler process, which causes no such drying.

If these procedures interfere with the daily vigorous brushing of the hair, which is the best form of scalp massage, they may to that extent be harmful. If the patient's scalp should become sensitized to the ammonia solution or to one or more of the ingredients of the "setting" preparation, great damage may be done, but this cannot be held as an objection to the cosmetic process, for it can occur from any contact of a foreign substance with the skin.

#### TUBERCULIN TEST

*To the Editor*—Will you kindly describe the preparation of tuberculin for intracutaneous testing from old tuberculin? Please omit name.

M. D., Ontario

**ANSWER**—Old tuberculin may be secured in concentrated form from drug houses. Before it is used in the intracutaneous test it must be diluted. One part of tuberculin to 9,999 parts of physiologic solution of sodium chloride is the dilution in most common use for the first test. Of this dilution, 0.1 cc. contains 0.01 mg. of old tuberculin. Many workers prefer to use 1 part of tuberculin to 999 parts of physiologic solution of sodium chloride as the initial dose, 0.1 cc. of which contains 0.1 mg. of tuberculin. When the test is negative, whether one uses 0.01 or 0.1 mg. of old tuberculin, a second test is usually performed with 0.1 cc. of a dilution of one part of tuberculin to ninety-nine parts of salt solution. This contains a full milligram of tuberculin. If there is no reaction to the test in forty-eight hours, one is reasonably safe in concluding that tuberculosis does not exist. However, the test is not infallible. Therefore, when there are other reasons to suspect tuberculosis, such as demonstrable evidence of extensive pathologic changes or severe toxemia, one should gradually increase the amount of tuberculin until the final dose contains 5 or 10 mg.

Unfortunately, tuberculin in such weak dilutions deteriorates rather fast. Therefore a fresh preparation should be made every two weeks. To this it is well to add 0.25 per cent of phenol. Tuberculin is inexpensive, and many physicians find it convenient to have a standing order with their pharmacists to prepare and deliver to them as many cubic centimeters as are needed every two weeks. In some cities and even some states, tuberculin in the proper dilution is provided free to physicians by the health departments.

The new tuberculin, which the Research Committee of the National Tuberculosis Association plans to have ready for distribution before long, promises to be more specific than the old tuberculin now in common use and to be in such form that it may be easily and quickly diluted in the physician's office.

#### CONVULSIONS AND BRAIN LESION

*To the Editor*—I have under my care a man aged 30, single. As far as I can ascertain his personal and family history are negative. I first attended him in June 1933, my diagnosis being grand mal. He had never had any previous attacks. The attacks occurred on the average of one a month until recently when they have been coming at weekly intervals usually after breakfast. He was referred to a reputable clinic in Portland, Ore., where a roentgenogram of the skull, blood and spinal Wassermann tests and metabolic tests were made. All reports were normal. The patient's tonsils and infected teeth have been removed. The blood pressure has persistently remained from 112 to 115 systolic. He is now on a ketogenic diet and phenobarbital compound as medication. Would you kindly advise me as to what else I can do to give relief? Please omit name.

M. D., Oregon

**ANSWER**—In the case of any patient over 20 years of age and in this case particularly at the age of 30 years it is hardly possible that the convulsions are due to idiopathic or essential epilepsy, if the history as given is accurate and reliable. It is much more likely that the grand mal seizures are caused by a brain lesion. This may be a tumor, a cyst or a localized encephalitis due to a number of possible causes, including syphilis. There is a possibility also that the seizures may be due to a low blood sugar, and it would be advisable to obtain blood examinations before breakfast on several occasions and,

if possible, a blood sugar examination on a specimen obtained at the time of the seizure. Examination of the fundi should be made by a competent ophthalmologist. The ordinary roentgenogram of the skull would not show a great deal unless there was intracranial pressure, an encephalogram would be much more valuable. The patient should be examined at regular intervals for signs of a developing intracranial lesion. In the meantime the ketogenic diet may be reduced to as low as 15 Gm of carbohydrate and 0.75 Gm of protein per kilogram of body weight, with the remaining calories in fat to make a total of 2,000 calories. The fluid should be limited to 1,000 cc a day. Unless one is sure of the allowance of vitamins and calcium, it is advisable to give a yeast concentrate tablet three times a day and calcium phosphate from 1 to 2 Gm a day. The phenobarbital is just as effective when given as such in doses of 0.1 Gm as often as necessary to control the seizures unless, of course, undesirable reactions appear. The patient should be relieved of any source of irritation or worry and should be kept in a hopeful frame of mind.

#### SKIMMED MILK AND BANANA DIET

To the Editor—Concerning the article by George A. Harrop on a milk and banana diet for the treatment of obesity (THE JOURNAL June 16) I have one further question. Shall the patient continue with 1,000 cc of milk and some bananas during the less restricted periods (in the alternating type of treatment)? Please omit name.

M D New York

ANSWER—The patient is expected to continue with 1,000 cc of milk, and bananas, during the period of less restricted diet except for the substitution of one or two eggs for one or two bananas as the case may be. It is not desirable for further weight to be lost during this period, which should be essentially one of adjustment to the earlier loss during the restricted period. During the less restricted period it is possible to substitute equal portions of other fruits, but most patients do not tire of the banana regimen once they have become accustomed to it. Frequently whole milk is substituted for the skimmed milk during the less restricted periods.

#### LITERATURE ON CASE WORK IN PSYCHOANALYSIS

To the Editor—Will you kindly supply me with information as to the place of publication of two articles mentioned in your timely editorial entitled "An Evaluation of Psychoanalysis" which appeared in the Nov. 18, 1933 issue of THE JOURNAL? The articles referred to are (1) a report on 721 cases published by the Berlin Psychoanalytic Institute and (2) a report published four years ago by the commission of the British Medical Association.

GEORGE H. KIRBY, M D New York

ANSWER—1 The report on 721 cases, published by the Berlin Psychoanalytic Institute, can be found in "Zehn Jahre Berliner Psychoanalytisches Institut" (Ten Years of the Berlin Psychoanalytic Institute) published in 1930 by the International Psychoanalytischer Verlag, Vienna.

2 The report published four years ago by the commission of the British Medical Association can be found in the "Report of Psycho-Analysis Committee (supplement to the British Medical Journal of June 29, 1929)" published by the Medical Department, British Medical Association House, Tavistock Square, London, W C 1.

#### INCUBATION PERIOD OF RABIES IN DOGS

To the Editor—In your reply to M D North Carolina (THE JOURNAL July 21 p 208) it would probably have been more to the point to state that in this country the average period of incubation of rabies in the dog is about fourteen or fifteen days. This statement applies to clinical cases and in such instances there seems to be but little difference in the period of incubation regarding the location of the bite. In a wound of the upper lip the period of incubation may be somewhat less than two weeks.

European writers are occasionally quoted by medical and veterinary writers in this country to the effect that the period of incubation is sometimes from several months to one or two years. It is quite possible that in such instances observations were inaccurate and those making such statements have failed to exclude the possibility of rodent vectors.

J V LACROIX, D V S Evanston Ill

#### PARACENTESIS VERSUS SPONTANEOUS PERFORATION IN OTITIS MEDIA

To the Editor—To your answer to the query on this subject (THE JOURNAL March 10 1934 p 790) stating that you are not aware of any statistics showing the advantage of early myringotomy it might interest you that Kerner in the first edition of his Lehrbuch der Ohrenheilkunde has two series of cases tabulated on page 107 which distinctly shows the advantage of early puncture. This tabulated list of cases is omitted from the last edition presumably to save space. The statement that early puncture leads to an earlier cure however remains.

J M WEST, M D Allentown Pa

## Council on Medical Education and Hospitals

### COMING EXAMINATIONS

ALASKA Juneau Sept 4 Sec Dr W W Council Juneau.  
AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Written (Group B candidates) The examination will be held in various centers throughout the country Oct 1 Oral (Group A and Group B candidates) San Antonio Texas Nov 13 16 Sec Dr C Guy Lane 416 Markborough St Boston  
AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY Written (Group B candidates) The examination will be held in various cities of the United States and Canada Nov 3 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh  
AMERICAN BOARD OF OPHTHALMOLOGY Chicago Sept 8 Sec Dr William H Wilder 122 S Michigan Blvd Chicago  
AMERICAN BOARD OF OTOLARYNGOLOGY Chicago Sept 8 and San Antonio, Texas Nov 16 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha  
NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia  
NEVADA Reciprocity Carson City Aug 6 Sec Dr Edward E. Hamer Carson City  
NEW HAMPSHIRE Concord Sept 13 14 Sec Board of Registration in Medicine Dr Charles Duncan State House Concord  
NEW YORK Albany Buffalo Syracuse and New York Sept 24-27 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany  
OKLAHOMA Oklahoma City Sept 11 12 Sec Dr J M Byrum Mummoth Building Shawnee  
PUERTO RICO San Juan Sept 4 Sec Dr O Costa Mandry Box 536 San Juan  
WISCONSIN Medical Reciprocity Green Bay Sept 11 Sec Dr Robert E Flynn 401 Main St Jr Crosse Basic Science Madison Sept 22 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee

### Colorado April Report

Dr William Whitridge Williams, secretary, Colorado State Board of Medical Examiners, reports the written examination held in Denver, April 3, 1934. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Five candidates were examined, 4 of whom passed and 1 failed. Four physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad	Per Cent
University of Colorado School of Medicine	(1932)		85.1
Northwestern University Medical School	(1934)		84
State University of Iowa College of Medicine	(1933)		83
University of Nebraska College of Medicine	(1933)		83.5
School	FAILED	Year Grad	Per Cent
Osteopath *			67.1

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Indiana University School of Medicine	(1933)		Indiana
University of Nebraska College of Medicine	(1914)		Nebraska
Cleveland Medical College	(1896)		Ohio
University of Tennessee College of Medicine	(1931)		Tennessee

\* Examined in medicine and surgery

### Rhode Island April Examination

Dr Lester A. Round, director, Public Health Commission, reports the written and practical examination held in Providence, April 5-6, 1934. The examination covered 7 subjects and included 70 questions. An average of 80 per cent was required to pass. Eight candidates were examined, 7 of whom passed and one failed. One physician was licensed by endorsement after an oral examination, April 12. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Yale University School of Medicine	(1932)		84
Boston University School of Medicine	(1933)		82
Tufts College Medical School	(1923)		88
Cornell University Medical College	(1932)		89.5
University of Montreal Faculty of Medicine	(1933)		85
School	FAILED	Year Grad	Per Cent
University of Montreal Faculty of Medicine	(1932)		78
School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Duke University School of Medicine	(1932)		N B M Ex

## Book Notices

**Bacterial Infection With Special Reference to Dental Practice** By J. L. T. Appleton Jr. B.S. D.D.S. Professor of Microbiology and Bacteriopathology the Thomas W. Evans Museum and Dental Institute School of Dentistry University of Pennsylvania Second edition Cloth Price \$7 Pp 654 with 126 illustrations Philadelphia Lea & Febiger 1933

This book is written for both the physician and the dentist. Its unique purpose is to present the subject of bacteriology, especially the problem of infection, in a language understandable to both. A knowledge of its contents will permit physicians and dentists to discuss a common problem with greater comprehension and will tend to obviate past mistakes and misunderstandings on the part of both professions.

The first portion of the subject matter deals briefly with the morphology, physiology and classification of bacteria. It likewise contains an enlightening chapter on the action and effect of chemicals on microorganisms. An insight of this chapter will permit a more rational use of antibacterial agents in sterilization and the treatment of disease.

Much of the book is devoted to part II in which the subject of infection is discussed. Emphasis is placed on the reaction of the host to the invading micro-organisms rather than on a study of the bacteria themselves. Here the author discusses the mechanisms by which bacteria produce disease and how the host reacts and defends itself by natural, humoral and cellular defenses. An interesting chapter on oral hygiene is included in which attention is called to the increasing recognition of the importance of a clean mouth in the practice of both surgery and medicine.

The practitioner of both medicine and dentistry will find part III exceptionally interesting and helpful. It deals with special infections of the oral cavity and contains a careful analysis of conceptions of dental caries, pulpal infections and periodontal infections. The author enters into a considerable discussion of the pulpless tooth and presents a rather pessimistic opinion of its status. Exception might be taken to the importance attached to the cultural method of determining the condition of the periapical tissue, because of the extreme difficulty of avoiding contamination and thus obtaining a false picture. A histologic study of the root end is much more authentic, even though it means a sacrifice of the tooth.

While the use of French, German and Latin phrases in the text may be annoying to some readers, it is a reminder that the professional language still has its root in these tongues.

The book contains a wealth of references to both medical and dental literature, including foreign textbooks and periodicals, and offers to the student and practitioner a surprisingly complete bibliography on subjects related to its title. As a textbook for dental students it may contain too much detail, perhaps obscuring some of the principles by the thoroughness with which the subject is covered but as a reference book and guide to those with some understanding of this subject it is unsurpassed.

**Leitfaden der einheimischen Wurmkrankheiten des Menschen** Von I. Szidat und R. Wigand Paper Price 15.50 marks Pp 212 with 156 illustrations Leipzig Georg Thieme 1934

This monograph is somewhat unique in that it deals with all the helminthic parasites of man found in a limited region, middle Europe. A table lists 124 parasitic worms found in man, twenty-four of which are found in middle Europe. While six species occur in middle Europe and not in North America, and eleven species rarely occur in America and not in middle Europe, all the principal parasites occurring in America except *Necator americanus* are discussed making the monograph extremely useful for American physicians and students of parasitology. The discussions are brief and to the point containing the gist of recent investigations. For most species the discussions include morphologic descriptions of the parasite, distribution and frequency, life history, mode of infection, clinical and pathologic characteristics, prophylaxis and treatment. At the end of each discussion there is appended a brief set of references to the important literature. As might be expected from the title of the monograph, most of the literature is of Euro-

pean origin. It will interest some to know that the authors list thirteen different diagnostic methods for detecting infestation by worms. Local and proprietary names are frequently used for drugs, and one might have difficulty in finding them in this country. The illustrations are without doubt the best that have appeared in any like work and are for the most part reproductions of original photographs and photomicrographs, with some excellent drawings, the authors having done original work in many different fields of helminthology. It is a welcome relief to see new and original illustrations in a textbook in parasitology, especially when they are from actual photographs of the material. While the work is comprehensive enough for the purpose for which it is intended, it is interesting that reference to the killing of *Trichina* by freezing is omitted from the discussion of prophylaxis in trichiniasis. The monograph will serve as an adequate guide to helminthology throughout the entire temperate zone.

**Bergey's Manual of Determinative Bacteriology. A Key for the Identification of Organisms of the Class Schizomycetes.** By David H. Bergey. Assisted by a committee of the Society of American Bacteriologists. Robert S. Breed, Frank M. Hinton, Bernard W. Hammer, E. G. D. Murray and Francis C. Harrison. With an index by Robert S. Breed. New York: Agricultural Experiment Station. Fourth edition. Cloth. Price \$6. Pp 664. Baltimore: Williams & Wilkins Company. 1934.

Whether bacteriologists agree or not with the classification and nomenclature of organisms as published in this manual, they accept the work as an effort in the right direction. This edition which is larger than the third edition by nearly a hundred pages, contains about fifty new species. Recognition has been given to the genus *Brucella* and the genus *Listerella*, while the genus *Pfeifferella* has been combined with the genus *Actinobacillus*. Description of species has been amplified in three genera: *Leuconostoc*, *Propionibacterium* and *Bacteroides*. In all there are 1178 organisms described in the book, indexed both by new and by old names. The manual is recommended to all laboratories doing bacteriologic work.

**Einheitliche Grundlage für die Diättherapie des Diabetes mellitus.** Von Dr. I. Normand. Paper. Price 4.50 marks. Pp 77 with 6 illustrations. Leipzig & Vienna: Franz Deuticke. 1934.

Starting out with the idea that the diabetic diet has been largely empirical, based on no unitary foundation, extremely complicated and often contradictory, the author presents what he considers to be a single theoretical basis for various successful dietetic procedures of the past and its practical application today. His unitary principle is none other than fasting or the more or less complete exclusion of one or two of the three main nutrients: carbohydrate, protein and fat, and administration of the remaining nutrient in abundance. Since fasting affects the diabetic state most favorably and since carbohydrate, protein and fat are all 'diabetogenous,' the first two directly and the latter at least in an indirect fashion, as a successful go-between from hunger to a normal diet, the author resorts to a diet with only one or at times two of the nutrients, but which one or which two is a matter of indifference. He considers that the withdrawal of all food or of one or two nutrients rests the organism and thinks he has proved this by feeding experiments in which equicaloric food values were given with one or two foods instead of three. And not to overburden the organism too long with a one-sided diet he adopts a cyclic system and first gives one nutrient in excess and then another, as he believes that in this way he is alternately resting and stimulating the pancreas and liver.

Although the author appreciates the value of fasting, he does not appear to have quite grasped the fundamental usefulness of Allen's work in that, when one even partially underfeeds a diabetic patient, tolerance for carbohydrate increases or that of Dubois and Richardson, who demonstrated that it is not so much the food which one eats but that which one burns which counts. In other words, in the author's various procedures undernutrition would seem to be far more of a factor in the good results he obtained than the exclusion of one or even two of the chief nutrients. Furthermore, scant attention is paid to the total dextrose value of the various diets. Also one must take issue with the use of alcohol to supply calories on the ground that the effect of alcohol on diabetes is indifferent.

The age of the patients on whom the tests were performed helps to explain the favorable results. Thus ten of the thirteen



patients were over 50 years of age, another was 48 years old and the remaining two were 17 and 15 years, respectively. With individuals of these ages almost any kind of a diet that involves undernutrition, no matter whether high carbohydrate and low fat or vice versa or even a mixed diet, would act well and the author evidently recognizes this because his diets usually contain from 20 to 25 calories per kilogram of body weight. In fact, the patients often lost weight on these diets, but as no nitrogen analyses are given it is impossible to say how lacking the patients were in nitrogen balance.

Notwithstanding these comments, the monograph is interesting and instructive because it shows that now in Europe what F. M. Allen taught in the United States line on line, precept on precept, half a generation ago is recognized and utilized. It explains why the bizarre milk, potato, oatmeal and fruit diets and even the low carbohydrate and low protein with relatively high fat diet of Naunyn, tempered with the restricted calories of Weintraud, the high fat but greatly restricted protein and carbohydrate of Newburg and Marsh here and Petren in Sweden, all worked well after a fashion when applied along with undernutrition in diabetes of moderate severity.

Valuable references to the recent German literature are included in the bibliography.

**The Essentials of Physical Diagnosis.** By Robert W. Buck, M.D., Assistant Professor of Preventive Medicine and Instructor in Physical Diagnosis, Tufts College Medical School. Cloth. Price \$3. Pp. 259 with 21 illustrations. Philadelphia & London: W. B. Saunders Company, 1934.

As the author states in the preface, his purpose in compiling this book has been to introduce the student to the principles of noninstrumental physical examination and to compress this information into a manual that he may carry about with him for reference. This task has been accomplished in a satisfactory manner. Corresponding to the scope of the book, a correlation of individual observations and a description of clinical entities and functional tests have been omitted. The head, abdomen and extremities receive more consideration than in similar manuals on physical diagnosis. Numerous references to original American and foreign sources and a list of titles for supplementary reading are given for the benefit of those who wish more detailed information. An interesting and important chapter is devoted to the body as a whole; it discusses the psychic state, physical constitution, nutrition, posture and gait. Certain omissions have been noticed, e.g., a description of risus sardonicus characteristic for tetanus, the subdivision of dyspnea into inspiratory and expiratory types, boardlike rigidity of the abdominal wall in perforation of gastric or duodenal ulcers or acute pancreatitis, Rovsing's sign of appendicitis, the subdivision of gangrene into dry and wet types, the value of rectal examination in obstetric conditions, and dark urine in obstructed jaundice. The booklet is well adapted for students and compares favorably with other manuals on the same subject.

**La malattia di Heine Medin.** Per il Dott. Luigi Cerza. Paper. Price 30 lire. Pp. 168. Naples: Arti grafiche La Nuovissima, 1933.

This monograph on anterior poliomyelitis, published as a contribution from the Institute of Pediatrics of the Royal University of Naples, is a systematic treatise. The chapter on etiology is thorough. The author seems convinced that the ultramicroscopic virus isolated by Flexner and Noguchi is truly the specific agent of the disease. He is not inclined to give much importance to the theories advanced that the virus responsible for the poliomyelitis is the same one that is responsible for epidemic encephalitis. Experimental production of the disease in the monkey is well discussed. The epidemiology is treated extensively. The best chapters are those on pathogenesis and pathologic anatomy. The dissertation on the various clinical forms of the disease is excellent. The cases showing the ascending type of Landry and those involving the bulb and the other forms that take on the appearance of diffused myelitis are beautifully treated and without doubt lend a great deal to the understanding of the sequelae that these lesions cause in the patients who recover. One of the benefits of reading this monograph is the reawakening of one's knowledge of neural anatomy and neuropathology. The clinical symptomatology of all the various forms is lucidly described,

particularly in the advanced form of the disease involving the bulb and in other forms involving the midbrain. The therapeutic review is complete and in accord with the most advanced knowledge of the day. The author is convinced of the value of convalescent serum therapy, particularly the serum of recent convalescents, and he recognizes the value of properly prepared antitoxin with the Flexner-Noguchi virus. He regards of doubtful value the serum produced by the streptococcus isolated by Rosenow. The chapter dealing with the physical therapy of the flaccid paralysis is excellent in every respect.

**The Principles of Gynaecology. A Text Book for Students and Practitioners.** By William Blair Bell, B.S., M.D., F.R.C.S., Commander of the Royal Order of the Star of Rumania. Fourth edition, revised with the assistance of M. M. Datnow, M.D., B.Ch., F.R.C.S., Demonstrator in Obstetrics and Gynaecology, University of Liverpool, and Arthur C. E. Bell, M.B., B.S., F.R.C.S., Surgeon to Out Patients, Chelsea Hospital for Women. Cloth. Price \$10. Pp. 848 with 507 illustrations. Baltimore: William Wood & Company, 1934.

This authoritative work maintains the general trend of excellence of the previous editions. The author states that no effort has been made to compete with the larger books on gynecology. He casts aside the popular method of compilation and presents in a coherent manner the subject scientifically yet simply, with an imprint of personality. The chapters on internal secretion and certain pathologic lesions, such as endometriomas and ovarian neoplasms, have been rewritten. Discussion of ethical and medicolegal questions and sociological problems, such as contraception, have received consideration. The author is concerned chiefly with the morbid anatomy and his book contains an immense wealth of pathologic material. The operative technic is not described in connection with the corresponding lesions but a special chapter is devoted to surgical procedures. This book has perhaps one fault: while relatively much space is devoted to the fundamental morbid processes, the diagnostic characteristics and therapy are sometimes handled in a step-motherly manner. Few lines are devoted to the treatment of *Trichomonas* infestation; Wertheim's operation is inadequately described; among postoperative measures, intravenous infusions and the use of the indwelling nasal catheter are not mentioned; only the citrate method of blood transfusion is outlined. Discussion of new procedures such as severing nerves for relief of pain in cancer could not be found. The style is fluent. The photomicrographs and colored plates are excellent. The volume will undoubtedly occupy a prominent place in the recent deluge of textbooks on this subject.

**Strophanthintherapie zugleich ein Beispiel quantitativer Digitalisabwendung nach pharmakologischen Grundsätzen.** Von Professor Dr. A. Fraenkel. Unter Mitarbeit von Dr. R. Thauer. Paper. Price 12.00 marks. Pp. 148 with 34 illustrations. Berlin: Julius Springer, 1933.

This concisely and critically written monograph serves a useful purpose, as it not only presents the author's rich personal experience but also summarizes the heretofore scattered data available in the literature on the pharmacologic and therapeutic properties of strophanthin. In most textbooks and monographs on the digitalis substances, strophanthin is, as a rule, treated casually. The author presents briefly the history, botany and chemistry of strophanthin and then proceeds to an analysis of the pharmacology of the drug. He not only describes the well known effect of strophanthin on the heart muscle, on the vagus system and on the conduction system but in one section he emphasizes the fact that chemical substances, such as ions, and physical agents may considerably influence the effect of strophanthin. The fate of strophanthin in the animal organism, as well as the biologic assays used, is well presented. About two thirds of the monograph is devoted to the use of strophanthin in man. Often the effect of other digitalis substances is discussed by way of comparison. The history of the development of intravenous medication is interesting. The beneficial clinical effect of strophanthin in different diseases of the cardiovascular system is analyzed. The author claims that if the single dose administered intravenously is not above 0.5 mg. and if severe diuresis, particularly in older people, is avoided, the danger from serious accidents is practically eliminated. He suggests that some of the fatalities attributed in the literature to strophanthin were probably not due to this drug. Even if some of the American readers

do not agree with free advocacy of intravenous strophanthin therapy, it must be conceded that this work will help to stress the fact that the danger often attributed to the use of strophanthin is at times exaggerated. The extensive and well arranged bibliography makes the monograph also a useful reference book.

**Stoffwechselprobleme** Vorträge aus dem Gebiete der Physio Pathologie gehalten bei der Eröffnung der Sommeruniversität im Palacio de la Magdalena in Santander/Spain. Von Professor S J Thannhauser Dr med et phil Direktor der medizinischen Klinik Freiburg i Br. Paper Price 4 80 marks Pp 101 with 2 illustrations Berlin Julius Springer 1934

This small monograph consists of a series of five lectures delivered by Professor Thannhauser in August 1933. Each lecture is a concise review of a particular metabolic problem from the physiologic, pathologic and clinical aspects. After a rapid historical survey, recent developments are admirably discussed and clinical implications suggested. The lack of a bibliography for the many references to specific pieces of work detracts somewhat from the value of the reviews. The subjects discussed are the formation and metabolism of plant and animal nuclear material, the chemistry of blood and biliary pigments, the site of biliary pigment formation, the genesis of icterus, and disturbances in lipid metabolism. Although Thannhauser has spent many years in the study of these problems and may be regarded as an authority, he does not attempt to stress his personal opinions. These lectures should be of interest and value to the student of internal medicine.

**Die Haut und Geschlechtskrankheiten** Eine zusammenfassende Darstellung für die Praxis. Herausgegeben von Prof Dr Leopold Arzt und Prof Dr Karl Zieler. Doppel Lieferung 11/12. Band III. Hautkrankheiten tierischer Ätiologie. Von Prof Dr Otto Grütz. Die Tuberkulosen der Haut. Von Priv Doz Dr Josef Hamel und Priv Doz Dr Karl Hoede. Benignes Miliarlupold Boeck. Lupus pernio. Lichen nitidus. Granuloma annulare. Erythematodes. Von Prof Dr Alfred Stühmer. Lepra. Von Priv Doz Dr Willi Lelpold. Sklerom. Malleus. Aktinomykose. Von Dr Friedrich Fischl. Paper Price 18 marks Pp 449 738 with 175 illustrations Berlin & Vienna Urban & Schwarzenberg 1934

**Die Haut und Geschlechtskrankheiten** Eine zusammenfassende Darstellung für die Praxis. Herausgegeben von Prof Dr Leopold Arzt und Prof Dr Karl Zieler. Band III. Doppel Lieferung 13/14. Krankheiten der Schweissdrüsen. Von Prof Dr Richard Volk. Krankheiten der Haare. Von Prof Dr Robert Otto Stein. Die Erkrankungen der Nagel. Von Prof Dr Robert Otto Stein. Mundschleimhautaffektionen. Von Prof Dr Otto Kren. Akute Exantheme einschliesslich der Exantheme bei septischen Prozessen. Von Dr Josef Zlkowsky. Hautkrankheiten der Neugeborenen und Säuglinge. Von Priv Doz Dr Gustav Riehl. Jun Die generalisierten exfoliativen Erythrodermien. Von Prof Dr Alois M. Memmesheimer. Titel und Inhaltsverzeichnis zu Band III. Paper Price 16 30 marks Pp 739 1062 with 112 illustrations Berlin & Vienna Urban & Schwarzenberg 1934

These volumes contain a number of complete, almost monographic, contributions by various authorities in the dermatologic domain. The subject of skin diseases caused by animal parasites is taken up by Grütz in a well illustrated chapter of 100 pages. The clinical and therapeutic problems in tuberculosis of the skin are exceedingly well presented by Hämel and Hoede from material in Zieler's clinic in Würzburg. The illustrations in this chapter are excellent photographic reproductions and present the varied anatomic features of cutaneous tuberculosis in great detail. There is a sane discussion on the treatment of lupus in which there is an evaluation of all the more modern therapeutic procedures. Other contributions that deserve particular commendation are those of Volk on diseases of the sweat and sebaceous glands. Stein's chapter on diseases of the hair, and Kren's chapter on disorders of the oral mucous membranes.

**Spinal Anesthesia. Technique and Clinical Application.** By George Rudolph Myers M.D. Cloth Price \$1.50 Pp 269 with 81 illustrations St. Louis C V Mosby Company 1934

Spinal anesthesia is discussed from the standpoint of its physiologic effects on the vital organs and on the body as a whole with frequent reference to the distribution of nerves, the effect of the anesthetic on them and the resulting phenomena. The author features his investigations and previous papers on this subject. The book is well illustrated. Little new material of importance is included. Those enthusiastic over spinal anesthesia will be interested in this book.

**Nachbehandlung nach chirurgischen Eingriffen.** Von Prof Dr Eduard Melchior Primärarzt der chirurgischen Abteilung des Städtischen Wenzel Hancke Krankenhauses Breslau. Second edition. Paper Price 17 60 marks Pp 376 with 28 illustrations Leipzig Johann Ambrosius Barth 1934

The author reports his experiences in postoperative treatment, taking up each condition in detail. The discussion is arranged systematically under respiratory diseases, heart collapse, shock, vomiting, ileus, diarrhea, genito-urinary disturbances, infections, thrombosis, embolism, postoperative psychosis and various other complications of postoperative recovery. A number of other conditions, as blood transfusion and the care of diabetic or other systemic diseases during recovery, are included. Complications are then taken up following surgery of the special regions of the body, including that of the head and neck, thorax, abdomen and extremities, and discussed from this point of view. Numerous suggestions are made for the prevention and treatment of most of the undesirable complications following operation. Other suggestions are made for the comfort of the patient. The thoroughness and the detail make the book highly valuable as a reference work in the postoperative care of surgical patients.

**The Negro Professional Man and the Community with Special Emphasis on the Physician and the Lawyer.** By Carter Godwin Woodson. Cloth Price \$3 25 Pp 365 Washington D C Association for the Study of Negro Life and History Inc 1934

This volume is one of a series dealing with various phases of Negro life in America. Figures are presented showing the number and distribution of various professional and semiprofessional classes. These statistics are supplemented by the conclusions drawn by five investigators who traveled through the South and those Northern cities having a considerable Negro population. Questionnaires and interviews were reported from 1051 physicians, 656 dentists, 625 nurses, 388 pharmacists and 503 lawyers. Although teachers and preachers greatly outnumber the professions here named, their status is so much more generally understood that the author concerns himself with them only to the extent of their relationship to others. An attempt is made to analyze the factors that determine the Negro's choice of a career, his selection of a location, and the value of his service to the community. On such a broad theme the conditions found are necessarily indefinite. There are figures a plenty, but the meaning of the figures is not revealed.

**Narkose zu operativen Zwecken.** Von Dr Hans Killian Oberarzt Chirurgischen Universitäts Klinik Freiburg i Br. Paper Price 24 marks Pp 406 with 165 illustrations Berlin Julius Springer 1934

This book, as the author says in the foreword, was written to afford a work on modern general anesthesia giving the German ideas and point of view and is the result of many years of experimental and clinical work. The first chapter is an outline of the history of anesthesia. The action of the general anesthetics on the blood, the temperature, the urinary tract, the liver and metabolism, the brain, the skin and mucous membranes, the skeletal muscle, the intestinal tract and the uterus is discussed. In the chapter on the technic of general anesthesia the author mentions the preanesthesia examination of the patient. The signs of the depth of anesthesia and the complications of anesthesia are given in detail. In the chapter on statistics there is a discussion of the causes of death in the various stages of anesthesia and afterward, and there are tables showing lung complications after general and after local anesthesia by several different workers. Another table shows the average mortality of the different general anesthetic agents. There is a chapter dealing with the sensitivity of the patient and the indications for general anesthesia. The author states that the indications for anesthesia and those for operations have the closest relationship because the nature, dosage and duration of the former are directly dependent on the demands of the latter. The development of local anesthesia has taken more than half the work from the field of general anesthesia. The last chapter deals with special technical methods in the administration of general anesthetics, including nasal insufflation, intrapharyngeal, intratracheal, high and low pressure apparatus, carbon dioxide absorption, and portable machines. A discussion of the dangers of explosion (especially of ethylene and acetylene) closes the work. This book should be of considerable interest to anesthetists.

## Medicolegal

**Multiple Neuritis Attributed to Chronic Sulphuric Acid Poisoning**—The deceased had been for many years employed by the defendants in a bleachery, where cloth was being finished by passing it through a 2 per cent solution of sulphuric acid. To keep this solution at a uniform strength, the deceased tested it from nine to thirty-five times a day. Hydrometers were provided for that purpose but, during the whole period of his employment, employees customarily tested by tasting, and that practice was well known to the defendant. Following that practice, the deceased would dip his fingers into the solution and apply them to his tongue. He died from multiple neuritis. Attributing his disease and death to the practice, his administratrix sued his employers. Verdicts were rendered in their favor, and the plaintiff appealed to the Supreme Court of New Hampshire.

It has been known to the medical profession for many years, said the Supreme Court, that sulphuric acid is injurious if taken internally in small quantities over an extended period of time. The defendants were chargeable with knowledge of that fact. Being chargeable with that knowledge, the evidence warranted a finding that the defendants were negligent in permitting a dangerous method of testing the acid solution without warning to their employees of the danger. The furnishing of hydrometers would not protect the defendants' employees unless proper instructions as to their use were given and enforced, or unless appropriate warnings as to the danger of adopting alternative methods of testing acid solutions were given. The defendants contended that their overseer on several occasions directed or requested the deceased to use the hydrometer, in order 'to turn out better work' but even if this were so, the evidence would clearly justify a finding that the defendants had acquiesced in the habitual disregard of the overseer's instructions so that they had become a dead letter.

Evidence was offered to show that the deceased had had two attacks of influenza, which would render him more susceptible to injury by the sulphuric acid, and the court instructed the jury that if the deceased would not have developed multiple neuritis, had he not previously had an infectious disease, the defendants were not liable. This instruction the Supreme Court held to be erroneous. The jury might have found that the fatal disease was caused by the combined effects of sulphuric acid poisoning and the grip or influenza infection. The defendants would not be relieved from the natural consequences of their wrong, merely because other factors contributed to bring about the injury.

A new trial was ordered—*Musgrave v Great Falls Mfg Co* (N H), 169 A 583.

**Malpractice Admissibility of Evidence Concerning Medical Defense Activities of State Medical Society**—In this third trial of this malpractice action<sup>1</sup> the defendant-physician, a member of the state medical society, called an officer of the society to testify on his behalf as a medical expert. On cross-examination, the witness testified that he paid dues to the society and that part of the dues so paid was allocated to a fund used to defend malpractice actions against members of the society. On redirect examination, he testified that the society did not defend every member and that the medicolegal committee of the society decided which members should be defended. He was then asked to tell which members the society defended, but the court refused to permit him to answer, holding that the question was an attempt to substitute the judgment of the medicolegal committee for the judgment of the jury. Judgment was given in favor of the plaintiff-patient, and the defendant-physician appealed to the Supreme Court of Michigan. He apparently urged as error the refusal of the trial court to permit the witness to state which members of the society were given the benefit of the society's aid, when sued for alleged malpractice. The testimony elicited from the witness on cross-examination, said the Supreme Court

as to his payment of dues and the use of such dues, was competent as bearing on the interest and credibility of the witness. The trial court erred, however, in refusing to permit the witness to state his understanding of the society's practice in defending malpractice suits. The witness's understanding of the practice was relevant to the claim of his interest and should have been received. The record, however, said the court, does not demonstrate that the erroneous ruling was prejudicial to the defendant. The judgment in favor of the plaintiff was accordingly affirmed—*De Haan v Winter* (Mich), 251 N W 391.

**Right of Optical Corporation to Provide Licensed Optometrists for Customers**—The Kindy Optical Company was incorporated to "carry on the business of optician and dealer in optical goods and allied lines." It employed licensed optometrists to serve customers in connection with sales of optical goods. Through quo warranto proceedings the state sought to oust it from employing such optometrists for the purpose named. The state claimed that the company's articles of association did not authorize the company to render such service and that the law prohibited a corporation from operating an optometric department. From an adverse judgment in the circuit court, Wayne County, the state appealed to the Supreme Court of Michigan. The employment of an optometrist in connection with the sale of optical goods by the defendant, said the Supreme Court, is a natural and proper extension of the service it is authorized to perform. The optometry practice act of Michigan<sup>1</sup> contemplates the maintenance of optical departments by corporations in connection with the sale of optical goods. Many decisions which have been cited construing different statutes are not applicable to the construction of the Michigan act. The judgment in favor of the defendant optical company was affirmed—*Voorhees, Attorney General v Kindy Optical Co* (Mich), 251 N W 343.

## Society Proceedings

### COMING MEETINGS

- American Academy of Ophthalmology and Otolaryngology Chicago, Sept. 9-14. Dr. William P. Wherry, 107 South 17th Street, Omaha, Executive Secretary.
- American Association of Railway Surgeons Chicago, August 20-22. Dr. Louis J. Mitchell, 21 East Van Buren Street, Chicago, Secretary.
- American Congress of Physical Therapy Philadelphia, Sept. 10-13. Dr. Nathan H. Palmer, 921 Canal Street, New Orleans, Secretary.
- American Hospital Association Philadelphia, Sept. 24-28. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.
- American Public Health Association Pasadena, Calif., Sept. 3-6. Dr. Kendall Emerson, 50 West 50th Street, New York, Executive Secretary.
- Colorado State Medical Society Colorado Springs, Sept. 19-22. Mr. Harvey T. Sethman, 537 Republic Bldg., Denver, Executive Secretary.
- Idaho State Medical Association Lewiston, Sept. 7-8. Dr. Harold W. Stone, 105 North Eighth Street, Boise, Secretary.
- Kentucky State Medical Association Harlan, Oct. 1-4. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.
- Michigan State Medical Society Battle Creek, Sept. 12-14. Dr. F. C. Warnshuis, 148 Monroe Avenue, Grand Rapids, Secretary.
- National Medical Association Nashville, Tenn., August 13-18. Dr. C. A. Lanon, 431 Green Street, South Brownsville, Pennsylvania, General Secretary.
- Nevada State Medical Association Reno, Sept. 21-22. Dr. Horace J. Brown, 120 North Virginia Street, Reno, Secretary.
- Northern Minnesota Medical Association Brainerd, Sept. 10-11. Dr. Oscar O. Larsen, Detroit Lakes, Secretary.
- Ohio State Medical Association Columbus, Oct. 4-6. Mr. Don K. Martin, 1005 Hartman Theatre Building, Columbus, Secretary.
- Oregon State Medical Society Corvallis, Sept. 27-29. Dr. L. Howard Smith, Medical Arts Building, Portland, Secretary.
- Pacific Northwest Orthopedic Association Seattle, Sept. 1. Dr. J. C. Brugman, 1215 Fourth Avenue, Seattle, Secretary.
- Pennsylvania Medical Society of the State of Wilkes-Barre, Oct. 1-4. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.
- Southern Minnesota Medical Association Mankato, Aug. 13. Dr. Harold C. Habein, 102 Second Avenue S.W., Rochester, Secretary.
- Washington State Medical Association Spokane, Sept. 10-13. Dr. Curtis H. Thomson, 1305 Fourth Avenue, Seattle, Secretary.
- Western Branch of American Public Health Association Pasadena, Calif., Sept. 3-6. Dr. W. P. Shepard, 600 Stockton Street, San Francisco, Secretary.
- Wisconsin State Medical Society of Green Bay, Sept. 12-14. Mr. J. G. Crownhart, 119 East Washington Avenue, Madison, Secretary.

<sup>1</sup> Mich. Comp. Laws 1929 sec. 6787 subsec. d. Laws 1909 sec. 7 paragraph d. Persons selling spectacles or eyeglasses on prescription from any duly qualified optometrist or physician are exempted from the operations of the Michigan optometry practice act and the act shall not prevent a person or persons selling glasses as an article of merchandise and not trafficking or attempting to traffic upon assumed skill.

<sup>1</sup> See 241 N W 923, 247 N W 151, J A M A 102, 74 (Jan 6) 1934.

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American Review of Tuberculosis, New York

29 587 706 (June) 1934

- Transformation of Adipose Tissue Following Experimental Tuberculosis G A Bartsell and K E Mason Nashville Tenn.—p 587  
Therapeutic Pneumoperitoneum. Review of One Hundred Cases A L Banyar Wauwatosa Wis.—p 603  
Sclerotomy Director J W Cutler Philadelphia.—p 628  
Changes in Pulmonary Tuberculous Cavities Resulting from Induced Paralysis of the Diaphragm P Slavin Glen Gardner N J.—p 629  
Review of the Cream Egg Culture Medium for Tubercle Bacilli H C Sweany M Evanoff and A Gross Chicago.—p 638  
Inhibitory Action of Sulphur on Growth of Tubercle Bacilli G B Lawson Roanoke Va.—p 650  
Quantitative Study of Tuberculin Reaction in Childhood Tuberculosis J A Johnston P J Howard and J Maroney Detroit.—p 652  
\*Desensitization of Tuberculous Guinea Pigs by Means of Natural Tuberculin Prepared from Fractured Bacilli J Weinzirl and R S Weiser, Seattle.—p 660  
\*Tryptophan Test in Tuberculous Meningitis M B Rosenblatt New York.—p 668  
\*Significance of Repeated Red Cell Sedimentation Rate Determinations in Pulmonary Tuberculosis L E Siltzbach Bedford Hills N Y.—p 673  
Erythrocyte Sedimentation Test with Especial Reference to Tuberculosis A R Masten Wheat Ridge Colo.—p 690

**Changes in Tuberculous Cavities Resulting from Paralysis of Diaphragm**—Slavin observed that therapeutic paralysis of the diaphragm produces obliterative changes in pulmonary tuberculous cavities partly through compression but mainly through concentric retraction of the relaxed capsule of the cavity. Only those cavities the walls of which are compressible and capable of fibrotic retraction are influenced by interruption of the phrenic nerve. Complete closure of responsive cavities depends on their size and on the condition of the opposite lung and is not controlled by the amount of elevation of the paralyzed diaphragm. Cavities situated in the lower lobe show more initial compression and obliterate more rapidly than cavities of the upper lobe. As an aid in the closure of pulmonary tuberculous cavities phrenic paralysis presents the least radical procedure, and its application in selected cases saves the patient the inconvenience of prolonged pneumothorax treatment, the risk of major surgical collapse operations and the uncertainty of protracted expectant therapy.

**Desensitization of Guinea-Pigs by Means of Natural Tuberculin**—Weinzirl and Weiser state that tuberculous guinea pigs can be desensitized by means of a natural tuberculin prepared from tubercle bacilli subjected to repeated freezings with liquid air. No desensitizing powers could be demonstrated from the cell debris remaining after the removal of the natural tuberculin. The natural tuberculin successfully desensitized guinea pigs infected with either nonvirulent or virulent tubercle bacilli. Desensitization was effective against both Seibert's synthetic medium tuberculin and the homologous natural tuberculin.

**Tryptophan Test in Tuberculous Meningitis**—Rosenblatt used the tryptophan test in twelve cases of tuberculous meningitis proved by necropsy or by demonstration of the tubercle bacillus in the spinal fluid. All these cases gave unquestionably positive reactions. The control group consisted of forty-five cases. The presence of a positive tryptophan test is strongly suggestive but not pathognomonic of tuberculous meningitis. Hemorrhagic purulent and xanthochromic fluids give false positive reactions which are usually distinguishable from those obtained in tuberculous meningitis by the purplish color. Indistinguishable positive reactions may be obtained with clear spinal fluids in which the protein is increased. There is sufficient evidence to warrant the use of

the tryptophan test as a routine procedure in the examination of the spinal fluid.

**Red Cell Sedimentation Rate in Tuberculosis**—Siltzbach studied the erythrocyte sedimentation reaction curves (Cutler) in 494 patients having pulmonary tuberculosis. 1,170 individual tests were performed. The data so obtained were analyzed, and correlative studies with the constitutional and local manifestations of the disease were made. It was found that curves reflecting moderate and severe activity occur with greater frequency in patients with fever, rapid pulse, loss of weight, positive sputum, the formation of cavities, extensive lesions and extrapulmonary tuberculosis. The erythrocyte sedimentation reaction curve reflects the progress of the disease and a change in the erythrocyte sedimentation reaction curve often precedes the change in clinical symptoms and signs. It is of value therefore, in the prognosis of pulmonary tuberculosis. In collapse therapy the erythrocyte sedimentation reaction may be utilized as a gauge of the effectiveness of the treatment.

#### Annals of Internal Medicine, Lancaster, Pa

7 1469 1608 (June) 1934

- Treatment of Angina Pectoris and Congestive Heart Failure by Total Ablation of the Thyroid in Patients Without Thyrotoxicosis. Particular Reference to Preoperative and Postoperative Medical Management H L Blumgart D D Berlin D Davis J E F Riseman and A A Weinstein Boston.—p 1469  
Statistical Evaluation of Different Methods for Detection of Arteriosclerosis in Diabetes Mellitus I M Rabinowitch, W L Ritchie and S H McKee Montreal.—p 1478  
Tularemia Pneumonia P G Boman and A J Bianco Duluth, Minn.—p 1491  
Developments and Disappointments in Blood Studies R I Lee Boston.—p 1496  
\*Multiplane Chest Electrocardiography. Standardized Method of Chest Lead Applications J Weinstein Brooklyn.—p 1503  
\*Malarial Therapy in Asymptomatic Neurosyphilis P A O Leary Rochester Minn.—p 1513  
Congenital Cystic Disease of the Lungs. Case Reports L J Moorman Oklahoma City.—p 1523  
Mild Hypothyroidism R M Watkins Cleveland.—p 1534  
\*Use of Calcium Orthoiodoxybenzoate in Treatment of Arthritis with Discussion of Its Possible Value in Some Other Orthopedic Conditions T Wheelton Richmond Va.—p 1540  
Dr Richard Shuckburgh and Yankee Doodle L H Roddis Washington D C.—p 1548

**Multiplane Chest Electrocardiography**—Weinstein proposes a standardized method of chest lead application which surrounds and intersects the heart by planes of current take-off, and he presents the uniformity of the tracings obtained in a control group of fifty normal cases and the advantage of the multiplane chest leads in conjunction with the three standard limb leads in more accurately detecting and localizing myocardial lesions. The right and left arm electrodes are used for the chest application and they are so placed that the current take-off is kept in the same relationship to the current direction within the heart as in the three standard limb leads. The right arm electrode is therefore always applied to the chest in closest relation to the tail of the arrow, while the left arm electrode is applied in closest relation to the head of the arrow representing the heart action current direction. It is important to determine accurately the size of the heart and the position of the cardiac borders either by a teleroentgenogram, fluoroscopic methods or by as accurate percussion as is possible. Flexible electrodes, one-half inch wide and from 4 to 6 or more inches in length, depending on the size of the heart, are used. The electrodes should be covered with gauze soaked in warm sodium chloride solution. The skin at the sites selected is cleansed with an antiseptic solution, and linear scarifications, the length of the electrodes used are made. The electrodes are held firmly in place either by an assistant whose hands are insulated with rubber gloves or, preferably, by a spring clamp device. The skin resistance should be carefully standardized before each lead is taken. The author presents illustrations of the positions of the electrodes on the wall of the chest.

**Malaria Therapy in Asymptomatic Neurosyphilis**—In the past ten years O Leary treated with malaria eighty-nine patients who had asymptomatic neurosyphilis when the serologic tests on the spinal fluid had failed to become reversed to negative following intensive use of arsphenamine and mercury and bismuth compounds. In 50 per cent of the cases in which invasion of the nervous system was of mild degree the serologic reactions became completely negative following malarial therapy,

irrespective of whether or not antisyphilitic treatment was given after induction of malaria. In 39 per cent of cases in which the formula of the spinal fluid was of the paretic type, the spinal fluid factors were reversed to negative following malarial therapy. Among those cases in which the usual antisyphilitic treatment was not given following malarial treatment, there was satisfactory reversal to negative of the spinal fluids in 58 per cent of those in which reports on the spinal fluid had indicated only mild or moderate involvement, whereas among cases in which the formula of the spinal fluid was of paretic type, in only 30 per cent was there a reversal to negative. When it was observed that the results from malarial therapy alone were unsatisfactory at the end of the first year, arsphenamine and mercury or bismuth compounds again were given intensively. In other words, if favorable results from malarial treatment were lacking at the end of six or twelve months, intensive specific antisyphilitic measures were instituted in an effort to ward off the appearance of parenchymatous changes in the nervous system. The absence of serologic relapse was noteworthy. In only one case did the author find a relapse to positivity of the spinal fluid after a negative report had been obtained following malarial treatment. Death occurred in one case, the cause for which could not be found at necropsy. He believes that there is ample evidence to allow the assertion that asymptomatic neurosyphilis is the forerunner of dementia paralytica or tabes dorsalis. Also, it is an acknowledged fact that in many cases of asymptomatic neurosyphilis a satisfactory serologic response follows intensive application of the so called specific remedies. Those patients who fail to derive serologic reversal from specific agents are entitled to the benefit of malarial therapy because, on a basis of comparative percentages, malarial therapy is more valuable in the prevention of parenchymatous neurosyphilis than it is in the treatment of it.

**Calcium Ortho-Iodoxybenzoate in Treatment of Arthritis**—Wheeldon observed the effect of calcium ortho-iodoxybenzoate in a general group of 236 arthritic cases and presents a detailed study of forty-six cases of hypertrophic and atrophic arthritis. The therapeutic results were most satisfactory and unpleasant side reactions were almost nonexistent. Laboratory observations indicate an increase in indican output, improvement in hypertension and lowering of sedimentation rate. The author is of the opinion that calcium ortho-iodoxybenzoate achieves its beneficial results through its stimulating action on the peripheral circulation and that, subjectively at least, calcium ortho-iodoxybenzoate improves the circulation in the affected joints.

### Annals of Otol, Rhinol and Laryngology, St Louis

43 321 640 (June) 1934 Partial Index

- Electrical Activity of the Cochlea in Certain Pathologic Conditions M H Lurie H Davis and A J Derbyshire Boston—p 321  
Effect of Severe Illness on the Hearing E P Fowler New York—p 387  
Otosclerosis in Ultraviolet Light E P Fowler Jr New York—p 408  
Lateral Sinus Thrombosis Review of Literature G M Coates M S Ersner and A H Persky, Philadelphia—p 419  
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Primary Carcinoma of External Auditory Canal M Fineberg and L H Jorstad St Louis—p 464  
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\*Electrocautery in Treatment of Laryngeal Tuberculosis W E Vandever El Paso Texas—p 572  
Relation of Chest Infection to Sinus Disease E L Spence Plainview Texas—p 579  
\*New Treatment for Eustachian Tube Obstruction Controlled Heat Bougie E Simon, Albany, N Y—p 598

**Electrocautery in Treatment of Laryngeal Tuberculosis**—Vandever states that laryngeal tuberculosis is a complication of pulmonary tuberculosis in practically every case. The tuberculous lesion is healed by the deposit of calcium salts in the necrotic areas and by the increase of fibrous tissue which develops from the fixed connective tissue cells, and probably by a changing of the epithelioid cells into fibroblasts. Such healing processes are encouraged by an increased blood supply. Rest is important in all cases of laryngeal tuberculosis. The

electric cautery is used in all tuberculous ulcers and infiltrations that do not respond to rest. The electric cautery heals, not by the destruction of all tuberculous tissue, but by the development of an inflammatory zone in which newly formed blood vessels and fibroblasts are produced, which hastens healing by cicatrization. Most early cases heal with cautery treatment, while there is relief from pain in the advanced cases. Electric cauterization is carried out best under cocaine anesthesia and by the indirect method.

**Treatment for Eustachian Tube Obstruction**—Simon uses heat bougies in treating eustachian tube obstruction. He varies the procedure at different times, but essentially it is the insertion of the bougie through a short (Yankauer) catheter and then turning on of the heat gradually at the rheostat dial until the galvanometer of the thermocouple reads 110 F. This temperature is maintained for a period of ten minutes, following which the heat is completely turned off but the bougie is still left in the tube. After ten minutes the bougie is withdrawn. The procedure was usually done weekly.

### Archives of Ophthalmology, Chicago

11 933 1098 (June) 1934

- \*Detachment of the Retina Treatment with Multiple Diathermic Puncture and Its Results K Šafar Vienna Austria—p 933  
Apparent Optic Atrophy with Recovery of Normal Central Visual Acuity F H Adler Philadelphia—p 942  
Congenital Cyst in the Vitreous S G Seech Los Angeles—p 947  
Muscle Training in Functional Convergence Insufficiencies L F Appleman Philadelphia—p 950  
Racemose Arteriovenous Aneurysm of the Retina (Aneurysm Racemose Arteriovenosum Retinae) W H Stokes Omaha—p 956  
Chemistry of the Vitreous Humor I Chemical Composition of the Proteins A C Krause, Baltimore—p 960  
Id II Proteolysis A C Krause Baltimore—p 964  
Anatomic Error in Using Base of Nose as Point of Rest for Spectacles T J Dimitry New Orleans—p 969  
Free Cyst Floating in the Vitreous C B Meding New York—p 973  
The Wilmer Iridocapsulectomy B Ronas Baltimore—p 976  
Glioma of the Retina Report of Case with Intracranial Extension C W Rand Los Angeles—p 982  
Phthiriasis Palpebrarum Report of Case R Friedman and C S Wright, Philadelphia—p 995  
Anatomic and Clinical Manifestations of Necrosis in Eighty Four Cases of Choroidal Sarcoma B Samuels, New York—p 998  
\*Repair of Coloboma of the Upper Eyelid L A Peer, Newark N J—p 1028

**Treatment of Detachment of the Retina**—With special short needle electrodes, Šafar makes multiple perforating diathermic punctures in the area of the bulbar wall where the rent of the retina is situated or is supposed to be. After the subretinal liquid has escaped through these punctures, the retina attaches to the coagulated choroid and becomes adherent to it, the tear disappears, and the detachment of the retina heals. Since this method can be applied over a large area with slight intensity of current, it is applicable in cases of large tears or multiple holes as well as in those without visible tears. The location of the tears is considerably facilitated by scattering the punctures. The method is simple and efficacious, and the burden on the eye is minor, particularly if the condition is recent, patients presenting such a condition may be operated on with nearly absolute certainty of success. Complications are rare. In the author's cases reattachment of the retina has been permanent to the present time in 57.5 per cent of forty eyes operated on without selection in 1932 and in 85 per cent of the first forty eyes operated on in 1933. Failures occurred in cases of old detachment, with a shrunken or contracted retina due to an operative scar, and in old people who could not be kept in bed in the prone position for a sufficient length of time and who were inclined to bleed; however, hemorrhages into the vitreous are rarer with this method than with other methods. Retinas with older detachments, with the formation of striae and a boundary area, could still be reattached sometimes there was a surprising improvement in visual function. Generally, however, early operation is indicated, for the longer the detachment persists, the less is the chance for reattachment and the regaining of useful function of the retina.

**Repair of Coloboma of Upper Eyelid**—Peer reports a case in which coloboma followed the removal of a portion of the upper eyelid for basal cell carcinoma. The growth involved both the conjunctiva and the skin and was removed by excising a full thickness section of the lid extending from the free margin to a little above the upper border of the tarsus. A flap of skin from the eyelid was outlined above the defect, dissected from

the muscle layer and turned down trapdoor fashion, sufficient hinge or pedicle being left to insure an adequate supply of blood. This flap was sutured to the denuded edges of the defect with the surface of the skin next to the eye and the raw surface outside, and was left in place for one week. A free, full thickness skin graft was then taken from the opposite upper eyelid and sutured to cover the entire denuded area, only moderate pressure being applied to avoid strangulation of the skin flap. One week later the dressing was removed and artificial adhesions were made between the new portion of the upper and lower lids. The adhesions were left in place for four months and then severed. A notching of the margin of the lid due to imperfect union was repaired at this time by a procedure similar to the Blair-Mirault operation for harelip. The author has used this operation on other cleft lids and recommends it as a practical and satisfactory method.

### Archives of Pathology, Chicago

17 729 872 (June) 1934

- Combined Syphilitic and Rheumatic Disease of the Aortic Valve. Report of Three Cases. R. V. Sager and A. R. Sohval. New York—p. 729.
- Hodgkin's Disease. Search for Infective Agent and Attempts at Experimental Reproduction. P. E. Steiner. Chicago—p. 749.
- Proliferative Reaction of Guinea Pig Skin to Sulphydryl and Its Relation to Neoplasia. S. P. Reimann and Ethel Rahe. Hankele. Philadelphia—p. 764.
- Metamorphosis of *Metastrongylus* Larvae and Mesenteric Lymph Glands. M. Hobmaier. San Francisco—p. 769.
- Analysis of Coroner's Statistics from Cook County (Chicago) Ill. with a Pathologic Review of the Causes of Death. H. R. Fishback. Chicago—p. 775.

**Attempts at Experimental Reproduction of Hodgkin's Disease.**—Steiner investigated the diseased splenic and lymph node tissues from fifteen patients having Hodgkin's disease (lymphogranulomatosis) together with control diseased tissues from eight patients with other lymphomas (1) for the ability of the diseased tissue to produce tuberculosis in chickens, guinea-pigs, rabbits, dogs and mice (2) for the disease-producing capacity of these tissues as grafts and (3) for the presence of tubercle bacilli or atypical acid-fast bacteria in these tissues, special cultural methods being used. The diseased tissues from the twenty-three patients were injected or transplanted into 199 animals. An additional group of twenty-three chickens that were not given injections served as a control of environmental factors, especially of the occurrence of spontaneous tuberculosis. A group of eight dogs received intracerebral injections. The animals were allowed to survive for periods varying from nine to thirteen months. In the entire group of animals given injections of diseased human tissues, tuberculosis occurred in one chicken and in one guinea pig following injection of material from a patient having Hodgkin's disease, and in one guinea-pig following injections of lymphosarcomatous tissue. In the infected chicken a spontaneous infection was not ruled out. In passage experiments with tissues from these infected animals, tuberculosis was again produced. Numerous lesions in diseased chickens superficially suggesting tuberculosis were considered nontuberculous because they did not definitely satisfy any of the following criteria: the acquisition of a positive reaction to tuberculin; the gross and microscopic morphologic structure of tuberculous lesions; the presence of stainable acid-fast bacilli in suggestive lesions; the growth of acid-fast bacilli from such lesions on culture mediums; and the production of tuberculosis in animals in passage experiments. No evidence was found that the diseased human tissues were transplantable or that they were capable of inducing in animals lesions with a similar histologic structure. No strains of acid fast bacteria were grown from these diseased human tissues by modern cultural methods. Likewise the occurrence of acid-fast forms of bacteria reported to exist as a transient phenomenon early in the cultures of these tissues was not confirmed. Avian tubercle bacilli detectable by the methods used were apparently not present in the tissues of the fifteen patients having Hodgkin's disease.

**Metamorphosis of *Metastrongylus* Larvae and Mesenteric Lymph Glands.**—The study of Hobmaier corroborates the previous statement of A. Hobmaier and the author that the infective larvae of *Metastrongylus* must invade the mesenteric lymph nodes of the vertebrate host to grow there into sexual larvae and that they do not enter the tributaries of the portal vein as a part of their regular life cycle. The patho-

logic changes observed in the invaded lymph nodes may be explained as the result of the trauma inflicted by the embolization of the larvae into the lymphatics, by the dilatation and occlusion of these vessels during the development of sexual larvae, and by the disarrangement of anatomic structures caused by their emigration.

### Florida Medical Association Journal, Jacksonville

20 553 596 (June) 1934

- Treatment of Upper Urinary Tract Infections. E. C. Shaw. Miami—p. 561.
- Hypothyroidism Without Myxedema. N. L. Spengler. Tampa—p. 564.
- Otitis Media. C. G. Coakley. New York—p. 568.
- Practical Present Day Concept of Anemias. V. M. Johnson. West Palm Beach—p. 571.
- Sane or Psychotic? W. C. McConnell. St. Petersburg—p. 573.
- Anomalies of the Kidneys and Ureters. G. F. Highsmith. Arcadia—p. 575.
- Active Immunization Against Diphtheria. W. T. Harrison. Washington, D. C.—p. 578.

### Georgia Medical Association Journal, Atlanta

23 203 244 (June) 1934

- The Problems of Present Day Medicine. C. H. Richardson. Macon—p. 203.
- Theory Explaining the Excitatory and Inhibitory Functions of the Nervous System Especially Those of the Brain. J. N. Brawner. Atlanta—p. 214.
- Birth Injuries in the New Born. B. Bashinski. Macon—p. 225.

### Indiana State Medical Assn Journal, Indianapolis

27 281 324 (July 1) 1934

- Value of Perimetry in Ocular Diagnosis and Prognosis. E. W. Dyar. Indianapolis—p. 281.
- Transurethral Prostatic Resection. W. S. Ehrlich. Evansville—p. 285.
- Economic Progress in Medicine. W. F. Kelly. Indianapolis—p. 286.
- Feeding the Normal Baby. C. S. Bosenbury. South Bend—p. 291.
- Acute Intestinal Obstruction. C. A. Nafe. Indianapolis—p. 293.
- Clinical Application of Roentgenology of the Gallbladder. C. A. Stayton. Indianapolis—p. 298.

### Journal of Comparative Neurology, Philadelphia

59 341 508 (June 15) 1934

- The Mechanism of Vision. VII. Projection of the Retina on the Primary Optic Centers in the Rat. K. S. Lashley. Chicago—p. 341.
- The Hypothalamus of *Necturus*. C. J. Herrick. Chicago—p. 375.
- Nuclear Configuration of Hypothalamus and Subthalamus of *Macacus Rhesus*. R. L. Crouch. Columbia Mo.—p. 431.
- Nuclear Configuration of Thalamus of *Macacus Rhesus*. R. L. Crouch. Columbia Mo.—p. 451.
- Correlation Between the Development of Local Reflexes and Reflex Arcs in the Spinal Cord of Cat Embryos. W. F. Windle. Chicago—p. 487.

### Journal of Experimental Medicine, New York

60 1 126 (July 1) 1934

- Production of Streptococcus Hemolyticus Bacteremia in Nonspecifically Sensitized Animals. C. G. Burn, Caroline A. Chandler and Mildred Hartshorn. New Haven, Conn.—p. 1.
- Studies on Host Factors in Pneumococcus Infections. I. Certain Factors Involved in the Curative Action of Specific Antipneumococcus Serum in Type I Pneumococcus Dermal Infection in Rabbits. K. Goodner. New York—p. 9.
- Id. II. Protective Action of Type I Antipneumococcus Serum in Rabbits. K. Goodner. New York—p. 19.
- Pathologic Histology of the Shwartzman Phenomenon with Interpretative Comments. H. T. Karsner and A. R. Moritz. Cleveland—p. 37.
- Infection of Ferrets with Swine Influenza Virus. R. E. Shope. Princeton N. J.—p. 49.
- \*Flow and Composition of Lymph in Relation to the Formation of Edema. A. A. Weech, E. Goettsch and E. B. Reeves. New York—p. 63.
- Chemoimmunologic Studies on Conjugated Carbohydrate Proteins. VIII. Influence of Acetyl Group on Specificity of Hexoside Protein Antigens. W. F. Goebel, F. H. Babers and O. T. Avery. New York—p. 85.
- Respiration Mechanism of Pneumococcus. III. M. G. Sevag and L. Maiweg. Berlin, Germany—p. 95.
- Studies on the Etiology of Spontaneous Conjunctival Folliculosis of Rabbits. I. Transmission and Filtration Experiments. P. K. Olitsky, J. T. Syvertson and J. R. Tyler. New York—p. 107.
- Antigenic Relationship Between Proteus  $\gamma$  19 and Typhus Rickettsia. II. Study of the Common Antigenic Factor. M. R. Castaneda. Boston—p. 119.

**Composition of Lymph in Formation of Edema.**—The experiments of Weech and his associates indicate that lymph flow in normal dogs ceases entirely during periods of complete physical inactivity. During these periods, capillary filtrate accumulates in the interstitial spaces and can enter the lymph channels at once when activity stimulates the pumping action of the lymphatic valves. The initial flow is therefore rapid, but the rate declines quickly as the interstitial reservoir is emptied and finally becomes constant at a rate which corresponds to that at which new lymph is being produced. With



the edematous dog the situation is similar, but because the interstitial spaces contain more fluid (edema) the initial rapid flow can be maintained for a longer time than in the normal animal. Within ten or fifteen minutes, however, the rate of flow decreases and continued activity is accompanied by progressive and finally by complete loss of edema. The carrying capacity of the lymph vessels at all times greatly exceeds the rate at which new lymph can be formed. The data suggest that the rate of lymph formation, as estimated from the minimal rates of lymph flow, may increase slightly when edema is present. The increase, however, is surprisingly small and not beyond the limits of variations encountered in normal animals. Lymph from the normal dog always contains an appreciable quantity of protein. Lymph from the edematous dog contains much less protein. The lymph protein deficit of edematous dogs is greater than can be accounted for on the basis of a proportionate loss corresponding to the serum protein deficit. The concentration of protein in lymph from edematous dogs is of the same order of magnitude as that of edema fluids, although the two fluids are not identical in composition. Minor fluctuations in the protein of lymph occur while the collections are being made. The fluctuations may depend on varying proportionate rates of flow from different regions that send tributaries to the main lymph channels or they may result from variations in capillary permeability incident to the continuous exercise necessary for maintaining lymph flow. Lymph from the lower leg of normal and edematous dogs sometimes contains red blood cells and sometimes it does not. Both increases and decreases in the number of erythrocytes may follow in succession as the conditions of collection are altered.

### Journal of Lab and Clinical Medicine, St Louis

19 917 1032 (June) 1934

- Intracellular Structures in Monocytes in Cases of Malignant Disease O C Gruner Montreal—p 917
- Toxemias of Pregnancy II Nitrogen Metabolism A W Rowe Mary A McManus and Gertrude A Riley Boston—p 923
- Verrucous Aortitis with Especial Regard to Aneurysm Formation in Children B H Neiman Chicago—p 929
- Corynebacterium Diphtheriae Gravis Found in Maryland Ona R Whitley, Baltimore—p 943
- \*Sedimentation Reaction in the New Born S L Ellenberg New York—p 944
- \*Observations on Vascular Response to Drainage of Ascites W A Brams and J S Golden Chicago—p 948
- Pigment Studies I Brown Skin Adrenalin Color Reaction C Quinan San Francisco—p 951
- Id II Importance of Hydrolyzed Adrenalin as a Tissue Stain C Quinan San Francisco—p 954
- Crystalline Elements in Stomach Lavage of Patients with Cholelithiasis H A Rafsky New York—p 959
- Effect of Smoking on Skin Temperature H J Johnson and J J Short, New York—p 962
- Vitamin Therapy in Pulmonary Tuberculosis VI Effect of Viosterol on Carbon Dioxide Content the Hydrogen Ion Concentration Chlorides Glucose and Urea Nitrogen of the Blood and Protein Calcium and Phosphorus of the Serum Effect of Physiologic Saline on These Constituents During the State of Hypercalcemia P D Crimm and J W Strayer Evansville Ind—p 966
- \*Chemotherapeutic Studies with Sodium Ricinoleate (Sortein) J A Kolmer Philadelphia, assisted by Anna M Rule and B Madden—p 972
- Specific Gravity of the Blood in Human Cancer Four Hundred Observations with a Note on Its Clinical Significance D Polowe Paterson N J—p 983
- Determination of the Stroke Volume of the Heart A G Keller Jr Philadelphia—p 994
- Preparation and Use of Colloidal Carbon Solutions J M Looney and F C Stratton Worcester Mass—p 996
- Method for the Separation of the Principal Constituents of Bile R U Harwood Montreal—p 1003
- \*Modification of the Lange Colloidal Gold Test F Boerner and Marguerite Lukens Philadelphia—p 1007
- Dropper for Performance of Fragility Test of Red Blood Corpuscles H P MacNeal Philadelphia—p 1009
- Sedimentation Time of Blood Improved Apparatus for Routine or Research Tests H P MacNeal Philadelphia—p 1010
- Procedure in the Kuttner Lichtenstein Microcolorimetric Method for the Determination of Organic Phosphorus Note D Glick, New York—p 1012
- Simple Technic for Finding Coccidioides Immitis W P Stowe San Francisco—p 1013
- Estimation of Ethyl Alcohol in Brain R J Abernathy E R Russell and C H Thienes Los Angeles—p 1014
- Diazo Reaction for Detection of Certain Local Anesthetics in Urine and in Tissues W E Gibb and W M Dehn Seattle—p 1018
- Cage for Mice and Rats A W Blair and E B Carmichael University Ala—p 1020

**Sedimentation Reaction in the New-Born**—The results of Ellenberg's investigation show that the sedimentation time in the normal new-born infant seems to range between seven

and twenty-three hours, with the average sedimentation speed for the entire neonatal period being about fifteen hours as compared to the two hours considered normal in adults. There is also a tendency for the sedimentation reaction to become less prolonged as the infant grows older. Silzer, in a study of the sedimentation speed of red blood cells from the umbilical vein of 800 infants, noted that 91.75 per cent of the cases showed a sedimentation time of more than twenty-four hours, 42.3 per cent showed sedimentation in from twelve to twenty-four hours, 3.8 per cent in from one to twelve hours, and 0.5 per cent in from thirty to sixty minutes. That the blood fibrinogen is probably the most important factor in the prolongation of the sedimentation reaction in infants is suggested by the work of Bruchsalter, who studied the relative sedimentation reaction and blood fibrinogen in infants and pregnant women and found that the maternal blood showed from 250 to 500 units of fibrinogen, while the blood of new-born infants contained from 64 to 125 units. The author discusses the use of the superior longitudinal sinus as a source of obtaining blood for the study of the sedimentation speed in the new-born infant.

**Vascular Response to Drainage of Ascites**—Brams and Golden noted the effect of draining off abdominal fluid on the venous pressure, systolic and diastolic arterial blood pressure and pulse rate in ten patients having portal cirrhosis and chronic ascites. The venous pressure began to fall early during the drainage, and in four instances continued as more fluid was removed. The venous pressure at the end of the drainage was lower in every instance than before tapping was begun. Systolic and diastolic arterial pressures fell while the fluid was being removed. A fall in blood pressure was associated with faintness in one patient, whose pressure was low before the procedure was begun. A similar fall in other patients with previously normal blood pressure was not associated with such untoward symptoms.

**Chemotherapeutic Studies with Sodium Ricinoleate**—Kolmer determined the toxicity of sodium ricinoleate by intravenous, intraperitoneal, intramuscular and subcutaneous injection in the lower animals. It is highly hemolytic and on intravenous injection may produce intravascular hemolysis with embolism. The maximal tolerated dose by this route of administration has been found to be approximately 0.035 Gm per kilogram of weight. By intramuscular injection it may produce local irritation, with liquefaction necrosis when large amounts are injected. However, it is well borne systematically by this route of administration, as the maximal tolerated dose has been found to be more than 1 Gm per kilogram of weight. It may also produce some irritation on intraperitoneal injection but it is well borne by this route, since the maximal tolerated dose is as high as from 0.16 to 0.3 Gm. per kilogram of weight. By intracranial injection the maximal tolerated dose has been found to be approximately 0.004 Gm per kilogram of weight. Sodium ricinoleate is capable of inactivating or destroying diphtheria and tetanus toxins in the test tube and is especially destructive for the latter, although it would appear that the resulting toxoids are of low antigenic activity. It is but feebly antitoxic for the toxins of diphtheria and tetanus bacilli in guinea-pigs by various routes of administration. Sodium ricinoleate is of low bactericidal activity in the test tube and has been found without demonstrable curative activity in severe streptococcal, pneumococcal and tuberculous infections of the lower animals, as well as in experimental trypanosomiasis of rats, syphilis of rabbits and acute anterior poliomyelitis of monkeys.

**Modification of the Colloidal Gold Test**—Boerner and Lukens recommend the following modification of the colloidal gold test, which requires but one-half the amount of reagent that is used in the original method. Eleven chemically clean test tubes are placed in a rack. Into the first tube 18 cc of a 0.4 per cent solution of sodium chloride is placed, and 0.5 cc. in each of the remaining ten tubes. To the first tube 0.2 cc of spinal fluid is added and mixed thoroughly. The authors feel that the dilutions will be more accurate if 0.2 cc. of fluid is diluted with 18 cc of salt solution rather than 0.1 cc. of fluid with 0.9 cc of salt solution. If the latter is used, the 1 cc is not discarded from the first tube as directed in the next step. From the first tube 1 cc is discarded, then 0.5 cc

is transferred to tube 2, mixed thoroughly and 0.5 cc removed and placed in tube 3, this is continued until the tenth tube is reached and then 0.5 cc is discarded from this tube. The eleventh tube is used as a control. To each tube 25 cc of colloidal gold solution is added, mixed thoroughly and set aside for twenty-four hours. The readings are made and recorded as in the original test.

### Journal of Pediatrics, St. Louis

4 715 850 (June) 1934

- Trends in Pediatrics J. Ruhrah, Baltimore—p. 715  
Recurrent Abdominal Pain in Childhood J. L. Morse, Boston—p. 725  
\*Atypical Chondrodystrophy J. Warkany and A. G. Mitchell, Cincinnati—p. 734  
Observations on Therapy in Erysipelas P. E. Rotchman, Los Angeles—p. 746  
Meningitis in the New Born C. M. Pounders, Oklahoma City—p. 752  
Schilling Blood Count as Aid in Diagnosis of Acute Appendicitis in Children J. L. Rogatz, New York—p. 757  
Complications of Retropharyngeal Abscess L. Rosenberg and M. Berke, Brooklyn—p. 764  
\*Effect of Extract of Pregnancy Urine on Hypopituitarism in the Male R. H. Kunstader and L. S. Robins, Chicago—p. 774  
Acute Hemolytic Anemia in Childhood A. S. Manne and L. Kuskin, Brooklyn—p. 789  
Dermoid Cyst of the Midbrain E. H. Baxter and G. B. Haber, Columbus, Ohio—p. 795  
Status Thymicolymphaticus M. Szabados, Brooklyn—p. 798

**Atypical Chondrodystrophy**—Warkany and Mitchell describe a case that presented certain features of chondrodystrophy but, as others were lacking, it was difficult to decide between this diagnosis and that of osseous dystrophy. In reality the case represented an intermediate form between the two diseases. In common with Morquio's disease it had normal skull and conformation of the face, lack of micromelia, lack of development of the epiphysis of the head of the femur, genu valgum, normal length of the fibula, waddling gait and some faulty development of the musculature. The apparent late onset of symptoms also speaks for Morquio's syndrome. The case resembled Parrot's type of chondrodystrophy in that the neck and trunk were of normal length, there was no platyspondylitis, and the humeri were short and thick.

**Effect of Extract of Pregnancy Urine on Hypopituitarism**—Kunstader and Robins treated eight male children having hypopituitarism with extract of pregnancy urine (antuitrin-S). Descent of the testicles was accomplished in all of three cases of cryptorchism. In three cases characterized by genital underdevelopment (testicles descended), treatment resulted in enlargement of the testicles and scrotum and the appearance of the secondary sex characteristics. In two cases characterized by pituitary obesity with normal genital development, treatment resulted in no increase in size of the genitalia. In four of five cases in which basal metabolism tests were made before and at the end of treatment, the basal metabolic rates were lowered below the lower limits of normal at the end of treatment. The inconsistency of the change in blood cholesterol level following treatment does not permit definite conclusions. In five cases in which sugar tolerance determinations were made before and at the end of treatment, the tolerance was lowered at the end of treatment. In seven of the eight cases there was an increase in growth of stature above the normal for the age following treatment. The extract of pregnancy urine did not stimulate loss of weight and did not alter the typical pituitary distribution of fat.

### Journal of Pharmacology & Experimental Therapeutics, Baltimore

51 127 262 (June) 1934

- Effect of Codeine, Dihydrocodeine and Their Isomers on Blood Pressure in Unanesthetized Dogs R. H. K. Foster, Ann Arbor, Mich.—p. 153  
Effect of Codeine, Dihydrocodeine and Their Isomers on Blood Pressure in Anesthetized Cats R. H. K. Foster, Ann Arbor, Mich.—p. 170  
Pharmacology and Toxicology of the Azo Dye Phenylazo Alpha Alpha Diaminopyridine (Pyridium) R. P. Walton and E. H. Lawson, New Orleans—p. 200  
Comparative Pharmacologic Study of Three Phosphoric Esters of Orthocresol M. I. Smith with assistance of E. F. Stohlgan, Washington, D. C.—p. 217  
Further Studies of Methyl Choline and Analogous Compounds R. Hunt, Boston and R. R. Renshaw, New York—p. 237

**Pharmacology and Toxicology of Pyridium Hydrochloride**—Walton and Lawson observed that intravenous injections of pyridium hydrochloride in relatively large quan-

ties (from 25 to 100 mg per kilogram of weight) are well borne by laboratory animals. Gross cardiac irregularities are absent, as well as any pronounced effects on the coagulability of the blood. The sudden fall in blood pressure caused by the injection of the hydrochloride is transitory and is produced only by large doses injected rapidly. The hydrochloride is more toxic than the free base when injected intraperitoneally in rats. No marked toxicity is developed by the free base on standing open in solution. With fatal dosages there is no pronounced cyanosis or massive methemoglobin formation, as is the case with aniline, acetanilid and other so-called blood poisons. As judged by the emetic effects in dogs, the gastric irritation of the free base and of the hydrochloride is closely similar. Measurable amounts of methemoglobin, as determined by the Stadie-Van Slyke method, can be produced on oral administration of this drug. However, the relatively large dosage required indicates that this is not a complication to be expected in the usual clinical administration. Formation of methemoglobin by large overdoses is usually accompanied by a decrease in total pigment. This effect is probably closely related to the anemia produced in chronically treated animals. The most marked effects obtained by prolonged administration are liver degeneration and erythrocyte destruction. Since three dogs received an average of one and a half times the therapeutic dose for from forty-two to sixty-six days and suffered only moderate to slight effects on red cell counts, liver and kidney structures and general condition, the authors believe that this drug should not be dangerous if administered over short periods in the usual therapeutic dose of 10 mg per kilogram. Prolonged administration involves possibilities of damage.

### Medical Annals of District of Columbia, Washington

3 153 184 (June) 1934

- Weight Curve and Benedict Test During Pregnancy H. W. Lawson, Washington—p. 153  
Amebiasis with Especial Reference to the Nondysenteric Type: Report of Thirty Cases M. W. Perry, Washington—p. 155  
Treatment of Pigmented Moles H. F. Anderson and C. A. Simpson, Washington—p. 159  
Mild Depressive Reactions R. S. Cohen, Washington—p. 162

### Michigan State Medical Society Journal, Grand Rapids

33 275 338 (June) 1934

- Röntgenologic Aspects of Gastro Enterology C. G. Sutherland, Rochester, Minn.—p. 275  
Progress in the Care and Treatment of Mental Diseases W. H. Riley, Battle Creek—p. 285  
Simplified Diabetic Food Table H. C. Robinson, Grand Rapids—p. 291  
Superficial and Punctate Keratitis: Is It Also a Depression Entity? A. Dean, Grand Rapids—p. 295  
\*Whole Blood Transfusions as Treatment for Septicemias in Children H. R. Roehm and H. B. Barker, Pontiac—p. 299  
Dick Tests and Dick Toxin T. N. Horan, Bloomfield Hills—p. 301  
Bilateral Nephrostomy on Account of Ligation of Both Ureters Following Vaginal Hysterectomy: Case History C. D. Brooks, Detroit—p. 303  
Oculoglandular Tularemia: Case Reports W. E. McGarvey, Jackson—p. 304  
Subacute Bacterial Endocarditis in Pregnancy B. L. Lieberman, Detroit—p. 305  
Symptomatic Rupture of a Graafian Follicle S. L. LaFever, Ann Arbor—p. 306  
Survey of Sensitization in Students of the University of Michigan B. Jimenez, Ann Arbor—p. 310

**Blood Transfusions in Treatment of Septicemia in Children**—Roehm and Barker used whole, unmodified blood transfusions in six cases of septicemia in children, five recovered. The one death occurred thirty-six hours after admittance to the hospital and was the only case of hemolytic streptococcal infection in the series. One case was due to *Staphylococcus albus*, three to nonhemolytic streptococcus and one to an infection with a nonhemolytic streptococcus and an unidentified diphtheroid organism. Two of the six cases presented a generalized peritonitis demonstrated by abdominal paracentesis and examination of the abdominal fluid both directly and by culture. The sole treatment in the six cases was transfusion of whole unmodified blood, except for supportive measures and operation in the one case of osteomyelitis. The author includes a case of peritonitis due to a ruptured appendix for a comparison of the observations in the peritoneal fluid in this type of peritonitis with that of peritonitis due to septicemia.

## New England Journal of Medicine, Boston

210 1243 1302 (June 14) 1934

- The Importance of Disturbances in Nutrition in Edematous States. W T Longcope, Baltimore—p 1243
- Vital Importance of Relation of Hyperparathyroidism to the Formation of Certain Urinary Calculi and Its Remedy R Chute Boston—p 1251
- Pyelo Ureteritis Cystica W D Bieberbach Worcester Mass—p 1254
- \*Denervation and Displacement of the Ureter for Exaggerated Renal Colic Report of a New Case T N Hepburn Hartford, Conn—p 1255
- Renal Sympathectomy Report of Two Cases Including One Fatality E Stone Providence R I—p 1257
- Spontaneous Intraperitoneal Rupture of the Urinary Bladder Report of Case A T Jones Providence R I—p 1262
- Right Renal Calculus Associated with Multiple Biliary Calculi C N Peters Portland Maine—p 1264
- Report of Four Unusual Cases W G Townsend Burlington Vt—p 1264
- Diagnosis and Management of Obstructive Jaundice H M Clute and N W Swinton Boston—p 1265
- Old Elbow Injuries Operations for Bony Block F J Cotton Boston—p 1289

**Denervation of the Ureter for Renal Colic**—Hepburn points out that intractable renal colic in cases in which no obstructive cause can be found may be due to spastic obstruction of the ureter. Denervation and lateral displacement of the ureter is a logical surgical procedure in such a condition. He presents another clinical case to support this contention. The claim is made that denervation is more completely done from the retroperitoneal approach and that the added factor of lateral displacement makes less probable the regeneration of the spastic nervous mechanism and relieves any redundancy that may have developed in the ureter thereby improving drainage of the renal pelvis and relief from pyelitis. While it is recognized that spastic ureteral obstruction is doubtless a common cause of renal colic in both sexes, the extreme spasms that require denervation are quite rare, and in all reported cases they have been found in women. Wharton's anatomic dissections revealing a connection between the sympathetic nerve supply of the ovary, testicle and ureter would seem to give a sound neurologic mechanism to substantiate the hypothesis of a probable sexual foundation for these severe spasms. That they occur more frequently in women than men is because sexual emotional defeat occurs more often in women than in men.

210 1303 1354 (June 21) 1934

- Artificial Menstruation Effect of Female Sex Hormones in Amenorrhea J Rock Boston—p 1303
- Congenital Scoliosis Review of Seventy Seven Patients J G Kuhns Boston—p 1310
- Anemias of Pregnancy M Davis and Elisabeth W Walker Boston—p 1315
- Bronchoscopy in Treatment of Pulmonary Abscess and Bronchiectasis L H Clerf Philadelphia—p 1319
- Study of Ten Years Work at the Prendergast Preventorium of the Boston Tuberculosis Association J B Hawes 2d N K Wood and D S King Boston—p 1321
- Management of Industrial Accidents Affecting the Employees of the New England Telephone Company D L Lynch Boston—p 1324
- \*Artificial Ligaments at the Knee Technic F J Cotton and G M Morrison Boston—p 1331

**Technic for Placing Artificial Ligaments at the Knee**—Cotton and Morrison describe a technic of placing artificial ligaments at the knee for ruptures of the lateral ligaments or crucials, the principle of which is the X suture placed deeply and the use of a fascial band. The essential thing about it all is that, with one or both laterals gone, satisfactory ligaments may be constructed out of fascia. To avoid interference with motion the resultant ligament must be attached near the radial center of the curve of the femoral joint surface, seen laterally just below the tip of the adductor tubercle, in making an internal lateral ligament and not too far back or front at the tibial attachment. To get strong bony mooring the fascial strip must go under a strong bridge of bone rather deep into the cancellous bone. That means two holes and, in order to avoid an undesirable broad ribbon of ligament, it means an X crossing of the false ligament. The fascia is drawn taut and knotted and the knot is fastened with gut or fine silk sutures. The whole operation, even if both inner and outer sides are operated on, can be done without opening the knee joint. Motion is begun at three weeks and weight bearing at six weeks, then a convalescent splint is used, as there is a slacking up of the ligament. This slack "takes up" with time but is likely to persist for four months or more.

## New York State Journal of Medicine, New York

34 579 620 (July 1) 1934

- The Family Physician Past, Present Future A MacFarlane Alta.—p 579
- Practical Considerations in Diagnosis and Treatment of Poliomyelitis I J Sands, Brooklyn—p 587
- \*Treatment of Erythroblastosis of the New Born D P Arnold and R A Downey, Buffalo—p 591
- Anemia of the New Born R H Dennett and L O Ashton New York—p 595
- Cancer Relation of General Practitioner to Cancer Problem J M Swan Rochester—p 597
- Id Relation of Pathologist to Cancer Problem S H Curtis Troy—p 598
- Id Relation of Surgery to Cancer Problem P L Harvie Troy—p 599
- Id Relation of Pathology to Surgery in Cancer Problem R S Ferguson New York—p 602
- Id Determination of Radiosensitivity E Kellert Schenectady—p 603
- Id Relation of Radium to Cancer Problem H W Carey Troy—p 604
- Id Relation of Radiation to Cancer Problem A F Holding Albany—p 606
- Paper as a Medium for Less Expensive Chest Diagnosis Margaret W Barnard New York—p 608
- Second Acute Perforation of Marginal Ulcer Case Report E V Denneen New York—p 611

**Treatment of Erythroblastosis of the New Born**—As soon as a case of erythroblastosis is suspected, Arnold and Downey take a hemoglobin, blood smear, and cross agglutinate. As soon as the diagnosis is made and the hemoglobin drops from 100 to 125 cc of compatible blood is given intravenously by cutting down on the internal saphenous vein at the internal malleolus or half way up the leg parallel and just to the medial side of the tibial border. The transfusion is repeated daily or every other day as indicated, depending on the general condition of the patient and the hemoglobin estimation. If a condition of insufficient fluid intake exists a slow intravenous drip can be instituted, and if the cannula remains patent it is often possible to retransfuse without having to open another vein. Transfusion replaces the hemolyzed blood with a functionally good blood and stops hemorrhage. The hemoglobin, which often drops as low as from 20 to 30 per cent, should be kept up to 70 or 80 per cent. Most cases require at least three and usually not more than four transfusions. The rest of the treatment is general hygiene with directions as to food, fluid intake being managed enterally or if necessary parenterally.

## Northwest Medicine, Seattle

33 189 224 (June) 1934

- Migratory Pacemaker Report of Case Including Autopsy Findings M B Marcellus Palo Alto Calif—p 189
- Aortic Stenosis Case Reports E L Boylen Portland Ore—p 193
- Irradiated Blood Transfusion in Treatment of Infections V K Hancock and E K Knott Seattle—p 200
- Vitamin D Milk Comparison of Methods of Production and Their Values V W Spickard Seattle—p 204
- Possibilities of Improving Dental Structures R Somers G C Rotton and Jennie I Rowntree Seattle—p 206
- Dinitrophenol Clinical Experiences W D Hunt Seattle—p 209

## Ohio State Medical Journal, Columbus

30 409 472 (July 1) 1934

- Developmental Anomalies Causing or Predisposing to Intestinal Obstruction A R Moritz Cleveland—p 429
- Indications for Surgical Intervention in Peripheral Vascular Disease V A Dodd Columbus—p 433
- Angiomas of Face and Mouth C M Clark Akron—p 438
- Complemental Feeding of the New Born Comparison of Plain Cow's Milk with Cow's Milk Modified by Base Exchange Method A Rogers C W Peavy and Anita Williams Columbus—p 441
- \*Simple and Safe Way to Establish Suprapubic Drainage C E Evans Newark—p 442

**Establishing Suprapubic Drainage**—When it is impossible to introduce an indwelling catheter through the urethra, Evans establishes suprapubic drainage in the following manner. The tissues are infiltrated with 0.5 per cent solution of procaine hydrochloride. The skin above the space of Retzius is incised for about one-sixth inch with a small knife. A straight trocar is thrust into the bladder, the trocar is removed, leaving the cannula in the bladder temporarily. A soft rubber catheter is inserted through the cannula, which is in the bladder, gently pushing the catheter well into the bladder. The cannula is gradually pulled out of the bladder, slipped over the rubber catheter, which has been cut off at the distal end. The tissues

fit snugly around the catheter, holding it firmly in place, but the catheter can be retained by a suture or a safety pin with adhesive tape.

### Pennsylvania Medical Journal, Harrisburg

37 715 794 (June) 1934

- Tumors of the Sympathetic Nervous System D Lewis, Baltimore —p 715  
Some Conditions Causing Cyanosis in the New Born Infant Ethel C Dunham, New Haven Conn—p 720  
Pruritus Considerations on Its Pathogenesis J V Klauder, Philadelphia—p 729  
Sinusitis, with Extensive Cranial Nerve Involvement G W Schlundwein Erie—p 733  
Breast Tumors Study of One Hundred Cases H B Gibby, Wilkes Barre—p 735  
Bronchial Obstruction, with Especial Reference to Endobronchial Tumors C Jackson and C L Jackson, Philadelphia—p 740  
Gallbladder Disease in the Young N P Davis Pittsburgh—p 742  
Postural Treatment of Visceroptosis W O Abbott Philadelphia—p 743  
Mucin Therapy in Peptic Ulcer C R Jones Pittsburgh—p 746  
End Results of Fractures of Long Bones in Children A A Walking, Philadelphia—p 748

### Philippine Island Med Association Journal, Manila

14 209 248 (June) 1934

- Role of the Private Practitioner in Preventive Pediatrics A. Tupas, Manila—p 209  
Intracapsular Extraction of Senile Cataract with Conjunctival Bridge A R Ubaldo and C D Ayuyao Manila—p 215  
Enforcement of the Food and Drugs Act in the Philippine Islands A J Hermans Manila—p 218  
Overlooked Factor in Susceptibility to the Common Cold A E Ewens Atlantic City, N J—p 222  
Incidence of Postoperative Leakage in Suprapubic Cystolithotomy J Eduque and A T Zavalla Manila—p 227  
A Phase of the Control of Venereal Diseases R G Padua Manila—p 230

### Public Health Reports, Washington, D C

49 749 782 (June 29) 1934

- Sickness Among Male Industrial Employees During First Quarter of 1934 D K Brundage—p 749  
Experimental Saponin Anemia in Albino Rat. E F Stohman and M I Smith—p 751  
Table Showing Pellagra Preventive Value of Various Foods W H Sebrell—p 754

### Radiology, Syracuse, N Y

22 651 780 (June) 1934

- Further Experience as to the Value of Preoperative Irradiation with X Rays or Radium and with Prebiopsy and Postbiopsy Irradiation While Submitting the Sections to a Number of Experienced Surgical Pathologists J C Bloodgood Baltimore—p 651  
Combined Surface and Interstitial Radiation in Treatment of Mammary Cancer A Solland Los Angeles—p 657  
Rationale of X Ray Treatment in Encephalitis Lethargica S A. Goldberg C F Baker and J W Hurff, Newark N J—p 663  
Where Is the Diaphragm? W H Stewart and H E Illick New York—p 668  
Influence of Roentgen Rays on Growth and Phosphatase Activity of Bone W E. Wilkins and E M Regen Nashville Tenn—p 674  
Value of Arteriography Report of Case E V Allen and J D Camp, Rochester Minn—p 678  
Treatment of Neri Review of Cases Treated During the Last Fifteen Years with Analysis of End Results W S Newcomet Philadelphia—p 684  
X Ray Technic for Children Dorothy I Stunz Iowa City—p 694  
Posttraumatic Para Articular Ossification of the Knee Joint (Kohler Pellegrini Stieda Shadow) I M Odessky, Moscow U S S R—p 701  
Healing of Cavities in Pulmonary Tuberculosis Roentgenographically Observed W W Watkins Phoenix Ariz—p 707  
New Adaptation for Cardiac Measurement of the Frontal Silhouette M Rona New Brunswick N J and W G Herrman Asbury Park, N J—p 721  
More on X Ray Protection Standards A Mutscheller New York—p 739

**Roentgen Treatment in Epidemic (Lethargic) Encephalitis**—Goldberg and his associates say that in the treatment of epidemic encephalitis only minute doses of the roentgen ray are necessary. In the three cases that they report this method of treatment shortened the duration of the illness and the period of hospitalization. Because of the removal of the pressure before permanent damage was done to the nerve cells, the treatment certainly obviated the devastating postencephalitic effects. The authors are now attempting to treat cases in which there has been a postencephalitic syndrome of long duration. While they do not expect any beneficial results, on account of permanent damage already done they feel that this treatment should be given a trial.

**Cardiac Measurement of the Frontal Silhouette**—Rona and Herrman made a study of 126 healthy and ninety-four pathologic hearts and present a new method of mensuration in the frontal plane. The method demonstrates the enlargement of either or both ventricles and differentiates between inflow and outflow tract changes on the frontal plane without the making of additional films. The method shows a reliable correlation of the various diameters to one another and to the size of the heart. It makes the cumbersome and unreliable frontal area measurement superfluous and supplements it with figures at which it is easy to arrive. The range and the mean average of the diameters showed a characteristic change in, and according to, the pathologic condition of the ventricles. Normally the left ventricle is the longest diameter but, if the right ventricle is longer, a pathologic condition should be looked for. Normally the right auricle is longer than the left. Pathologic conditions tend to enlarge the left auricle. A pathologic change in the right ventricle (inflow tract) goes together with a pathologic change in the left auricle (outflow tract).

### Review of Gastroenterology, New York

1 95 182 (June) 1934

- Alcohol and Liver Function R Bauer and J Wozasek Vienna Austria—p 95  
Hepato Endocrine Syndrome M E Binet Vichy France—p 104  
Hepatotherapeutic Measures in Hepatic, Gallbladder and Biliary Tract Diseases W S McClellan Saratoga Springs N Y—p 107  
Obstruction of the Small Intestine from Simple Causes J P Grant New York—p 121  
\*Pepsin Therapy of Gastric Ulcer K Glaessner Vienna Austria—p 136  
Volvulus During Convalescence Following Perineal Prostatectomy Report of Case B Halpert New Haven Conn—p 140

**Pepsin Therapy of Gastric Ulcer**—Glaessner is convinced that pepsin-hydrochloric acid stands in primary relation to gastric ulcer. He believes that the idea in employing pepsin therapy for the treatment of gastric ulcer is to introduce an organ therapy which derives its activity (1) as a substitution therapy and (2) as an antibody therapy. His experiments on animals show that under the influence of injections of neutral pepsin a rapid healing and return to normal occurs. When these experiments are transferred to mankind, the healing of all forms of ulcers is considerably hastened and when this could not be accomplished at all, the healing was stimulated. He has treated more than 1,000 cases in the most varied stages and can say that pepsin therapy, of all bloodless treatments, shows the best results. The technic of the injection consists in the administration of an absolutely neutral pepsin solution, intramuscularly or subcutaneously. The solution must be sterile but not boiled, is harmless, and should not cause pain or anaphylactic symptoms. This injection, which is albumin free, has been proved to answer the purpose and can be given in ascending and descending doses, so that one series of treatments consist of ten ampules increasing, ten stationary, and ten falling doses, all numbered and complete in themselves. Coincidental with the injections, an internal medication of bismuth preparation is given bismuth silicate, bismuth carbonate with magnesium citrate or powdered magnesium or chalk, bismuth-magnesia—which have the purpose of coating the gastric mucous membrane and decreasing the acidity. In addition to this, each patient before meals (five a day) receives oil in quantities of five times from 15 to 20 Gm daily. This medication has the purpose of influencing the acid secretion. Finally the patient receives a diet consisting of milk, pastries, cheese butter, eggs, finely ground meat, strained vegetables with butter, puddings, fish, sardines, tomatoes, scrambled eggs, omelet, honey, toast, mild hams, gelatin, fruit sauce and soups without meat extract. The diet should be sufficiently nourishing and given five times a day. The patient must lie down twice a day for two hours and the use of diathermy, mudpacks or a hot water bottle will be of great value. The treatment is carried out strictly for thirty days, then for two months with somewhat increased diet without injections, and repeated two or three times at intervals of six months.

### South Carolina Medical Assn. Journal, Greenville

30 121 138 (June) 1934

- Rural Health Movement. C. C. Applewhite Columbia—p 123  
Syphilis and the General Practitioner N O Eaddy, Pamplico—p 127

**Southern Surgeon, Atlanta, Ga**

3 79 164 (June) 1934

- Clinical Study of Liver Abscess Report of Twenty Cases J R Young Anderson S C—p 79  
 Treatment of Complicated Duodenal Ulcer J R Phillips Houston Texas—p 98  
 Thyroid Surgery in Cardiac Patients T C Davison, Atlanta Ga—p 103  
 Drainage of Localized Peritoneal Abscess A E Hertzler, Halstead Kan—p 112  
 Kraurosis Vulvae T D Sparrow Charlotte N C—p 117  
 \*Derangements of the Knee Joint M S Henderson Rochester, Minn—p 123  
 Congenital Hypertrophic Pyloric Stenosis D B Cobb Goldsboro N C—p 140  
 Indications for Excision of the Superior Hypogastric Plexus in Dysfunction of the Bladder H L Douglass Nashville, Tenn—p 149

**Derangements of the Knee Joint**—Henderson reviews the records of 605 patients operated on for derangement of the knee, in which 626 operations were performed. His operation consists of isolation of the patella and patellar tendon down to its insertion. An external incision is made along the external capsule, a little above the upper margin of the patella, and is carried down to the patellar tendon. The dissection of the patellar tendon is carried out further, and its insertion is lifted up along with a good sized flake of bone and transferred well to the inner side on the tibia and at a slightly lower level. The area to which it is transferred is thoroughly freshened, denuded and roughened. The end of the patellar tendon is held firmly over this area and a beef bone screw is inserted, locking it in position. The external capsule is overlapped, as in hernia, and chromic catgut sutures are used. The author believes that, if this technic is properly and accurately carried out and protection afforded long enough after operation, a cure is practically assured. Following operation, the knee is put at rest in a plaster-of-paris cast, extending from the groin to the ankle and is held in that position for at least three weeks before mobilization is started. Motion is begun gradually, right angle flexion not being permitted for at least three months. The operation alters the mechanism somewhat, and some patients complain of stiffness and of pain, but these gradually disappear. If the insertion of the patellar tendon is moved far enough inward and held there until it becomes firmly attached, dislocation of the patella is impossible.

**Southwestern Medicine, Phoenix, Ariz**

18 185 218 (June) 1934

- Indications for Surgery in Treatment of Diseases of the Thyroid H W Rice Morenci Ariz—p 187  
 X Ray and Radium Treatment of Hyperthyroidism J W Cathcart El Paso Texas—p 191  
 The Heart in Thyroid Disease G Werley El Paso Texas—p 194  
 Hypothyroidism S C Davis Tucson Ariz—p 198  
 Intrapleural Pneumolysis an Aid in Restoring Function to the Tuberculous Lung V Randolph Phoenix Ariz—p 201  
 Food Allergy (Résumé of Literature Personal Observations) O H Brown Phoenix Ariz—p 206

**Surgery, Gynecology and Obstetrics, Chicago**

58 935 1064 (June) 1934

- Experimental Studies in Gastric Physiology in Man II Study of Pyloric Control Roles of Acid and Alkali H Shay and J Gershon Cohen Philadelphia—p 935  
 \*Gastric Lavage in Treatment of Pyloric Obstruction Experimental Study N E Freeman and R L Brown Boston—p 956  
 II Determination of Weight and Age of Fetus in Utero by the Aid of Stereocentrometry S H Clifford Boston—p 959  
 The Grading of Epidermoid Carcinoma Olive Gates and S Warren Boston—p 962  
 An Early Human Embryo in Situ R Tennant and Elizabeth M Ramsey New Haven Conn—p 968  
 Congenital Torticollis Review and Result Study G deN Hough Jr, Springfield Mass—p 972

**Gastric Lavage in the Treatment of Pyloric Obstruction**—Freeman and Brown found that daily aspiration of the contents of the stomach was necessary following pyloric obstruction in cats. They observed that the animals which were subjected to repeated emptying of the stomach survived considerably longer than untreated controls. Therefore in order to determine the factors responsible for the longer survival of the treated animals they fed healthy adult male or nonpregnant female cats that had fasted for twenty-four hours a mixed diet of meat and milk. Emptying the stomach and washing it out allowed the animals to live almost twice as long as those which accumulated their secretions until they vomited. In no case did a cat whose stomach was regularly

emptied die sooner than the control animal. The average daily loss of water and chloride per unit of body weight was decreased when gastric lavage was repeatedly performed. The diminished rate of chloride loss was associated with a higher level of chloride in the blood. While the average fall in the chloride level of five untreated cats was from 677 to 444 mg per hundred cubic centimeters in 34 days, in four treated cats the average fall was only from 686 to 527 mg per hundred cubic centimeters in 45 days. The body temperature during the period of dehydration after pyloric obstruction varied only within 25 degrees F, generally being slightly lower at the end of the experiment. Analyses of the nitrogen of the gastric contents revealed only small quantities of protein, 0.25 per cent in an average of five experiments. The nonprotein nitrogen content increased as the dehydration progressed. In one cat the concentration increased steadily from 74 mg on the first day after operation to 400 mg per hundred cubic centimeters on the fifth day. No correlation between the time of survival and the loss of nitrogen was found. The results obtained seem to indicate that the improvement in general condition after gastric lavage was due at least in part to a reduction in the rate of the loss of water and electrolytes from the body into the lumen of the stomach. The authors suggest that in clinical cases the benefit derived from gastric lavage is to be attributed in part to the decrease in the rate of the loss of chloride and fluid from the body into the stomach.

**Tennessee State Medical Assn Journal, Nashville**

27 187 234 (June) 1934

- Angina Pectoris as Related to Coronary Disease E A Guynes Knoxville—p 187  
 Emotions and Their Relationship with Endocrine Glands C C Turner Memphis—p 193  
 Eczema H King and C M Hamilton Nashville—p 199  
 \*Needle (Aspiration) Biopsy R P Ball Chattanooga—p 203  
 Retrodysplacements of the Uterus W T Black Memphis—p 207  
 Peroral Endoscopy and Gastroscopy F L Alloway Kingsport—p 212  
 Vincent's Angina H E Christenberry Knoxville—p 216

**Aspiration Biopsy**—Ball describes a method of needle biopsy in which the skin is prepared with iodine and alcohol and is anesthetized with a 1 per cent solution of procaine hydrochloride. A needle is slipped into the mass of the tumor, joint or bone, and a 50 cc luer syringe is connected. The plunger of the syringe is then pulled out as far as possible and grasped with the palm of the hand to hold the plunger and keep the vacuum. With the other hand the barrel of the syringe is rotated on the plunger with a slight withdrawal of the needle about 3 or 4 mm, and the needle is pushed back to its former position. The aspirated material is usually blood stained. After from 2 to 5 cc has been aspirated the needle is removed with continued traction on the plunger of the syringe. As soon as the needle is removed from the skin there will be a release of vacuum by the air rushing through the needle, which clears the needle of any fragments of tissue. The syringe is not to be emptied by closing the plunger. The plunger is removed and gauze is used to wipe out the syringe. The contents are spread on gauze moistened with sodium chloride solution and all bits of tissue are separated from the clot and piled together on a dry piece of paper and then dropped in fixing fluid. Sections are made in the usual manner, preferably by paraffin embedding. If it is desirable or indicated, primary smears and cultures may be made from the material before spreading it on the gauze.

**Virginia Medical Monthly, Richmond**

61 189 250 (July) 1934

- Chimborazo Hospital Confederate States Army America's Largest Military Hospital E E Hume Washington D C—p 189  
 Etiology Pathology and Treatment of the Present State of General Practice T H Daniel Charlottesville—p 195  
 Diagnosis and Treatment of Gas Bacillus Infection C S Stone Jr., University and H B Holsinger Farmville—p 200  
 Management of Acute Coronary Occlusion W B Porter, Richmond—p 205  
 Observations on Nasal Allergy O Swineford Jr University—p 208  
 Chronic Nontuberculous Pulmonary Infections C L Savage Richmond—p 212  
 Surgical Relief of Pain J G Lyster Richmond—p 221  
 Some National Problems of Today That Are of Special Interest to the Medical Profession J A Noblin East Radford—p 224  
 The Infected Diabetic J Hundley Jr Lynchburg—p 226  
 Treatment of Infections of the Central Nervous System by Forced Spinal Drainage R F Gayle Jr Richmond—p 228

# FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Archives of Disease in Childhood, London

9 133 200 (June) 1934

- Vitamin A Deficiency in Children. Part II. Vitamin A Requirements of Babies. Skin Lesions and Vitamin A Deficiency. Helen M. Mackay—p. 133
- Epidemic of Acute Encephalitis in Young Children. Agnes R. Macgregor and W. S. Craig—p. 153
- Etiology of Idioglossia. I. J. Wolf—p. 171
- Intradermal Tuberculin Reaction, with Especial Reference to So Called Surgical Tuberculosis. J. W. E. Cory—p. 177
- \*Sensitivity to Cow's Milk Proteins in Acute Gastro Enteritis. A. H. Tallerman—p. 189

**Sensitivity to Cow's Milk**—Tallerman tested the serums of eighteen infants in order to determine whether or not reagins were present in the blood of these children rendering them allergic to cow's milk. Eight of these infants gave completely positive results, while only two cases gave consistently negative results. Five gave results that were positive in one or more tests but equivocal in others. The remaining three gave contradictory results. Of the whole series of forty-two Prausnitz-Kustner reactions carried out, 61.9 per cent gave definitely positive results and only 19 per cent were definitely negative. It appears that reagins to cow's milk proteins are frequently present in the blood of infants suffering from gastro enteritis. From this one may conclude that many such infants are hypersensitive to cow's milk proteins. It is possible that some of the toxic symptoms of acute gastro enteritis may be in the nature of an allergic reaction.

## British Journal of Ophthalmology, London

18 241 304 (May) 1934

- Penetrating Wounds of the Orbit. T. Colley—p. 241
- Affinity of the Vitreous Body to Dilute Plasma Gels. S. Duke Elder and E. B. Robertson—p. 251
- Injury to Both the Orbits with a Revolver Shot Causing Little Damage. J. N. Duggan—p. 253
- Divergence of the Primary Position of the Eyes. N. A. Stutterheim—p. 256
- Use of Artificial Sunlight for Illuminating Test Apparatus and the General Lighting of Examination Rooms. R. E. Wright—p. 260
- Fogging for the Focal Interval of Sturms. N. Glegg—p. 264
- Central London Ophthalmic Hospital. Report of Squint Department. September 1932-1933. Sigrid Pearson and Sheila Mayou—p. 267
- Protective Mask for Use After Operations on the Eye. H. Kirkpatrick—p. 271
- An Ophthalmic Rule. N. B. Harman—p. 273
- New Conjunctival Fold Fixation Forceps. D. S. Stewart—p. 274

18 305 368 (June) 1934

- Certain Clinical Features of the Normal Limbus. B. Graves—p. 305

## British Medical Journal, London

1 1063 1104 (June 16) 1934

- Pregnancy Diagnosis in Theory and Practice. J. M. Robson—p. 1063
- \*Aneurysm of the Innominate Artery Treated by Proximal Ligation. H. S. Souttar—p. 1066
- Hypertonic Rectal Saline for Intracranial Injury in the New Born. A. Moncrieff—p. 1068
- Observations on Experimental Shock. R. L. Holt and A. D. MacDonald—p. 1070
- New Principle in Ethyl Chloride Anesthesia for Oral Surgery. R. B. Gould—p. 1073

**Aneurysm of Innominate Artery Treated by Proximal Ligation**—Souttar points out that ligation of the innominate artery for aneurysm is a well established surgical procedure in which the risks of the operation are entirely justifiable in view of the gravity of the condition. Technically the operation may be easy of achievement or the difficulties from adhesions may render it impossible. Apart from the risk of hemorrhage at the time of operation the two chief dangers to be feared are interference with the cerebral circulation and interference with the circulation in the arm. The latter does not appear to be as serious as might be imagined probably because during the existence of the aneurysm a wide collateral circulation has opened up. The danger to the brain however must always remain a serious one and there would seem to be no means of discovering the extent of the risk in any particular case. The author is convinced that the method adopted of operating under local anesthesia and of applying tentative ligatures to

the arteries, is a sound one. General anesthesia involves a disturbance to the circulation, which cannot be anything but inimical to the interests of the patient, while it precludes entirely the important information, which a conscious patient can give, as to the effects of occluding the circulation of a large vessel.

## Glasgow Medical Journal

3 205 240 (June) 1934

- Supersensitiveness. Outline of Chief Facts and Views as to Its Nature. C. H. Browning—p. 205
- Chronic Lymphatic Edema and Its Treatment by the Kondoleon Operation. Note. R. Mailer—p. 213

## Irish Journal of Medical Science, Dublin

No 101 193 240 (May) 1934

- Pulmonary Tuberculosis Among Outpatients. H. Quinlan—p. 193
- Ancylostomiasis on the Gold Mines of the Witwatersrand. J. H. Hodgman—p. 203
- Thrombo Angitis Obliterans. P. T. O'Farrell and W. Doolin—p. 223

## Journal of Hygiene, London

34 145 282 (June) 1934

- Chemistry and Pharmacology of Lathyrus Peas. R. Stockman—p. 145
- Influence of Avitaminosis on Course of Trypanosome Infection. J. Fine—p. 154
- Vernes Test for Diagnosis of Tuberculosis in Dairy Cattle. Investigation on Its Applicability. A. T. R. Mattick and M. I. Christman—p. 157
- \*Fatal Case of Silicosis. S. V. Gudjonsson and C. J. Jacobson—p. 166
- Bacteriologic Examination of Mussels. J. W. Bigger—p. 172
- Hemophilic Bacteria of the Upper Respiratory Tract. Appearance of Virulent Forms in Relation to Upper Respiratory Infections. L. Hoyle—p. 195
- \*Some Fermentative Varieties of Bacillus Paratyphosus B. S. H. Warren and J. L. G. Iredale—p. 203
- Anaerogenic Fermentation with Paratyphoid Bacilli. S. H. Warren and J. L. G. Iredale—p. 213
- Incidence of Intrathoracic Tumors in Leeds. Georgiana M. Bonser—p. 218
- Cause of Convulsive Ergotism. R. Stockman—p. 235
- Sources of Infection in Undulant Fever. J. Smith—p. 242
- \*Experimental Investigation on Influence of Emulsions of Oils and Fats on the Lethal Effects of Bacterial Toxins. G. N. Myers—p. 250
- Typhoid Epidemic in Cork City 1920. J. C. Saunders—p. 265
- Minimal Temperatures of Growth of Some Bacteria. R. B. Haines—p. 277

**Silicosis**—Gudjonsson and Jacobson describe a typical uncomplicated case of silicosis with fatal outcome in a porcelain turner. Microscopic examination of lung tissue and of ashes from it showed numerous mineral needles resembling those found in kaolin from the factory. The necropsy revealed no other condition that might have caused death. On the other hand, the changes in the lungs were so extensive and advanced that it is surprising that the man was able to go about with such lungs, as the lung tissue capable of respiratory function must have been reduced greatly in amount. The changes found in the heart were ascribed to the impaired circulation of the blood in the silicotic lungs—a condition involved in most cases of marked silicosis. It is certain that the dust this man inhaled for years contained much silicic acid. The observations in this case support in part the theory advanced by W. R. Jones, that silicosis can be produced by fibrous minerals.

**Varieties of Bacillus Paratyphosus B**—Warren and Iredale studied a series of nine cases of paratyphoid due to infection with anaerogenic strains of Bacillus paratyphosus B. Biologic examination of the strains shows no difference from the ordinary type of B. paratyphosus B except the inability to produce gas from any 'sugar'. Serologically the strains are identical with the aerogenic type of the organism. These anaerogenic strains retain their inability to produce gas from 'sugar' after subculture on artificial mediums for a considerable period, and cultivation on a number of different fluid mediums failed to restore the gas producing power. In the organic salt fermentation test B. paratyphosus B gives a characteristic reaction which is also given by the anaerogenic strains. The fermentative varieties of B. paratyphosus B defined by Kristensen and Boylen are definite and can be identified as a matter of practical routine, but the test is delicate and requires care in the preparation of the mediums and especially in the Bitter test. The existence of these apparently stable fermentative varieties of B. paratyphosus B is likely to be of use in epidemiologic investigations.

**Influence of Emulsions of Oils on Lethal Effects of Bacterial Toxins**—Myers states that olive oil emulsions, in



a fine state of division, when mixed with superlethal doses of diphtheria toxin, protect animals from the lethal effects of the toxin when injected subcutaneously. Olive oil emulsions also protect against the effects of superlethal doses of the toxins of *Clostridium tetani*, *Clostridium welchii* and *Clostridium oedematis-maligni* (Koch). The addition of a suitable emulsifying agent to give the emulsion greater stability makes the protection against the toxins absolutely secure. Emulsions of petrolatum have a similar protective action against lethal doses of these toxins, but the cream of cow's milk affords no protection. Coarse emulsions of these oils do not exhibit this protective action. The toxins of *Corynebacterium diphtheriae*, *Clostridium tetani*, *Clostridium welchii* and *Clostridium oedematis-maligni* are more soluble or have a greater affinity for water than oils. Solutions of acacia do not influence the lethal effects of these toxins. Diphtheria toxin when mixed with stable and finely divided emulsions of olive oil or petrolatum, before being injected subcutaneously, does not produce myocardial degeneration as observed in control animals.

### Journal of Laryngology and Otology, London

40 357 428 (June) 1934

\*Abscess of the Brain K. W. MacKenzie—p. 357

Atrophic Rhinitis J. Adam—p. 375

Notes on a Case of Suppuration in a Crista Galli Cell C. M. Erdie—p. 397

**Abscess of Brain**—MacKenzie reports eight cases of brain abscess, six of which were cured. Seven of the cases were the result of chronic suppurative otitis media. Four of these were temporoparietal lobe abscesses, two of which were cured, and three were cerebellar abscesses, all of which were cured. In six of the eight cases drainage was done at operation and all the patients recovered. A decompression operation was performed in one of the remaining two cases, but before a final operation for drainage of the abscess could be carried out the abscess burst into the ventricle and the patient died. In the other, an exploratory operation was undertaken without success, but ultimately the abscess burst through the surgical wound and the patient died eight days later. In the treatment of a furuncle or an abscess incision before it is considered "ripe" delays healing, but, if operative intervention is postponed until local immunity has developed and a wall of inflammatory tissue has surrounded the pus, evacuation of the contents is followed by rapid cure. Just as too early incision will delay healing, so also will unnecessary delay be injurious. It is the author's procedure to postpone operation until pressure symptoms have become well marked, by which time a local immunity has been developed. Besides this development of immunity, delay renders the discovery and drainage of the abscess easy and also results in an immediate hernia of the brain on incision of the dura, which by compressing the dura against the bony margins of the trephine opening, lessens the risk of the onset of meningitis. In seven cases drainage was done through a clean trephine wound of from 1 to 1½ inches in diameter, situated either in the squamous portion of the temporal or posterior to the sigmoid sinus. In the eighth case of frontal lobe abscess, drainage was effected through the opening caused by an osteomyelitis of the frontal bone. The author's conclusions are that a "delayed" operation is necessary for success and that drainage through a large trephine wound is more likely to be successful than drainage through the mastoid alone. This allows the removal of the brain tissue sloughs, which, if retained, are liable to give rise to fresh abscess formation. The retention of tubes beyond forty-eight hours is unnecessary in most cases, for invariably by that time the hernia has forced them out, along with sloughs of brain tissue. In seeking for an abscess it is an advantage to use angular forceps, as the blades can be expanded and so allow the pus to escape.

### Tubercle, London

15 385 432 (June) 1934

Sanocrysin Therapy Survey of One Hundred Consecutive Cases C. E. H. Anson—p. 385

Circular Focus as Initial Anatomic and Roentgenologic Evidence of Tuberculosis Reinfection A. Fraenkel—p. 395

Simultaneous Bilateral Spontaneous Pneumothorax. Review of the Literature and Report of Case Due to Congenital Cysts of the Lungs W. R. Oechli and S. H. Miles—p. 402

### Presse Médicale, Paris

42 833 856 (May 23) 1934

\*Presence of Specific Principle in Urine of Cancerous Patients Application to Diagnosis of Cancer and Attempted Interpretation of Nature of This Principle M. Aron—p. 833

Necessity of Double Vertebral Profile in Spondylography A. Zimmermann and J. A. Chavany—p. 836

Presence of Tuberculous Ultravirus in Blood of Patient Affected with Parapsoriasis Almost Complete Cure by Vaudremer's Vaccine and Cold Silt P. Ravaut and Rabreau—p. 837

Pathogenesis and Different Forms of Phrenocardiospasm J. Guisiez—p. 840

Reduction of Fractures Under Fluoroscopy A. Chakir—p. 843

Acute Attack of Hyperazotemia with Grave Uremic Phenomena Connected to Hypochloremia in Chronic Nephritis and Cure by Rechlorination H. Chablanier, C. Lobo Onell, P. Lieutaud and E. Lelu—p. 844

\*Bacillary Expectoration in Older Children Without Disorders of General Condition Fever or Clinical Signs and With Roentgenogram of Slight Common Sclerosis Pulmonary Tuberculosis or Bacillus Carriery? F. Faure and Matimier—p. 846

\*Rapid Cholecystography with Epinephrine S. Zanetti—p. 848

Isolated Anesthesia of Stellate Ganglion Its Technic Indications and Results R. Leriche and R. Fontaine—p. 849

### Specific Principle in Urine of Cancerous Patients—

The hypothesis that malignant tumors could be the source of some substance excreted in the urine served as the guiding point for the investigations of Aron. The first problem in this study consisted in the concentration of urine. Experience showed that the active principle was present in the precipitate formed by the addition of pure acetone or 95 per cent alcohol to the urine. It is impossible to say yet whether it is really precipitated or simply absorbed. The method employed was to add in a large flask a quantity of freshly passed urine to three times its volume of 95 per cent alcohol. After shaking a precipitate forms and settles slowly. After the sedimentation is completed the supernatant fluid is decanted. The remaining material is centrifuged. The precipitate, briefly dried, is suspended in from 5 to 10 cc. of physiologic solution of sodium chloride for each hundred cubic centimeters of urine and the suspension is violently shaken for a long time. After filtration the active principle is found in the filtrate, to which is added a few drops of 3 per cent tricresol and which is kept in the refrigerator. This filtrate is injected subcutaneously in rabbits weighing from 1,500 to 2,000 Gm. It is advisable to administer to the animals the solution of the precipitate corresponding to from 750 to 1,000 cc. of urine. The injections are repeated for two or three days at least. The necropsy is performed two days after the last injection. The suprarenals of the rabbits treated were removed, dissected and fixed for several hours in Zenker's solution formalized 7 to 100. After embedding in petrolatum, sections from 5 to 6 microns thick are cut and colored simply with an erythrosin stain. In the cases of cancer subjected to the test the suprarenal cortex showed typical modifications. The fascicular zone is formed of cells the cytoplasm of which under physiologic conditions is filled with lipid inclusions. Liquefied by the histologic reactions, the latter leave the cytoplasm finely vacuolated and communicate to it a spongy aspect on which is based the term spongiocytes. Under the influence of cancerous urine however, the fatty vacuoles disappear, the spongiocytes diminish in volume and their cytoplasm takes on a compact and brightly staining appearance. The urine of healthy persons and persons suffering from acute and chronic diseases have so far failed to give the reaction. The author has also carried out some preliminary experiments with rabbits which indicate the possibility of the formation of antibodies in the blood of rabbits in the presence of the principle extracted from the urine of cancerous patients. The hypothesis must therefore be considered that this principle is a specific antigen.

**Expectoration of Tubercle Bacilli in Apparently Normal Children**—Faure and Matimier describe the cases of three older children who were expectorating tubercle bacilli but had no signs of tuberculosis. All the children possessed a true or suspected tuberculous heredity. The roentgenograms showed only the signs of ordinary sclerosis. Physical development was above the average, the first having gained more than 19 Kg. in three years, the second 12 Kg. in two years and the third more than 13 Kg. in one year. Nevertheless they all expectorated tubercle bacilli without fever, functional or general

symptoms or auscultatory signs. The duration of positive sputum was approximately one month for the first child, two months for the second and eight months for the third. After considering various possible explanations for this condition, the authors state that they favor the hypothesis that these children were merely carriers of tubercle bacilli.

**Rapid Cholecystography with Epinephrine** — Zanetti suggests a modification of the cholecystography method of Antonucci. In order to simplify the method he proposes a subcutaneous injection of epinephrine to provoke hyperglycemia. A dose of 1 mg is sufficient to obtain a good "demonstration of load." To reinforce the action of the medicament one can administer from 80 to 100 Gm of sugar dissolved in a little water one hour before the injection, but this is not necessary. The shadow of the gallbladder appears two hours after the injection in healthy persons. Sometimes its appearance is delayed until the sixth or even the tenth hour. This delay has an important diagnostic value because it indicates a functional disorder of the liver or of the gallbladder which the usual normal cholecystography cannot reveal. Epinephrine also possesses the advantage of strengthening the patient against the dangers of collapse. The shadow of the bladder, although a little less distinct than that obtained by the usual methods, is nevertheless sufficient for a good roentgenologic demonstration. The author assigns three advantages to the use of epinephrine: (1) the early appearance of the vesicular shadow, (2) the possibility of studying the hepatic function, and (3) the possibility of differential diagnosis of gallbladder diseases. It has also the advantage of being simple and of practical use.

### Revue de Chirurgie, Paris

53 367 430 (May) 1934

Treatment of Nonresectable Duodenal Ulcer by Resection by Exclusion

H Finsterer —p 367

Postoperative Pulmonary Complications Experimental Pulmonary

Embolism J Bottin —p 387

\*Treatment of Central Pulmonary Hydatid Cysts J Chavannaz —

p 414

\*Characteristic Phenomenon of Gastric Ulcer V Bojovitch —p 427

**Treatment of Central Pulmonary Hydatid Cysts** — Chavannaz thinks that it is unjustifiable to leave all central hydatid cysts of the lung alone. Although they often become cortical and may be operated on or stationary and relatively inoffensive or progress to the hilus and rupture and drain spontaneously along the natural passages, he feels that surgical intervention is often advisable. The operation by thoracotomy in a free pleura allows palpation of the lung and is less dangerous than puncture. After evacuation of the cyst and removal of the membrane as far as possible, drainage is indicated. As a rule, the bronchocutaneous fistulas following intervention heal spontaneously after a variable interval.

**Characteristic Phenomenon of Gastric Ulcer** — Bojovitch describes a condition of the abdominal wall in gastric ulcer which he believes is characteristic. In making the injections for local anesthesia, the needle always has difficulty in piercing the skin, which offers considerable resistance. In cutting the skin and adjacent aponeurosis in the epigastric region, the knife meets a special induration of these tissues. The leaves of the aponeurosis, once cut, separate like the edges of a cut cord in such a manner that difficulty is encountered in reuniting them by suture. The exact mechanism of production of this condition is doubtful but it appears that disorders of the nervous and circulatory systems of the stomach affect the skin and the abdominal layers and interfere with their nutrition.

### Clinica Medica Italiana, Milan

65 402 508 (May) 1934

Studies in Pathology of Oxalic Acid Normal Oxalemia and Oxalemia in Different Pathologic Conditions F Marcolongo and V Barone —p 402

\*Mobilization of Histiocytic Elements in Circulation Following Inoculation of Various Micro-Organisms. E Frola —p 465

Research on Fructose Metabolism Action of Insulin Epinephrine and Thyroxine on Use of Fructose. P De Luca and E Claar —p 493

**Histiocytic Elements in Blood Following Inoculations** — Frola found that inoculation of micro-organisms and various

dead bacterial bodies in guinea-pigs produced marked changes in the blood, such as neutrophilic polynucleosis, lymphocytopenia, monocytosis and histiocytemia. Live micro-organisms as differentiated from the dead bacterial bodies generally show a more important monocytic reaction. They are, above all, responsible for vacuolated elements in the circulation. Of the strains used, Flexner's bacillus, colibacillus and the diplococcus manifested great polymorphonuclear production, average monocytosis and poor histiocytosis, especially lymphocytoidemia and monocytoidemia. Eberth's bacillus, nonhemolytic streptococcus and scarlatinous streptococcus showed slight polymorphonuclear production and ordinary histiocytosis, generally of the lymphocytoids and monocytoids. The hemolytic streptococcus produces marked histiocytosis. The mobilization of histiocytic elements in the circulation differs according to the greater or lesser pathologic relation of the micro-organisms to the mesenchymal apparatus. Monocytic and lymphocytic elements found in the circulation at approximately the same age as young monocytes and monocytes of Rieder's type are due to an irritation of the mesenchymal tissue which, owing to the action of bacterial toxins, permits the passage of not fully matured elements into the circulation. The appearance of endothelial cells in the circulation only after particularly intensive treatments and at the acme of the disease, the rapidity of its appearance and disappearance, the presence of regressive lesions and the signs of a progressive histolysis help to establish that the endothelial cell is an expression of true exfoliation and a passage in the circulation of elements that have lost their normal characters and normal functions through lesions produced in the process of defense against infections. The study of mononuclear circulating elements is an important clinical sign in revealing the reactivity of the mesenchymal tissue. The monocytosis expresses a proliferative mesenchymal reactivity of normal evolution (hyperplasia of heterotypal evolution), the lymphocytoid and monocytoid elements in the blood indicate a proliferative reactivity of rapid evolution (hyperplasia of heterotypal evolution), and the endothelial elements point to diffuse degenerative mesenchymal lesions. The first follows stimulating lesions, the second mild toxic actions and the third serious toxic actions.

### Policlinico, Rome

41 305 380 (June 1) 1934 Medical Section

\*Contribution to Study of Phylaxis R Rubegni —p 305

Reticulocytes and Anemia Biologic Diagnostic and Prognostic Significance A Gualdi —p 320

Pharmacodynamic Stimuli and Lactacidemia in Neurovegetative Dystonia G Benedetti —p 334

Localization of Micro-Organisms in Kidneys After Ligation of Pedicle in Course of Experimental Bacteremia N Cirillo —p 370

**Phylaxis** — Rubegni found that horse serum has a protective action against sparteine poisoning in keeping with the characteristics of the process of phylaxis in guinea-pigs and rabbits. The defense is relative, since some of the protected animals do not show resistance to the action of the poison and die. The phenomenon becomes manifest after six hours, reaches its maximum by eighteen hours, and is completely ended after thirteen days. The protection exercised by the serum against sparteine may be repeated at will, the animals are finally made to tolerate enormous doses of poison and simultaneously develop increased resistance to it and habit formation. The author does not believe that the sparteine treatment offers any protection against the anaphylactic shock of horse serum. If it does such protection is incomplete. The sparteine treatment combined with the injection of serum does not modify the production of antibodies and does not protect in any way against histamine intoxication.

### Medicina Ibera, Madrid

1 849 892 (June 23) 1934

Surgery in War Time F de A Bergós Ribalta —p 849

\*Muscular Chemism in Human and Experimental Diabetes G Marañón, J A. Collazo and J Almela —p 852

**Muscular Chemism in Human and Experimental Diabetes** — Marañón and his collaborators state that by biopsy of the deltoid muscle in man and of the leg muscles of dogs deprived of the pancreas the muscular chemism in human and in grave experimental diabetes in dogs can be analyzed. The phosphagen content of the muscles is diminished in human



have been reported of poliomyelitic patients who received no treatment, the author is inclined to agree with other physicians who believe that after the paralytic symptoms have once developed the convalescent serum is no longer capable of counteracting them. During the preparalytic stage, however, the convalescent serum is the treatment of choice.

**Occult Hemorrhage from Stomach or Intestine**—Hulst states that two factors induced him to study the problem of occult hemorrhages: (1) the report of Boas according to which the stools of patients with carcinoma of the stomach or the intestine contain "occult hemoglobin" more often than do the stools of patients with occult hemorrhages of other origin, and (2) the recent observation that porphyrins occur in the oral cavity and in the bile of every person. The latter factor might become a source of error if blood is searched for in the feces according to Snapper's method, for in this method the porphyrins of the feces are determined by means of the spectroscopic and then conclusions are drawn about the presence of occult hemorrhage. After showing that the mere presence of porphyrins in the feces is not sufficient for the determination of a hemorrhage, the author reports the results of tests made on feces of a large number of healthy persons who for a week were put on an exclusive milk and gruel diet, on the feces of thirty-eight patients who had a carcinoma of the stomach or the intestine, and on the feces of thirty-seven patients who had a hemorrhage of a different origin. He resorted to the benzidine test and searched for hematin, deuterohematin, coproporphyrin, deuteroporphyrin and protoporphyrin. He found that the feces of normal persons contain not only coproporphyrin but also frequently protoporphyrin. Among the thirty-eight cancer patients there were only eight in whom deuterohematin was not demonstrable and in the thirty-seven patients without cancer there was only one who had deuterohematin in the feces. The author concludes that the presence of deuterohematin, particularly if it can be demonstrated several times, is indicative of cancer of the stomach or the intestine. Moreover, he cites factors that make it probable that the "occult hemoglobin" of Boas is identical with deuterohematin.

**Alizarin in New Test for Gastric Secretion**—Purjesz points out that recently attempts have been made to devise tests for the secretory activity of the stomach which can dispense with the introduction of a stomach tube. Various organs (lungs, kidneys, liver and intestine) play a part in the maintenance of the acid-base equilibrium, and some investigators have resorted to the determination of the changes in the alveolar carbon dioxide tension as an indirect test for the gastric secretion. The author considers changes in the  $pH$  of the urine, which become manifest after a test breakfast, a more suitable indicator of the gastric secretion than the alveolar carbon dioxide tension. But since difficulties are encountered in the determination of the  $pH$ , it was decided to employ a substance that would indicate the changes by different shades of color. The patients were given a test breakfast of 0.2 Gm of the sodium salt of alizarin monosulphonate, 15 Gm of alcohol and 300 Gm of distilled water, because tests by other investigators had revealed that an increase of the  $pH$  above normal results in shades of red while a reduction below normal results in shades of yellow. In employing the test, the author did not control the degree of concentration by means of standard solutions but determined the  $pH$  in the same patient after an alcohol test breakfast without the alizarin as indicator. The test was made in the following manner: At 8 a. m. the patient had to evacuate the bladder completely. Then he was given the test drink and in the course of the following three hours urine specimens were collected at thirty minute intervals. The test was performed in patients having various degrees of acidity and it was found that from the intensity of the stain conclusions can be drawn as to the degree of acidity of the stomach. However, the author admits that the amount of mucus in the stomach as well as the specific gravity of the urine influences the color reaction. In persons whose stomach contains large amounts of mucus the red stain may fail to appear. He is convinced that test breakfasts with suitable indicators (alizarin) are helpful in the estimation of the secretory activity of the stomach.

### Medizinische Klinik, Berlin

30 789 824 (June 15) 1934 Partial Index

- Problem of Typhoid Carriers and How to Overcome It P Uhlenhuth —p 789  
Family Physician and Eugenics C M Janson —p 794  
Biophysics of Ultrashort Waves S Jellinek —p 799  
What Possibilities for Transport of Patients Are Offered by Modern Means of Transportation? Agena —p 802  
\*Autohemotherapy in Conditions of Depression G Giehm —p 803  
Meinicke Clarification Reaction II in Cerebrospinal Fluid F Weyrauch —p 804

**Autohemotherapy in Conditions of Depression**—After calling attention to Hauptmann's attempts at autohemotherapy in conditions of depression, Giehm cites explanations of its action mechanism. Vorschütz states that autohemotherapy results in an increase of globulins, which in turn exert their influence on the autonomic nervous system. The defibrinated blood is supposed to contain a substance that acts as a strong stimulus on the sympathetic. However, there is also the possibility that immunity processes are involved. The author reports his own experiences with autohemotherapy in twenty patients, ten of whom had a reactive depression, four an anxiety melancholia and six a circular depression. The blood was withdrawn from the vein of the arm and was immediately injected into the gluteal muscle. Every second day the patient was given from 3 to 15 cc of blood. The total number of injections was ten or twelve. Undesirable complications were never observed, but the reaction to the treatment differed considerably. Some patients developed a slight fever, in others the temperature remained the same, while still others experienced a reduction in temperature. The autohemotherapy was combined with quartz lamp irradiations. The patients were given exposures of from three to twenty minutes daily. As a rule the irradiations were given before the injections. Following the description of three cases, the author summarizes the results and reaches the conclusion that autohemotherapy is a valuable addition to the therapeutic armamentarium against psychic disturbances. It is particularly helpful in the treatment of reactive depressions in which physical symptoms predominate. Anxiety melancholias are likewise favorably influenced by it, but in circular depressions its efficacy is negligible.

30 825 856 (June 22) 1934

- General Practically Important Problems of Nutrition C von Noorden —p 825  
Apothecary and Pharmaceutical Industry E Hesse —p 830  
Carbon Dioxide Oxygen Inhalation in Resuscitation K Thiel —p 831  
\*Circulatory Action of Organic Iodine Compound (3,5 Diiodo-4-Oxyphenylalanine) in Increased Thyroid Action with Especial Consideration of Electrocardiograms B Misse and A Sylla —p 832  
Experimental Investigations on Concentration of Urine in Renal Insufficiency E Widrich —p 835  
\*Treatment of Acute Phosphorus Poisoning W Liebscher —p 838  
Allergy and Immunity in Tuberculosis J Siegl —p 839  
\*Treatment of Menopausal Neuralgias with Follicular Hormone G Pisk —p 842

**Organic Iodine Compound in Treatment of Goiter**—Misse and Sylla say that the cardiac symptoms of exophthalmic goiter are generally refractory to the ordinary methods of treatment. Digitalis, for instance as a rule does not become effective until after a preliminary iodine treatment. Since treatment with inorganic iodine involves certain dangers, an organic compound (3,5 diiodo-4-oxyphenylalanine) has been introduced into the treatment of exophthalmic goiter. This substance acts on the cardiac symptoms of exophthalmic goiter. Electrocardiographic studies during its administration revealed that changes are rare in case of a normal course of excitation. However, the originally strongly increased pulse rate decreases together with the annoying palpitation. The irritability of the sinus node becomes reduced under the influence of the organic compound but the sinus tachycardia occasionally remains uninfluenced in spite of clinical improvement. The high amplitude of the blood pressure generally decreases. The thyrotoxic disturbances in the cardiac rhythm are especially suitable for treatment with 3,5 diiodo-4-oxyphenylalanine. Auricular fibrillation responds particularly well. In far advanced cases the rapid and threatening form of fibrillation arrhythmia can often be transformed into the slower, less dangerous form. The administration requires individualization. In patients in whom the basal metabolic rate is increased by more than 60 per cent the authors give three times daily 0.1 Gm of the organic compound. In those with increases of from 40 to 60 per cent,

01 Gm is given only twice a day, and in those with lesser increases the dose is given only once a day. Medication with the beginning dose may be continued for three weeks. Then, after a pause of four days, somewhat smaller doses are given. The basal metabolic rate should be kept under constant control and the dosage should be adapted to the changes that ensue.

**Treatment of Acute Phosphorus Poisoning**—Liebscher says that in phosphorus poisoning the symptoms are not clear during the first few days. There is some vomiting, the vomit eventually being bloody, and some stupor. After three or five days, more serious symptoms become manifest. Jaundice and the signs of acute atrophy of the liver develop. The jaundice is of average gravity, the liver is contracted and sensitive to pressure, and there is spontaneous pain in the liver. The reactions for bile pigments are strongly positive in blood and urine, and leucine and tyrosine may be present in advanced cases. As a result of the accumulation of bile acids in the blood and of the failure of the liver metabolism, severe cerebral manifestations, such as somnolence, loss of consciousness, states of excitation and, finally, coma may develop, in the course of which death may result. A characteristic sign of phosphorus poisoning is fatty degeneration of the liver cells and lack of glycogen. The icterus is apparently hepatic, caused by impairment of the liver cells, and is not purely mechanical, as was assumed formerly. The treatment consists of irrigation of the stomach (even after ten hours), administration of animal charcoal, emetics, purgatives and excitants, and venesection with infusion of sodium chloride solution. However, the administration of fats, oils, milk and similar substances should be avoided on account of the solubility of the phosphorus. The prognosis is as a rule unfavorable, in spite of careful treatment, but the author describes a case in which a gradual improvement was noticeable. In this case a combination of dextrose and insulin and a strict diet proved effective in treating the hepatic disorders, but the symptomatic remedies were not neglected. The case proves that by careful attention to the liver the patient can be carried through the dangerous stage of the acute atrophy of the liver into a subacute stage and finally to recovery.

**Treatment of Menopausal Neuralgias**—Pisk found that the various forms of neuralgia (occipital, trigeminal, intercostal and sciatic and polyneuralgia) that develop in women of the menopausal age and are often refractory to the usual antineuralgic treatments may respond to treatment with follicular hormone. At first he administered the hormone by subcutaneous or intramuscular injection, but later he found that the oral administration was likewise effective. He reports his observations in twenty-one cases, of which fourteen were cured and kept free from relapse by a combination of antineuralgic and follicular hormone therapy (up to 2,000 mouse units daily). These cases had not responded to antineuralgic treatment alone.

### Wiener klinische Wochenschrift, Vienna

47 737 768 (June 15) 1934 Partial Index

Biologic Action of Ultraviolet Rays Reflected by Various Surfaces (Snow, Ice, Water, Rocks, Earth and so on) W. Hausmann and F. M. Kuen—p. 737

Most Important Requirements of Race Hygiene H. Reichel—p. 740

Female Sex Hormones and Their Clinical Significance E. Preiszeker—p. 743

\*Disturbance Caused by Syphilitic Stricture of Coronary Ostia N. H. van Nuijden and D. Scherf—p. 746

Micromethod for Determination of Double (Difference) Nitrogen S. Taubes—p. 750

\*Hypersensitivity to Parenterally Administered Liver Preparations in Case of Pernicious Anemia G. Grun—p. 751

**Syphilitic Stricture of Coronary Ostia**—Van Nuijden and Scherf point out that it is possible to differentiate various types of angina pectoris. They mention angina pectoris in coronary thrombosis or cardiac infarct, in coronary stenosis (exertion angina pectoris or Heberden's angina pectoris), in endocarditic or syphilitic insufficiency of the aortic valves (usually occurring at night and accompanied by increase in blood pressure), in paroxysmal tachycardia and in severe anemia. All these different types are characterized by special symptoms, so that differentiation is readily possible. Differentiation is important, because the various forms require different treatments and vary in their prognosis. All groups have in common not only the symptom of angina pectoris but also an important pathogenic factor, anoxemia of the cardiac muscle.

They differ only in the manner of development of the anoxemia. There is a sixth type of angina pectoris, a form of syphilitic mesoarteritis, in which the inflammation of the coronary ostia has produced a severe stricture. In this form, anginous disorders accompanied by anxiety develop after slight exertions. However, attacks of anxiety with crying and restlessness may develop also without pain. Increase in blood pressure is absent in this form of angina pectoris, and even a decrease in blood pressure has been observed. The authors discuss four cases of this type of angina pectoris. The cardiac action is not forceful during the attack. There is tachycardia and a soft, easily suppressible pulse, and the cardiac sounds are not accentuated. The restlessness and the anxious expectation of new attacks are especially characteristic in this type of patient. Clinical examination reveals nothing that is not also observable in mesoarteritis and in syphilitic aortic insufficiency. The electrocardiogram may be normal during rest, but following the slightest exertion the ST interval and the T wave are reduced and may become negative. The administration of nitrites is in general promptly effective in these cases and this differentiates them from coronary thrombosis, and the fact that the attacks develop not only after exertion or excitement but also during rest distinguishes them from classic or ambulatory angina pectoris. The prognosis of the angina pectoris caused by syphilitic stricture of the coronary ostia is unfavorable.

**Hypersensitivity to Liver Preparations**—Grun reports a case of hypersensitivity to parenterally administered liver preparations. Desensitization was accomplished by beginning with the injection of small doses and by gradually increasing them. The desensitization was of vital importance for the patient, because all other therapeutic measures failed and his life could not have been saved without the desensitization.

### Zeitschrift f. Hygiene und Infektionskr., Berlin

116 111 224 (May 25) 1934 Partial Index

\*Variation Experiments on Bacteria of Paratyphoid Group H. Habs and L. Seitz—p. 111

Formation of Blood Antigens of Dysentery Shiga Bacteria in Synthetic Nutritive Solutions M. Eisler and J. Jacobsohn—p. 119

Binding of Medical Substances on Spirochetes and Trypanosomes in Vitro E. Singer, J. Kotrba and V. Fischl—p. 133

Production and Behavior of Drug Resistant Spirochetes of Recurrent Fever V. Fischl and E. Singer—p. 138

Pharyngeal and Nasal Immunity Against Diphtheria in Guinea Pigs and Monkeys H. Dold and F. Weigmann—p. 146

Monkeys as Carriers of Diphtheria Bacilli H. Dold and F. Weigmann—p. 154

\*Action of Human Saliva on Diphtheria Bacilli H. Dold and F. Weigmann—p. 158

Specific Agglutination of Bacteriophages M. Schlesinger—p. 171

\*Serologic Studies on Chronic Action of Small Amounts of Carbon Monoxide P. Hofmann—p. 177

**Variation Experiments on Paratyphoid Group**—The experiments reported by Habs and Seitz were made to determine whether it is possible to effect in the bacteria of the paratyphoid group a transformation of the serologic structure that corresponds to the transition of one type to another. They employed the technique with which other experimenters had transformed pneumococci. First a rough form is obtained from the normal smooth form. Then a small quantity of the rough form is put into a culture medium that contains large numbers of killed bacteria of a different serologic type. The incubation in test tubes is followed by a transfer to agar plates, and the washed colonies are examined for their serologic structure. Systematic tests were carried out on a nonflagellate strain of the paratyphoid B group, because such a strain makes for the clearest experimental conditions, owing to the lack of flagella (H) antigens. The transformation into a rough form of considerable constancy was accomplished without difficulty. It proved possible to transform the rough form back into a smooth form. The serologic structure of the latter always corresponded to that of the original strain and thus it was merely a reversion into the original smooth form, a transformation into another type was not observed.

**Action of Saliva on Diphtheria Bacilli**—Dold and Weigmann studied the salivas of four healthy adults and of three healthy children for their action on genuine and virulent diphtheria bacilli (single culture material). It was found that the saliva of all persons after inactivation (by heating it for thirty minutes to 56 C) permitted an abundant growth of the

diphtheria bacilli, whereas the fresh saliva exerted a double influence (1) it inhibited the growth or killed the bacteria, (2) it transformed typical and virulent diphtheria bacilli (single culture material) into diphtheroids and further into pseudo-diphtheria bacilli. These actions of the fresh human saliva on genuine virulent diphtheria bacilli differed in intensity in the seven persons. It may therefore be assumed that, if a larger group of persons is examined, some will be found whose saliva produces these effects only slightly or not at all. The authors are of the opinion that these actions of the saliva on diphtheria bacilli are the cause of the pharyngeal and nasal immunity against diphtheria, which they were able to demonstrate in guinea pigs and monkeys that were susceptible to diphtheria toxin but did not develop symptoms of diphtheria. They believe that the behavior of the saliva toward diphtheria bacilli is at least of equal if not of greater importance than is the antitoxin content of the blood and tissues. This significance of the saliva, however, does not detract from the therapeutic value of diphtheria antitoxin.

**Chronic Action of Small Amounts of Carbon Monoxide**—Hofmann points out that, in order to determine whether a chronic carbon monoxide poisoning is possible, numerous studies have been made on the immunity of animals that were under the influence of carbon monoxide. The results, however, were frequently contradictory, for some observers found that animals exposed to carbon monoxide poisoning more readily succumb to an infection, while others observed no disturbance in the mechanism of antibody formation. He made observations on rabbits and dogs that for about nine months inhaled daily for six hours 0.01, 0.03 or 0.09 per cent of carbon monoxide. He found that the rabbits were in good general condition during the entire period of observation. The resistance of the erythrocytes to hypotonic solutions of sodium chloride was unchanged in the dogs as well as in the rabbits. The alexin content of the serum of dogs and rabbits remained uninfluenced. The hemolytic complement in the serum of dogs increased during the first four weeks of exposure to carbon monoxide by from 75 to 100 per cent and remained at this level. An impairment of the formation of normal antibodies was not demonstrable under the influence of prolonged inhalation of carbon monoxide.

## Zeitschrift für Tuberkulose, Leipzig

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Treatment of Lupus and Critical Remarks on Results C F Funk—p 305

\*Course of Tuberculosis and Function of Thyroid O Schedtler—p 314

\*Medicinal Modification of Tuberculous Symptoms During Menstruation H Kriech—p 319

Results of and Experiences in Incomplete Pneumothorax Treatment M Schlosser—p 322

Requirements of Efficacy of Phrenic Exeresis N F Bodungen—p 324

Tuberculous Ulcerations of Oral Mucous Membrane J Szanto—p 330

**Course of Tuberculosis and Function of Thyroid**—In a review of the literature, Schedtler shows that opinions about the significance of the thyroid in tuberculosis differ widely. He summarizes his experiments and clinical observations as follows: 1 In rabbits and guinea-pigs thyroidectomy seems to weaken the tuberculous infection. In rabbits the reduction in severity seems to be slightly less than that which is produced by castration. 2 Administration of thyroxine produces in guinea-pigs a more rapid course of the experimental tuberculosis. 3 Clinical observations on a larger material give no indication of regular relations between hyperfunction of the thyroid and the origin and course of tuberculosis. 4 Hypothyroid conditions likewise seem to exert no noticeable influence on the course of a tuberculosis. 5 The thyroxine therapy of tuberculosis still lacks reliable foundations.

**Tuberculous Symptoms During Menstruation**—Kriech describes an exacerbation in the tuberculous symptoms particularly an increase in fever, during the menstrual period of patients with certain forms of tuberculosis. He admits that during a normal menstrual cycle the impairments produced by this exacerbation are again repaired during the interval. However in certain types of tuberculous young women the menstruation becomes profuse and recurs after extremely short intervals later to be followed by an amenorrhea that has an unfavorable prognosis. If attempts are made to counteract

these menstrual disturbances with ovarian preparations, the fever and the general condition of these patients frequently take a turn for the worse. Since various dietary and medicinal treatments likewise failed, the author resorted to a symptomatic therapy and tried to check the severe menorrhagia by giving three times a day fifteen drops of ergotamine tartrate. The result of this treatment was that the menstrual flow was reduced, the temperature curve became more regular and the other tuberculous symptoms improved, and with them the general condition.

**Phrenic Exeresis**—Bodungen says that phrenicectomy produces irreparable changes and often limits the respiratory resources of the patient. He considers an extensive application of phrenicectomy undesirable. The indications for it have to be evaluated carefully. In some cases phrenicectomy can be performed as the only intervention, in others it may be a complementary operation. Its efficacy is dependent (1) on the reduction in the volume of the thorax, (2) on the relative immobilization following the diaphragmatic paralysis and on the reduction in the mobility of the lower ribs, (3) on the changes in the lymph and blood circulations, and (4) on alterations in the sympathetic nervous system. Phrenicectomy is most promising in cases with a subacute or a chronic course, in which signs of reparation begin to appear, but attention must be given to the size of the cavity as well as to the surrounding pulmonary tissues. If the pulmonary pleura is free from adhesions or if the layers of the pleura are only slightly adherent, the results of phrenicectomy are favorable. For this reason the condition of the pleural sac should be carefully examined. Whenever cavities exist in the lower third of the lung, phrenic exeresis is preferable to artificial pneumothorax. Phrenicectomy is helpful as a complementary operation in cases of incomplete pneumothorax and also when filling of the pneumothorax is discontinued and there is no possibility of unfolding the lung. Phrenic exeresis can be done also for the purpose of retarding the course of a process or to make it less acute in cases in which a therapeutic result can no longer be expected and in which other interventions are not feasible. Phrenic exeresis is contraindicated in case of a cavern above a peripherally attached adhesion of the median lobe. A phrenic exeresis of the right side, previous to a thoracoplasty, prevents the horizontal collapse on account of the elevated position of the liver and should therefore not be performed unless it is absolutely necessary. In the pneumonic, bronchopneumonic and ulceropneumonic forms that take a rapid course, phrenicectomy is likewise contraindicated. The influence exerted by phrenic exeresis on the neighboring organs and on the heart has not been sufficiently explained as yet to permit its definite evaluation.

## Zentralblatt für Gynäkologie, Leipzig

58 1393 1440 (June 16) 1934

\*Eclampsia and Paralysis H Schwanen—p 1394

Hormone Menstrual Disturbances H van der Hoeven—p 1405

Lever Traction with Forceps K Holzapfel—p 1411

Rare Position of Legs in Head Presentation K Holzapfel—p 1413

**Eclampsia and Paralysis**—Schwanen points out that the high incidence of intracranial hemorrhages or of foci of softening in patients with eclampsia stands in marked contrast to the rarity of paralysis in the clinical manifestations of this disease. To determine the causes of this contrast, the author reviewed thirty-four cases from the literature and three of his own. He found the mortality of eclamptic paralysis extraordinarily high and the prognosis of eclamptic paralysis independent of the number of eclamptic attacks. The contrast between the high incidence of an anatomically demonstrable intracranial hemorrhage or softening and the rarity of a clinically demonstrable paralysis in eclampsia is traced to the following causes: 1 The eclampsia, in which apoplexy occurs, is usually so severe that it rapidly leads to coma and death, so that, so to speak, the patient does not live long enough to experience the paralysis. 2 Because of the severity of the eclampsia, the interest of the physician centers on the delivery and the circulation and so even if a paralysis could be neurologically demonstrable, it would not be detected, because the physician does not give his attention to neurologic disturbances. 3 Eclamptic paralysis particularly if it occurs without eclamptic attacks, frequently is not ascribed to eclampsia but rather



to embolism, intoxication or other factors. Since eclamptic paralysis is little known as yet, such an erroneous diagnosis is readily possible. The author advises neurologic control of every case of eclampsia and thinks that in this manner it will be possible to detect eclamptic paralysis more often. Eclamptic paralysis is frequently found in eclampsia without convulsions (twenty-one out of thirty-seven cases). It is to be assumed that the apoplexy interrupts the conduction tracts, so that convulsions can no longer be elicited. This explanation appears the more understandable in view of the cases in which eclamptic spasms develop only on the side that is not paralyzed. Convulsions and paralysis are both manifestations of eclampsia.

58 1505 1568 (June 30) 1934

- \*Ureteral Catheterization and Pyelitis of Pregnancy. T. von Mikulicz-Radecki — p. 1506  
Plastic Repair of Sphincter According to Martius in Urethrovesical vaginal fistula. J. Frigyesi — p. 1526  
\*Transvesical Diaphanoscopy. E. Kjaften — p. 1529  
High Vesicofixation According to Werth Halban. K. Heyrowsky — p. 1541  
Complete Vesical Inversion. N. P. Werhitzky — p. 1543

**Ureteral Catheterization and Pyelitis of Pregnancy** — According to von Mikulicz-Radecki, the concurrence of two factors is considered responsible for the development of pyelitis during pregnancy: (1) the presence of coli bacteria in the renal pelvis, which results in bacteriuria, and (2) urinary stasis. It has been assumed by Stoeckel that, as a result of the toxins of pregnancy, the intestine and the ureters are in a state of atonia and that because of this the coli bacteria can pass the intestinal wall more readily and enter the renal pelvis by way of the blood stream. The ureteral atonia results in a deficient urinary discharge and in urinary stasis, it favors the multiplication of micro-organisms in the urine, the resorption of toxins and the invasion of micro-organisms into the mucous membrane. It is possible also that the atonic ureter is more readily compressed by the growing uterus. On the basis of these opinions about the pathogenesis, the author stresses the following aims of the treatment: removal of the stasis in the colon and with it the coli invasion by high enemas, destruction of the coli bacteria in the urine by bactericidal substances, removal of the urinary stasis by counteracting the ureteral compression by having the patient lie on the side that is normal, by increasing the urinary stream through the intake of large amounts of fluid by tonicizing remedies and finally by drainage of the renal pelvis that is, by ureteral catheterization. The latter procedure, with its possibilities for the drainage of the renal pelvis for continuous drainage and for irrigation of the renal pelvis, permits not only a more exact diagnosis but also a better treatment of the pyelitis of pregnancy. The author admits that ureteral catheterization does not always accomplish its aim for it may prove impossible to push the catheter all the way up into the renal pelvis, nevertheless it is effective in many cases. The obstruction is found most frequently in the subrenal ureteral loop, which is developed most noticeably during the second half of pregnancy. The author believes that by its bending this loop becomes the cause of a sudden urinary stasis in the renal pelvis, which in the presence of a bacteriuria leads to pyelitis and in case of sterile urine to a typical pain underneath the kidney.

**Transvesical Diaphanoscopy** — The difficulties in the differential diagnosis of intra-abdominal tumors and the observation that during cystoscopy in the darkened room the urinary bladder lights up and is sharply demarcated against its surroundings induced Kjaften to utilize this light phenomenon of the bladder. This simple method not only gave information about the contents of cystomas but also revealed the antevesical position of the tumor and the downward placement, the shifting in other directions and the changes in the shape of the urinary bladder as the result of ovarian or other tumors. Further it permitted the differentiation between ovarian cystomas and ascites and, finally, it revealed the simultaneous presence of ovarian cysts and uterine myomas. The procedure is as follows: The urinary bladder is evacuated and irrigated with a 3 per cent boric acid solution until the fluid becomes clear. Then the bladder is filled with from 250 to 300 cc of a 3 per cent solution of boric acid and illuminated from within with an ordinary cystoscope. The examination is performed in a completely darkened room so that with the beak of the instrument

directed toward the vertex of the bladder, the organ becomes illuminated. If the abdominal wall is held tense in the region of the bladder, the light effect becomes clearer. It is also important that the patient be not too obese. Out of the total of 720 diaphanoscopic examinations, he cites several in which the growth was permeable for light and became illuminated. Then he describes some in which it was not permeable to light but in all of these cases the bladder was illuminated. There were some patients in whom the light from the bladder was cut off. Careful studies in these cases revealed that the shutting off of the light of the bladder resulted when a tumor, not permeable for light, prevented the filled bladder from rising above the rim of the symphysis and forced it downward into the small pelvis. Roentgenoscopy reveals the bladder in these cases, to be flattened and extended sideward. The author further describes his efforts to improve the technic of diaphanoscopy. He aimed to improve the light effect by the admixture of various substances to the fluid introduced into the bladder but these efforts failed. He also tried a combination of transvesical and transrectal examination, but this produced no improvement. However, it was observed that air filling of the bladder produced the same light effect in the bladder as did the boric acid solution. The marginal illumination of the bladder was even more intense when air was used. Efforts were made also to increase the intensity of the light, and they succeeded to such an extent that now a cystodiaphanoscope is available which furnishes from four to five times the amount of light as the older instrument. In discussing the mechanism of diaphanoscopy the author points out that it is due to the light reflection of the vesical mucous membrane. A portion of the light permeates the vesical wall and exerts the same effect on the tumor.

### Finska Lakaresallskapets Handlingar, Helsingfors

76 409 489 (May) 1934

- Corneal Disorder of Keratitis Bullosa Type First in One and Later in Other Eye After Cataract Extraction. J. G. Lindberg — p. 417  
Experiences with Pantocrin Lumbar Anesthesia. O. Utter — p. 473  
\*Chylorhax. Case. L. Gronlund — p. 439  
\*Primary Sarcoma of Synovial Membrane of Knee Joint. Case. T. Hohenthal — p. 458

**Chylorhax** — In this case of effusion of chyle into the left side of the thoracic cavity, recovery without recurrence followed after eight punctures and the removal of 8,340 cc. of chylous fluid. Cancer of the stomach was neither clinically nor roentgenologically demonstrable. Trauma of the left side of the thorax had occurred three and a half years earlier. Although gastric cancer was established one and one half years later, Gronlund considers the etiology of the case doubtful.

**Primary Sarcoma of Synovial Membrane of Knee** — Hohenthal's case in a young man presented a relatively benign course during a long period. Two years after a trauma of the right knee joint a slight tumor appeared at the seat of the injury, gradually growing larger. Two years later metastases were noted in the left upper arm. The following year the anatomopathologic picture indicated undoubted malignancy, and resection of the tumor of the knee joint and extirpation of the metastases were performed. Five years after the first symptoms metastases appeared in the right elbow and later in the region of the right shoulder, the left shoulder blade and on the anterior side of the left thigh, also recurrence in the right knee. Extirpation of the various tumors was done twice. Finally, eight years after the beginning of the disturbance, further metastases took place. The disease now progressed more rapidly, the general condition was aggravated, the tumor gradually metastasizing throughout the body, and death followed. Roentgenograms showed slight changes in the patella due to the primary tumor, in the diaphysis of the tibia there was gradually increasing clarification, which suggested a neoplasm infiltrating the bone tissue. The primary tumor, recurrences and metastases in general resembled one another, the histologic picture varying from spindle cell to round cell and polymorphous sarcoma. The motility of the knee joint was greatly reduced, the muscles of the leg atrophied. The author reviews the twenty-three cases of primary sarcoma of the synovial membrane of the knee joint reported in the literature. Recurrences were reported in three of these, and metastases in three.

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## THE ENDURING ACHIEVEMENTS OF SIR CHARLES BELL

CHAIRMAN'S ADDRESS

HENRY W. WOLTMAN, M.D.  
ROCHESTER, MINN

For almost 2,000 years physiology of the nervous system had been at a standstill. Galen had wrought with such master strokes that the work seemed finished, or impossible of advancement. There existed a heritage that men were unwilling to dishonor.

In anatomy, progress had been more heartening. "Seven books on the structure of the human body" (1543) had broken the impasse, made possible an anatomic method of thinking, and laid the foundation of modern medicine. Unwillingly did Sylvius finally bend to the contentions of Vesalius with the remark, "Yes, man has changed, but not for the better."

Then there appeared a man with an idea, a man who left the revolving circle and showed the way to progress. The importance of this idea to physiologic investigations his magnificent contemporary, Johannes Müller, placed beside that of the discovery of the circulation of the blood by Harvey.

The salient events in the life of Charles Bell can be presented in a few words, for his career was singularly free from vicissitudes and, accordingly, no good biography of him has ever been written. He was born in 1774, in Edinburgh. His dissentient father, the Reverend John Bell, had severed his connection with the Episcopal Church to become a Presbyterian. His mother, highly intellectual and artistic, was never very well, nor very ill, during the eighty years of her life. She was, however, a devoted mother and, Bell said, his only teacher. Of the four sons, three achieved distinction: George Joseph, in law, and John and Charles in medicine.

John and Charles, while still very young, were taught by their mother to draw, and throughout life Charles cultivated this art, which, he said, "is necessary to many pursuits."<sup>1</sup> He also became an accomplished etcher, printer and modeler, and he used his art generously to illustrate his medical works (fig 1).

In Edinburgh, Charles studied anatomy under the tutelage of his brother John, who was eleven years his senior, and later with him became co-author of a textbook of anatomy, Charles writing the part that dealt with the nervous system. "The study of the nerves,"

Charles said, "is in truth the best foundation of medical knowledge." When his brother John attempted to gain for the younger surgeons the privilege of operating at the infirmary, the ensuing quarrel became a public scandal and closed the way to advancement for Charles. And so, in 1804, with £12 in his pocket, Charles left Edinburgh and embarked on a five-day journey by coach to London. Here he was received by Mr. Anthony Carlisle of Westminster Hospital with the observation "We like to manufacture our own raw material in London." Unperturbed and undismayed, he affiliated himself with the School of Great Windmill Street, founded by John and William Hunter.

"A man can surely do what he wills to do," says Schopenhauer, "but he cannot determine what he wills." Not so with Charles Bell. To carry forward the work of the Munros and the Hunters was not only his wish, it was his duty, he not only toiled industriously but with an all-consuming passion. Like the other Scots who invaded London, for it was an invasion, he achieved fame, and he shared their traits. "Their discoveries," Keith<sup>2</sup> says of these men, "were the only fortunes they designed for coming generations." In 1834, in his sixtieth year, Bell took the opportunity presented in making an address to remove a "very prevailing notion of the medical men in Edinburgh" that he was "pugnacious and sarcastic."<sup>2</sup>

Charles Bell had few intimates, but he was often seen at the theater and he was fond of music and of fly-fishing. He took pride in his appearance and was ever urbane in speech and in demeanor. He enjoyed teaching and had a good voice, he shunned prolixity and avoided Latin expressions when English served his purpose. Professionally, he was esteemed and he had a large practice. Although he avoided cultivating personal relationships with his patients, he treated them with tenderness, for example, he always sought to make a small incision, which he said was the most painful part of an operation. Corson quotes Roux, the great French surgeon, who regarded Bell affectionately, as saying "Charles Bell is one of the few Englishmen who operates like a Frenchman, quickly and with grace, without affectation." When Bell's card was put in Roux's hand, it was "Ah! Sharley Bell! C'est lui-même!"<sup>3</sup>

In 1830, on the accession of William IV, he was made a knight of the Guelphic Order of Hanover. In 1836, after thirty-two years in London, he was appointed professor of surgery to the University of Edinburgh. In the last years he suffered from attacks of angina pectoris and he died during one of them in 1842, at the age of 68.

From the Section on Neurology, the Mayo Clinic.  
Read before the Section on Nervous and Mental Diseases at the Eighty-fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.  
<sup>1</sup> Bell, Sir Charles. *Exposition Its Anatomy and Philosophy*. New York: Fowler and Wells, 1853.

<sup>2</sup> Keith, Arthur. The Position of Sir Charles Bell Amongst Anatomists. *Lancet* 1: 290-293 (Feb. 4) 1911.

<sup>3</sup> Corson, E. R. Sir Charles Bell: The Man and His Work. *Bull. Johns Hopkins Hosp.* 21: 171-182 (June) 1910.

## BELL'S "IDEA OF A NEW ANATOMY OF THE BRAIN"

A moment ago I let fall a remark concerning an idea Bell tells us what this is in his "Idea of a New Anatomy of the Brain" Of the original 100 copies only two are known to remain, one in the British Museum and one in the Library of the Surgeon General of the United States Army Ebstein has provided us with a faithful reproduction of the original text<sup>4</sup>

In 1807 Charles wrote to his brother "My new anatomy of the brain is a thing that occupies my brain almost exclusively I hinted to you formerly that I was burning, or, on the eve of a grand discovery"

Bell wrote concisely and, on the whole, with remarkable clarity Since there has been some dispute as to his discovery that the posterior roots carry sensation, it is hardly fair to present excerpts from the already succinct statement of his "Idea" But let me present the salient points, as I see them, in Bell's own words and in the order in which he gave them

The prevailing doctrine of the anatomical school is, that the whole brain is a common sensorium<sup>4</sup> I have to offer reasons for believing that the cerebrum and cerebellum are different in function as in form, that the parts of the cerebrum

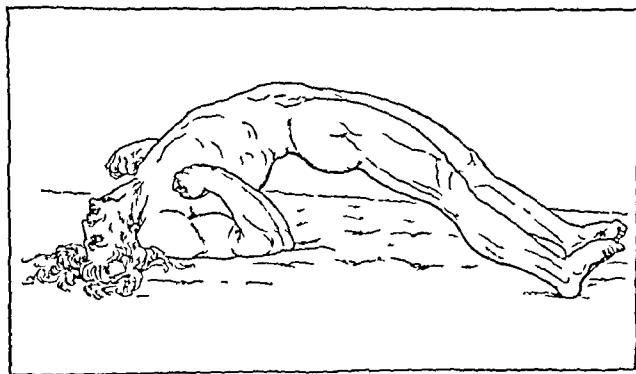


Fig 1—Bell's picture of opisthotonos A drawing by him of a patient with tetanus following an injury to the head sustained at the battle of Corunna (Obtained through the courtesy of Prof J R Learmonth of Aberdeen and published with the permission of the Royal College of Surgeons of Edinburgh and the Museum of Royal College of Surgeons of Edinburgh)

have different functions and that the nerves which we trace in the body are not single nerves possessing various powers, but bundles of different nerves, whose filaments are united for the convenience of distribution, but which are distinct in office, as they are in origin from the brain<sup>4</sup>

The external organs of the senses have the matter of the nerves adapted to receive certain impressions

The idea or perception is according to the part of the brain to which the nerve is attached

It is also very remarkable that an impression made on two different nerves of sense, though with the same instrument, will produce two distinct sensations, and the ideas resulting will have relation only to the organ affected<sup>4</sup>

Further, we can trace down the crura of the cerebrum into the anterior fasciculus of the spinal marrow, the crura of the cerebellum into the posterior fasciculus, I thought that here I might have an opportunity of touching the cerebellum, as it were, through the posterior portion of the spinal marrow, and the cerebrum by the anterior portion I found that injury done to the anterior portion of the spinal marrow, convulsed the animal more certainly than injury done to the posterior portion

Next, considering that the spinal nerves have a double root and being of opinion that the properties of the nerves derived from their connections with the parts of the brain I thought that I had an opportunity of putting my opinion to test of experiment and of proving at the same time that nerves of different endowments were in the same cord, and that they were together by the same sheath (fig 2)

On laying bare the roots of the spinal nerves, I found that I could divide across the posterior fasciculus of nerves, which took its origin from the posterior portion of the spinal marrow, without convulsing the muscles of the back, but that on touching the anterior fasciculus with the point of the knife, the muscles of the back were immediately convulsed Such were my reasons for concluding that the cerebrum and the cerebellum were parts distinct in function, and that every nerve possessing a double function obtained that by having a double root

The eighth nerve [in modern nomenclature N IX, N XI] is from the portion of the medulla oblongata which belongs to the cerebellum, the ninth nerve [now called N XII] comes from the portion which belongs to the cerebrum The first is a nerve of the class called vital nerves, controlling secretly the operation of the body, the last is the motor nerve of the tongue and is an instrument of volition Nerves proceeding from the Crus Cerebelli go everywhere in seeming union with those from the Crus Cerebri, they unite the body together, and control the actions of the bodily frame and especially govern the operation of the viscera necessary to the continuance of life The cerebrum I consider to be the grand organ by which the mind is united to the body Into it all the nerves from the external organs of the senses enter, and from it all the nerves which are agents of the senses pass out

We find that the several roots are distinct in their endowments, and are in respect to office distinct nerves

The nerves of sense, the olfactory, the optic, the auditory and the gustatory nerve, are traced backward into certain tubercles and convex bodies in the base of the brain. An animal may say that the nerves of sense either form tubercles belonging to the base of the brain, or they enter into those convexities in the base of the cerebrum

As certainly as we discover an animal to have an external organ of sense, we find also a medullary tubercle

From the Crura Cerebri, or its prolongation in the anterior fasciculi of the spinal marrow, go off the nerves of motion

But with these nerves of motion which are passing outward there are nerves going inwards, nerves from the surfaces of the body, nerves of touch, and nerves of peculiar sensibility, having their seat in the body or viscera. It is improbable that the tracts of cancerous matter, which we observe in the course of the medullary matter of the brain, are the seat of such peculiar sensibilities, the organs of certain powers which seem resident in the body

Herein Bell anticipates the later discoveries of cerebral localization. He states clearly what is now referred to as "the doctrine of specific nerve energies" a phrase coined by Muller and to whom, and perhaps for this reason, this discovery is usually attributed. He who assigns credit largely to Magendie, who did not mention Bell

Bell was very definite regarding the function of the anterior nerve roots, unfortunately he was not so specific regarding the function of the posterior roots. One may infer, from what he says, that the posterior roots, the cerebellum and the visceral nerve supply each part of a closely knit system. At the same time he spoke with positiveness regarding the different functions united in peripheral nerves, of cutaneous sensation, of a separation of function in the nerve root, and of the relationship of ganglions to sensation in a manner that might justify the inference that he regarded the posterior roots as being sensory in function. He said later that this is what he meant and

<sup>4</sup> Bell Sir Charles Idea of a New Anatomy of the Brain London Strahan and Preston 1811 Idee einer neuen Hirnanatomie (1811) Originaltext und Uebersetzung mit Einleitung von Erich Ebstein Leipzig J A Barth 1911

that further prosecution of the subject required the introduction of medical cases

Bell attempted to set up an argument through inference, that is, by comparing the function of the spinal roots with the function of the sensory and motor components of the fifth cranial nerve, as determined by experiments on the fifth and seventh cranial nerves of man. That he did not parade his grand discovery, or he knew it was a grand discovery, and that he continued the original experiments on living animals, seems proof of his sincerity. That he should stop tinkering on the subject is incredible.

Here the shadow of another great physiologist falls across our path. In 1822 Magendie, experimenting on litter of eight puppies, severed the posterior roots of the lumbar and sacral nerves on one side. At the outset he thought that the limb corresponding to the divided roots was entirely paralyzed, but he later saw it move in a very evident manner, although its sensibility remained absolutely abolished. Then he cut the anterior roots, and he found the limb was completely immobile although it preserved an unequivocal sensibility.<sup>5</sup>

Magendie said he was unaware of Bell's work. Mr. John Shaw, Bell's student and brother-in-law, stated that he had visited Magendie in August 1821, had discussed Bell's views, and had repeated some of Bell's experiments. Evidently Magendie believed that both roots carry both motor and sensory impulses, but in different proportions.<sup>6</sup>

In 1831 Muller wrote "In a good physiological experiment, as in a good physical experiment, at every place, at every time, under the same circumstances, the same safe and unequivocal phenomena result, that cannot be said of the previous attempts to prove Bell's law. From the injury and general loss of power the error may be greater than the appearance of the results." Muller turned to frogs, which live a long time after the spinal column has been opened. The results of his experiments were convincing. The frogs seemed to remain well and hopped about cheerfully. "Irritation of the anterior roots with a galvanic current produces the strongest twitching. Galvanic irritation of the posterior roots never produces a trace of twitching." These results amazed him, for he thought that irritating the posterior roots would have some effect on the muscle. The conclusion, he says, is as sure as "two times two is four."

The "courteous and generous manner" in which Magendie dealt with Bell's claim to priority has been pointed out. Magendie complimented Bell on his ingenious ideas and said he had almost discovered the function of the spinal roots.<sup>7</sup>

Bell retorted, "Experiments have never been the means of discovery and a survey of what has been attempted of late years in physiology will prove that the opening of living animals has done more to perpetuate error than to confirm the just views taken from the study of anatomy and natural motions. 'Surely it is time that the schools of this kingdom should be distinguished from those of France. Let physiologists of that country borrow from us and follow up our opinions by experiments (see the experi-

ments of Magendie on the distinction in the roots of the spinal nerves) but let us continue to build that structure which has been commenced in the labours of the Munros and Hunters."

Magendie wrote (1830) "His [Bell's] investigative spirit, while a bit speculative, his great ability in the art of dissection, his rare talent in drawing, will always assure him a distinguished place among the anatomists of our time. But why should this teacher cast a shadow upon his works and upon himself in not giving justice where it is due? Why does he preserve this barbarous patriotism which repulses everything that does not come from his own country? Why does he pretend to discoveries which he has not made? Without a doubt, because it is his character, which it is not easy to change even if one may wish it." When Magendie announced some observations illustrating the principle of the specific dynamic action of nerves as his own, Bell asked, "Did you not tell us that you had a little English book in which this is written?"

Discovery of the motor and sensory functions of the fifth and seventh cranial nerves is also claimed by Bell. Waller gives Mayo unqualified credit for having

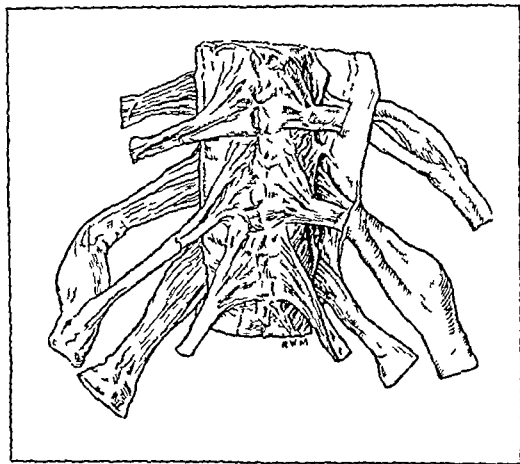


Fig. 2.—Drawing by Bell of his original dissection of the roots of the spinal cord (see parenthetical note to figure 1)

made these important distinctions.<sup>8</sup> Bell altered passages of previously published papers, in the publication of his textbook, to conform with the accumulation of more recent and more accurate data. This may have the "appearance of underhand dealing," as his critics claim, however it may occur without thought of deception. Bell may not always have acknowledged the laboratory source of his newer information, but it must be remembered that he was thoughtfully and assiduously accumulating clinical experiences which he was ever interpreting in the light of anatomy. Surgeons daily saw cases in which these nerves had been injured or in which they themselves had cut them. It seemed inconceivable to such a master anatomist as Bell that these things were not already known.

Time and again this dispute breaks out among the admirers of these two men, it delights readers who enjoy an intellectual skirmish and satisfies the participants, it is not yet settled nor will it be. Those interested will find what they seek though not the solution, in the *Lancet* 1911-1912, wherein Arthur Keith and

<sup>5</sup> Waller A. D. Charles Bell and the Motor and Sensory Functions of Spinal Nerves. *Lancet* 1: 614-615 (March 4) 1911.

<sup>6</sup> Bell Sir Charles. The Nervous System of the Human Body, Embracing the Papers Delivered to the Royal Society on the Subject of the Nerve, with Appendix Containing Cases and Letters of Consultations on Nervous Diseases. London: H. Renshaw, 1844.

<sup>7</sup> Guthrie Leonard. Charles Bell and the Motor and Sensory Functions of Spinal Nerves. *Lancet* 1: 697 (March 11) 1911.

<sup>8</sup> Waller A. D. On the Claim of Sir Charles Bell to the Discovery of Motor and Sensory Nerve Channels. *Lancet* 2: 900-905 (Sept. 28) 1912.

A D Waller, Leonard Guthrie and F W Eldridge-Green exchange views

The mere acknowledgment of any untoward criticism in a brief review of a man's life always carries undue weight, and it may create the impression that Bell was a selfish, ruthless and unprincipled adventurer in the field of medical science. This he was not. As Don Quixote sagely remarked, "The great Homer wrote not in Latin, for he was a Greek, and Virgil wrote not in Greek, because he was a Latin." On occasion Sir Charles cut his pattern to fit his cloth, and the cloth was furnished by the times and its men.

#### BELL'S PALSY

Bell's name has become a common word in neurology. One thinks first of Bell's palsy. When Bell began his work, utter confusion prevailed. It was thought that the direction of nerve forces was reversible, that many small nerves were equivalent to one larger one, that the two nerves are given to the face lest, by the accidental division of one, the face should be deprived of nervous power altogether, that if one nerve of the face were cut the remaining nerve would bestow both sense and motion, though in a diminished degree. This was the authority on which surgeons were wont to divide one or other nerve of the face in the attempt to cure *tic douloureux*.

"It is very frequent," he says, "for young people to have what is vulgarly called a blight, from exposure to cold, by which is meant a slight palsy of the muscles on one side of the face. Inflammation of glands seated behind the angle of the jaw will sometimes produce this. Before these observations, it would have been said, that paralysis could not be so produced, because the parts are plentifully supplied by the branches of the fifth nerve, that the disease must be in the brain."

He appends numerous case reports of this condition and emphasizes the good prognosis.

#### THE EXTERNAL RESPIRATORY NERVE OF BELL

One hears also of the "nerve of Bell." Bell was tremendously interested in the play of muscles involved in respiration, speech and expression. "The nerves on which the associated actions of voluntary and excited respiration depend, arise very nearly together."

He says (1821) "The following are the nerves to be enumerated as respiratory nerves, according to their functions: 1 Par vagum, the eighth of Willis, the pneumo-gastric nerve of the modern French physiologists. 2 Respiratory nerve of the face, being that which is called the *portio dura* of the seventh. 3 Glossopharyngeal. 4 Superior respiratory nerve of the trunk, being that which is called spinal accessory. 5 Great internal respiratory nerve, the phrenic or diaphragmatic nerve of authors. 6 The external respiratory nerve." (In "The Anatomy and Physiology of the Human Body," he says, of the fifth cervical nerve, "This nerve I call the External Respiratory Nerve.") This has a similar origin with the preceding nerve. It comes out from the cervical vertebrae and is connected with the phrenic nerve. It runs down the neck, crosses the cervical and axillary nerves, passes through the axilla and arrives on the outside of the ribs, to supply the serratus magnus anticus, which, it is scarcely necessary to observe, is a muscle already supplied by nerves coming out between the ribs, from the system of regular nerves.

#### BELL'S SIGN

The title of the paper in which this sign was described is "On the Motions of the Eye, in Illustration of the Uses of the Muscles and Nerves of the Orbit (1823)." This paper is a masterpiece. It is crammed with observations, so briefly, so clearly described that it ought to lie near the hand of every author and editor of a medical paper. I shall quote from this paper:

There is a motion of the eye-ball, which, from its rapidity, has escaped observation. At the instant in which the eye-lids are closed, the eye-ball makes a movement which raises the cornea under the upper eye-lid. If we fix one eye upon an object, and close the other with the finger in such a manner as to feel the convexity of the cornea through the eye-lid, and shut the eye that is open, we shall feel that the cornea of the other eye is instantly elevated, and that it thus rises and falls in sympathy with the eye that is closed and opened. This change of the position of the eye-ball takes place during the most rapid winking motions of the eye-lids. If the eye-balls were to remain without motion, the margins of the eye-lids would meet in such a manner on the surface of the cornea, that a certain portion would be left untouched, and the eye would have no power of clearing off what obscured the vision, at that principal part of the lucid cornea which is the very axis of the eye.

He supplemented these observations with experiments on monkeys, in which he cut the superior rectus muscle, the superior oblique muscle and the inferior oblique muscle. "By these experiments it is proved, first, that the division of the oblique muscles does not in any degree affect the voluntary motions by which the eye is directed to objects. Secondly, that the division of the recti does not prevent the involuntary motions. When the eye is at rest, as in sleep, or even when the eye-lids are shut, the sensation of the retina being then neglected, the voluntary muscles resign their office, and the involuntary muscles draw the pupil under the upper eye-lid. This is the condition of the organ during perfect repose."

While conducting the experiments on the oblique muscles, he appended a weight to the tendon of the superior oblique, which he noted descended during the contraction of the inferior oblique. He recognized not only the principle of reciprocal innervation but demonstrated it experimentally and observed, "There must be particular and appropriate nerves to form this double bond to cause them to conspire in relaxation as well as to combine in contraction."

#### MUSCLE SENSE

While there had been, as Bell later discovered, speculation regarding sensation in muscles, it had not been placed on a parity with other modalities of sensation or expressed as a physiologic concept. He says:

It will presently appear that the motor nerves are not suitable intermediaries between them and the sensorium. Between the brain and the muscles there is a circle of nerves, one nerve conveys the influence from the brain to the muscle, another gives the sense of the condition of the muscles to the brain. The lower degree of sensibility to pain possessed by the muscles, and their insensibility to heat, is no argument against their having nerves which are alive to the most minute changes of action in their fibres.

#### BELL AS TEACHER AND CLINICIAN

When one considers the methods by which Bell contributed so richly to neurophysiology, one senses his greatness. Experiment is one of the most helpful tools of the physiologist, yet Bell with remarkable

prescience drew most of his facts from anatomy. He had a remarkable facility of coordinating structure with normal activity. To Bell, anatomy was a living subject, with it he salted his clinical observations.

Gentlemen [he says], wise men pursue some determined object. I may have erred in having more than one. I confess it has been my desire to combine the philosophy of the profession with the practice of it, because I believe them to be necessary to each other, and both to the true respectability of the individual.<sup>9</sup> For all real improvements in our science are suggested by the occurrences in practice. None will hesitate to say that it is our duty to observe accurately when an accident may be converted into an experiment. This poor man was tossed by a bull, the horn went in here, at the angle of the jaw, and he hung suspended upon it until, the integuments before the ear giving way, he dropped. And you cannot resist the conviction that the remaining sensibility is owing to the entireness of the branches of the fifth pair, which come out through the orbit, and through the upper and lower maxillary bones, whilst the loss of motion has resulted from the tearing of the portio dura.

The consummate art with which he presented a case is in evidence in the following:

Patient with Dr. Marshall Hall. Apparently about sixty, his intellect I ought to say entire, since he was complimentary, but with a manner singularly in contrast with any thing like interest. All the lower part of his face is relaxed in paralysis, the lips hanging loose, speaking consequently very imperfectly. The same inactivity and want of expression in his nostrils. He has lost the left eye, and he has to hold up the eyelid of the right eye with the finger to see us. He closes his jaws very feebly, and there is a sensible defect of action in the masseter and temporal muscles of both sides. His complaint commenced about three years ago in an extraordinary weariness of the jaw, while at dinner, and which now continues. The taste is natural, and the sensibility of the tongue entire, but the action of the tongue feeble, so that he must use his finger sometimes to assist it in moving the morsel. He cannot spit out. There is a complete paralysis of the velum and uvula, so that when he drinks the fluid comes out through his nose. He has great difficulty in swallowing, that is, in propelling the morsel from the dorsum of the tongue into the pharynx. This, at present, is the most serious and pressing evil.

One more case history I will give, since it may be the first recorded case of spontaneous, hyperemic atlanto-axoid dislocation, nasopharyngeal torticollis, or Grisel's syndrome, the nature of which he recognized.

A patient, who had a deep ulcer in the back part of the throat, was seized with symptoms like those of apoplexy. These symptoms continued for two hours. At this time the patient's head fell suddenly forward, and he instantly expired. On dissection, it was found that the ulcer had destroyed the transverse ligament, which holds the process of the dens in its place. In consequence of the failure of this support, the process was thrown back so as to compress the spinal marrow. The parts are preserved in my collection (fig. 3).

It is interesting not only to know what a man has done but to seek that imponderable quality in him that will answer the query: How did he do it? Obviously Bell did not idle away much of his time. He had his own idea of relative values and spent little effort in what is often called "playing politics." He spoke of his friend as the "sarcastic Mr. Abernethy" and advised young gentlemen who went to the College of Surgeons in order to pass to "keep to old theories." Very possibly Bell was not a man we should have loved. Aristotle said, "Men who desire to learn, must previously know how to doubt, for science is only the resolution of previous doubts, but he who does not know the knot, is unable to untie it." Bell knew the

knot. He had an idea and pursued it like one possessed. As Stevenson has said, "When a man begins to sharpen one faculty and keeps on sharpening it with tireless perseverance, he can achieve wonders." That is, he worked. He had faith in himself and "never blamed a pear tree for not bearing plums."

Our interest in men should not remain wholly static. Just as their achievements reach into the future, so do their personalities bear fruit. In closing, let me leave with you some thoughts expressed by this great man:

Since I am about to describe all the niceties and difficulties of the operation for Strangulated Hernia, I must in the first place declare that it requires more knowledge and experience to decide upon the right time of performing it, than to do it well.<sup>10</sup>

The viscera of the abdomen perform functions the most independent of the will and over which the mind has no control.

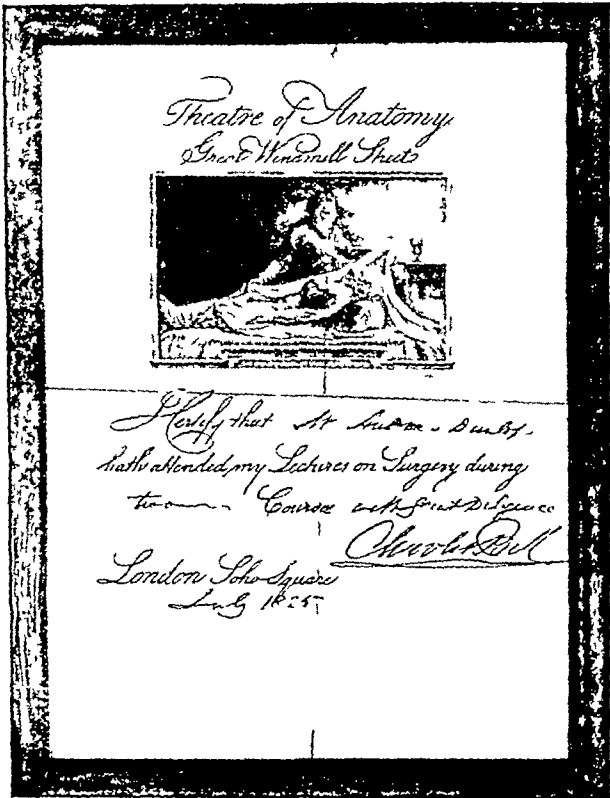


Fig. 3.—Certificate issued by Sir Charles Bell to one of his students (see parenthetical note to figure 1).

Indeed it appears to be one of the happiest provisions of Nature that these functions of vital importance should be withdrawn from the governance of the mind.

I acknowledge that in the dissecting room the student learns the elements only, that to let loose upon the world a young surgeon, whose education has been confined to dissection, is like arming a man bereft of reason.<sup>10</sup>

A public operation, where young surgeons are attending, ought to be done not only in a manner that shall be safe to the individual who suffers but exemplary to those who are to learn.

These are the authors who avoid plainness, as if it were meanness, who are studious of hard words, as if they constituted the perfection of science. It is their trade, it is their

<sup>9</sup> Bell, Sir Charles. Illustrations of the Great Operations of Surgery, Trepan, Hernia, Amputation, Aneurism, and Lithotomy. London: Longman, Hurst, Rees, Orme, and Brown, 1821.

<sup>10</sup> Bell, Sir Charles. A System of Operative Surgery, Founded on the Basis of Anatomy. Hartford: Hale and Hosmer, 2, 1812.



mystery to write obscurely," and fully sorely does the student feel it

Haller remembers, that while he was lying in a bad fever, he suffered so much from the pulsations of the carotid artery within the skull that his head was lifted from his pillow at every stroke. I wish he had said "seemed to be lifted from the pillow at every stroke"<sup>11</sup>

Did I ever tell you [he wrote to his brother] I was offered £100 a year for the use of my name? But I thought they would dirty it, so I would not lend it. It was to stick on the first leaf of a journal

You tell me to cultivate men, I wish you had said, "to be industrious and cultivate a proud spirit of independence"<sup>12</sup>

You say that no man can rise into great practice without being in company or, rather, say society. I do not agree with you. Pardon my vanity when I say that my business comes through, and will increase by, different means. My patients are now of a proper class, whom I know nothing of. They come from my character, and are retained by finding relief by being treated with attention and kindness. My means of being known are through my books and pupils. I retain my consequence by preferring science to practice.<sup>13</sup>

I have referred to a patient who had been subject to tic douloureux and who had been more than once cured of his pain by croton oil [Bell's remedy, introduced from India in 1825], having died last autumn. There was no disease in the nerve, but ulceration was found in the mucous coat of the ileum. But then it is said in the report conveyed to me that he had been too powerfully dosed with this medicine. I take the facts either way, the ulceration was the cause of the tic, or the ulceration was occasioned by the medicine. In this last supposition, we have the important admission, that croton oil improperly used, will act on a portion of the mucous coat to the formation of ulcer. Could we depend on this reasoning, it would explain how the better regulated administration of the medicine did, in very many cases, affect a portion of the intestine to the removal of morbid irritation there.<sup>12</sup>

I cannot refrain from giving a quotation Corson discovered in the works of Charles's celebrated brother John, for it applies as truly now as it did then

When your opinion is called for, pronounce it boldly, and say, if you think it right to say so, "This limb must be cut off." But when you are prevented by officious relatives or if the patient should refuse his consent, when the accidents of the case interrupt you, or you are in a confused or dangerous camp, where operations cannot be done, then do what remains of your duty—not with ill humor of a man thwarted in some little view, or smarting under the sense of a disappointment or affront—set yourself heartily and kindly to save your patient's limb and his life.<sup>13</sup>

<sup>11</sup> Bell John and Bell, Sir Charles. *The Anatomy and Physiology of the Human Body Containing the Anatomy of the Bones Muscles and Joints and the Heart and Arteries by John Bell and the Anatomy and Physiology of the Brain and Nerves the Organs of the Senses and the Viscera by Charles Bell*. New York, Collins & Co. 2, 1822.

<sup>12</sup> Bell, Sir Charles. *Practical Essays*. Edinburgh MacLachlan Stewart and Co. 1841.

<sup>13</sup> Corson E. R. John Bell surgeon 1783 1820. *Bull Johns Hopkins Hosp* 23: 241 250 (Aug) 1912.

**Medical Social Problems**—One can, still find physicians who take the view that medical social work concerns only the poor and friendless. They forget that such work is not concerned with charity or spiritual welfare, as is that performed by the church. The social problems in private practice are as numerous and frequent as in hospital practice and are often more complex and difficult to correct. This is because the higher the social order of the patient, the more complicated the social issues and intricacies of life are apt to become. To appreciate this, one only has to think of the greater complexities arising in the life of a person with servants, children in private schools, many friends and multiple social, professional and business obligations, as contrasted with the life of a day laborer yet both may be confronted with basically the same medical social problems—Minot, G. R. *Medical Social Aspects in Practice Arch Int Med* 54: 1 (July) 1934

## CLINICAL FEATURES OF EPIDEMIC (ST LOUIS) ENCEPHALITIS

R. A. KINSELLA, M.D.

AND

G. O. BROUN, M.D.

ST LOUIS

The epidemic of acute encephalitis that made its appearance in the St. Louis area in the late summer of 1933 marked the first appearance in the United States of this disease in epidemic proportions. It is known that isolated cases appeared in many other localities, and a small group of cases appeared in Paris, Ill., in the preceding year. Epidemics of encephalitis had been occurring in Japan for nearly ten years, and descriptions of the Japanese cases seemed to fit the clinical picture of the St. Louis disease. But it is now thought that the Japanese disease was due to a virus immunologically different from the virus recovered in the St. Louis cases. This consideration will convey an impression of the surprise and uncertainty which clinicians felt when confronted with this clinical picture in the days before the disease became widespread and recognition became easy.

The symptoms of encephalitis were, of course, easy to recognize, but the previous epidemic of lethargic encephalitis left impressions that were not recalled by the present disease. Apart from lethargic encephalitis, there had occasionally been seen a solitary case of encephalitis during the past ten years, which may, perhaps, have been identical with the epidemic encephalitis of the St. Louis type, but such diagnoses were considered to apply to cases of doubtful nature and no pathologic studies had pointed to a similar origin.

It is our purpose in this paper to point to the most common symptoms and signs and to the most striking combination of these, so that if and when the disease reappears physicians may be familiar with these salient features and take steps to organize a cooperative enterprise for the study and control of the disease in their respective communities.

Known to be caused by infection by virus, this disease has as yet not revealed its mechanism of origin and transmission, and there is much still to be done by epidemiologists, just as there is still much to be learned about the immunology and treatment.

It has been customary in the past to emphasize the feature of tropism or the selective aggressiveness of virus. Thus, the virus of influenza is spoken of as having a pneumotropic tendency, the virus of rabies a neurotropic activity, and so on. There is no doubt that the virus of St. Louis encephalitis had an almost exclusively neutropic activity, but enough involvement of organs remote to the nervous system was observed to indicate that the virus was capable of producing damage in other parts. The portal of entry into the body is not certainly established, but the experimental evidence points to a probable route through the upper nasal passages directly into the brain. The lesions in the lungs and in the duodenum, though not common, have been regarded as due to migrations of the virus already in the body rather than to reactions produced at places of entry.

From the Department of Internal Medicine, St. Louis University School of Medicine.  
Read before the Section on Practice of Medicine at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.

The present description is based on observation of 215 cases seen at the Firmin Desloge Hospital and St Mary's Hospital. In one of these hospitals the patients were subjected to one form of treatment, in the other, many forms of treatment were employed, because the patients were cared for by many physicians working independently. In both instances a busy house staff struggled gloriously to keep records and observations up to a standard.

Standing at a distance, one may now visualize a disease acute, febrile and encephalitic from beginning to end. Other diseases may have encephalitic features. Malaria, syphilis and typhoid may present signs of irritation of the brain, but this disease was always and chiefly encephalitis.

The onset was usually abrupt, even though one or two days may have been required to establish prostration. The onset was with pain in the front and top of the head, dull, constant, compelling and often stupefying pain. The fever was prompt in its appearance. The conjunctivae were reddened and the neck was almost invariably stiff. This should be visualized as the picture, even though minor variations may detract from the accuracy of the portrayal.

Thus, for example, some cases seemed to have presented a period of upper respiratory infection or even gastro-intestinal disorder such as diarrhea, for several days or even weeks before the onset of encephalitis. But the average patient had no preceding illness.

The infection seemed to declare its predilection for the brain at once. Fever continued to attend the development of the intracranial lesions, and the peripheral manifestations of these lesions completed the clinical picture. The manifestations of the disease as it affected the brain were both psychiatric and neurologic. After a period of twenty-four hours of severe headache the patient soon betrayed the severity of the lesion in the brain. He settled back in dull, stuporous discomfort, awaiting the abatement of the inflammation, or became confused, mildly delirious and, finally, comatose.

Added to this were the manifestations of neurologic nature, patterned by the extent and intensity of the development of cerebral inflammation. The suppression of cutaneous reflexes was conditioned by the degree of mental occlusion. The existence of abnormal responses to stimulation, such as the Babinski and kindred signs, was encountered very frequently. At the same time cranial nerve involvement was infrequent and interference with functions such as swallowing was found only in the fatal types. Abnormal pupillary reactions to light as well as generalized muscular spasticities and tremors with attending aching of these areas were the usual occurrence.

If abdominal pain, nausea and vomiting were complained of, these complaints were not a matter of surprise, occurring as they did in about 20 per cent of the cases. Perhaps the inflammation of the duodenum occasionally seen at autopsy has an explanatory connection.

An influenza-like pneumonia was common in all the fatal cases. Retention of urine was naturally frequent in a disease in which stupor was so common.

The fever was not of a type that lends itself to popular description. In any epidemic, the cases that terminate early most likely present the purest expression of febrile effects. If this is true, the fever curve of epidemic encephalitis spans four or five days, is sustained and is without remissions. In many mild cases, however, remissions occurred with some relief from symptoms as well followed in a few hours by the pre-

viously high temperatures. The peaks usually reached levels of 103 to 105 F. In those cases in which the disease and its fever were protracted, it still seemed possible to detect a tendency to relief at the fourth or fifth day.

In this connection the leukocytosis is interesting. In the simple cases of short duration, no disturbance was noted in the number and kind of leukocytes. But in the cases that were prolonged, leukocytosis was common, the commonest level being between 10,000 and 15,000 cells per cubic millimeter. Even at this level there were no significant qualitative changes. Since so many of the patients were adults between 50 and 70 years of age, with numerous concomitant infirmities and disorders, this irregularity in the number of leukocytes may perhaps be taken as representing the influences of factors other than those due to the encephalitis.

The other examination made in the laboratory which is of diagnostic meaning was the examination of the spinal fluid. This fluid was usually under little or no increase in pressure. The globulin was present in the spinal fluid in 70 per cent of the cases in this series. The large majority of cases showed increases in the amounts of sugar to levels between 60 and 100 mg. Nearly all fluids presented an increase in cells, the greatest number showing counts between 50 and 100 cells. Ninety per cent of these cells were lymphocytes. In a series of ninety-nine cases so examined, a tabetic gold curve was encountered in eighty-seven cases. There were no other laboratory tests of importance.

The average patient was well in ten days. In the comprehensive report of the Metropolitan Health Council, covering a study of 986 patients who were treated in hospitals, recovery is described as surprisingly rapid and complete. While the devastating sequelae not infrequently seen after lethargic encephalitis did not follow this type of encephalitis, nevertheless a survey made by one of us (G O B) revealed a surprising amount of minor disabilities, which in the vast majority of cases did not prevent the patient from returning to work or to school. Among their disabilities, muscular instability, "shakiness" and a tendency to headache were the most common.

In children, the disease presented a milder display of symptoms and signs, and the death rate was lower. Occasionally, however, a fulminating disease, terminating fatally in forty-eight hours, was seen. In general, the disease was as easily recognized in children as it was in adults.

As for differential diagnosis, it was emphasized in the beginning that, if the entire pattern of the disease was considered, it would be seen that the chief confusion lay in differentiating an encephalitic "episode" or "phase" of a disease like malaria, typhoid or syphilis from this type of encephalitis. The data obtained from the laboratory, viz., the finding of plasmodia, the occurrence of a positive test for syphilis or the discovery of a positive Widal test or blood culture, were the points on which differentiation rested. It would be more difficult to separate this disease from lethargic encephalitis. However, in all cases the serum of a patient with this type of epidemic encephalitis will contain protective substance against the lethal dose of known infected material when injected simultaneously in the cranium of a white mouse. This is the final and best test. By this test this disease has been said to be distinguishable from the disease that occurred in Japan.

The death rate in the 786 cases studied by the Metropolitan Health Council, including the 215 cases

embraced in this report, was within a decimal point of 20 per cent. A study of the mortality rates in different groups is valuable in discussing the treatment.

Many types of treatment were employed. In private hospitals particularly patients were treated according to the various concepts of the problem which many and various physicians entertained.

Besides symptomatic relief, patients received mercurochrome intravenously, transfusions of blood, and even intravenous injections of spinal fluid. The items of treatment that were constantly indicated were: 1. Spinal puncture for diagnostic purposes and for the relief of headache. 2. Administration of fluids, usually under the skin. 3. Administration of liquid food, by nasal tube, if necessary. 4. Absolute rest and, if necessary, sedation by morphine. The best treatment consisted in placing the patient in a darkened room, free from noise and free from too frequent ministrations by nurses or doctors. Then the essential features of treatment as outlined were observed. In a series of 129 cases treated exclusively after this plan at Firmin Desloge Hospital, the death rate was only 12 per cent, and the age distribution and the number of severe cases in this group were identical with the other groups in the total number of 786 referred to.

The chief lesson we learned of the treatment of epidemic encephalitis was that the lowest death rate attended the most conservative treatment.

Beaumont Building

#### ABSTRACT OF DISCUSSION

DR J P LEAKE, Washington, D C. I hardly think that this can be just the same disease as the encephalitis of von Economo, which was prevalent from 1918 to 1923. It is a more acute affair and has much less in the way of sequelae. In the outbreaks in Japan, particularly those of 1912, 1919, 1924 and 1929, physicians are indebted chiefly to Dr Webster and his colleagues of the Rockefeller Institute for neutralization results. It is true, as Dr Kinsella said, that the neutralization tests were negative with serum obtained from Japan, which would indicate that these Japanese cases were of possibly a different strain. However, the clinical and epidemiologic characteristics of those epidemics are so nearly the same as what occurred within the St Louis area and radiating from there, that that result will have to be taken under consideration. Dr Armstrong of the National Institute of Health has also conducted neutralization tests and will not report until he has completed and checked from what source the serum comes. The Japanese serum did not come in question here. It is possible that serum obtained from such a distance may lose its neutralizing properties. Dr Kinsella has spoken of a remarkable low death rate, 12 per cent. It may well be that that was due to careful handling and, as he says, absence from too much therapeutic interference. It would seem that the results as a whole in St Louis might have been influenced by the way the cases were handled. About 95 per cent of all the cases in the epidemic in St Louis City and County, 1,100 cases, were hospitalized. That is due to the recommendations and assistance of Dr Brady and Dr Sante, the assistant health commissioner of St Louis City, and health authorities of St Louis County and Dr Musser of the state board of health. The isolation was only for three weeks, which, although cases might be considered a source of spread of infection, as the epidemiology showed, was not of great importance. There were relatively few multiple cases in one household. Still it did keep the patients quiet and under good medical attention. The largest death rate from the epidemic in Japan was 50 per cent in 1924 and 57 per cent in 1927. In the epidemic in Paris, Ill., the year before the St Louis epidemic, the death rate was 37 per cent. In St Louis as a whole it was only 20 per cent. It is possible that low result was due to that method of handling. The great proportion of the cases of von Economo did

present some sequelae and those sequelae were largely of an organic type. Parkinsonian or behavior disorders were prominent. Those things didn't occur after the epidemics in Japan, St Louis and Paris, Ill. It is too early to speak with great certainty about the St Louis epidemic. In going over the Paris, Ill., cases fifteen months later, however, there was a notable absence of such sequelae. Those that Dr Kinsella mentioned were more of the neurasthenic type. Only 18 per cent of the cases in Yokohama, Japan, showed any sequelae within twelve months.

## ENDOCRINE DWARFISM

WILLIAM ENGELBACH, MD

AND

ROBERT L SCHAEFER, MD

DETROIT

The problem of diagnosis and treatment of statural undergrowth, or dwarfism, rightfully belongs to the general practitioner and pediatrician. One has but to study the normal growth increment curve in the human

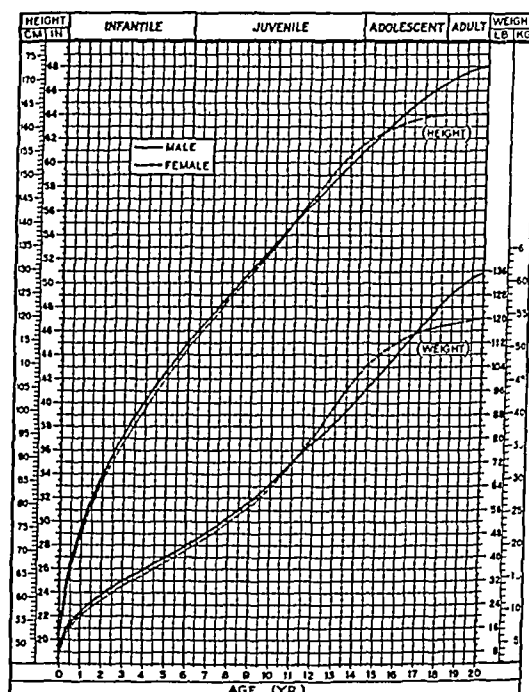


Fig 1—Optimal height weight curves

being for this proof. It testifies to the fact that approximately 50 per cent of the total growth has been attained at the age of 3 years. Its increasing plateau diminishes rapidly as adolescence or sex maturity is attained. It logically follows that diagnosis and adequate treatment during the infantile and early juvenile periods should give greater therapeutic results.

There is an abundance of experimental evidence that the factor concerned in somatic growth is produced by the eosinophilic cell of the anterior lobe of the hypophysis. By this is meant that every structure of the body, from an individual cell to the constitutional whole, is involved.

The three postulates of hormonology, the therapeutic side of endocrinology, are completely fulfilled in the

This work was initiated previous to the death of Dr Engelbach Nov 22, 1932.  
Read before the Section on Pediatrics at the Eighty-Fifth Annual Session of the American Medical Association Cleveland June 14 1934

laboratory This is demonstrated by the fact that immature animals are dwarfed by hypophysectomy Adequate replacement therapy in their instance will again bring about normal growth An excess of this substance given to normal animals is capable of producing gigantism or acromegaly

Of more interest to the profession and just as convincing is the clinical proof adduced from two abnormal pictures, both due to an eosinophilic adenoma of the

The results reported were obtained with the injections of such an extract<sup>1</sup> Injections of 2 cc three times a week were given intramuscularly No untoward results were at any time noted

As indicated in table 1, originally seven cases were selected as being suitable for treatment after a diagnostic survey had been done to rule out nonendocrine disease so far as possible No alteration in diet was suggested These patients were selected from families who were

TABLE 1—Endocrine Growth Development Favorable Response

Case	Sex	Before Treatment								After Treatment				Comment
		Age		Normal Variations			Length of Control Period Mo	Change in Height During Control Period	Osseous Development	Type of Deficiency*	Duration of Treatment, Mo	Height Inches	Gain in Height, Inches	
				Actual Height Inches	Min mum Inches	Max mum Inches								
1	♂	13	6	55.0	57.8	61.8	4	None	Normal	—P	3	56.5	1.5	B M R 0%
2	♀	15		58.7	60.4	64.6	2	None	Slight advance	—TP	3½	59.7	1.0	B M R —12%
3	♂	11		47.5	53.3	57.1	3	None	Delay 4 years	—TP	4½	50.2	2.7	No B M R marked subjective improvement chondro epiphysitis
4	♀	9	5	42.7	50.1	53.7	2	None	Delay 3 years	—TP	3½	44.2	1.5	Marked subjective improvement chondro-epiphysitis enlarged thymus
5	♂	18	6	52.5	64.9	69.3	5	Gain of 0.5 inch	Delay 3 years	—PT	5	55.7	2.7	B M R —20%
6	♂	14	7	52.0	59.5	63.7	2	None	Delay 2 years	—PT	3½	54.7	2.7	B M R —10% mentality improved
7	♀	7	4	36.7	45.2	48.4	6	None	Delay 1 year	—P	3	38.5	1.8	B M R —7%

\* —P denotes hypopituitarism —TP, hypothyropituitarism and —PT hypopituitarothyroidism

anterior lobe of the hypophysis The first is that of gigantism in which the hyperfunction occurs before adolescence, or epiphyseal closure, resulting in proportionate gigantism The second is that of acromegaly due to a similar hyperfunctioning adenoma that occurs after adolescence and, consequently, after epiphyseal closure The overgrowth, then, does not result in a statural increase in height but effects those bones which derive their growth from the periosteum, such as the bones of the face and vertebrae

Evans and Long in 1921 first recognized and demonstrated this hormone Their preparation was a saline

capable of furnishing an adequate diet The individual protocols are detailed in our preliminary report<sup>2</sup> In the gross, their histories over a protracted period of time suggested a stationary or very minimal growth To reemphasize, this table also reveals that they were under a control period of from two to six months, during which time no increase in height was noted except in case 5, and this was only half an inch To rule out the specificity of thyroid extract as being capable of producing growth, four of the seven patients exhibiting signs of hypothyroidism were given thyroid extract to tolerance during this period of control The

TABLE 2—Endocrine Growth Development

Case	Age		Sex	Actual Height Before Treatment Inches	Duration of Treatment Months	Present Height Inches	Gain in Height Inches	Osseous Development	Comment
	Yr	Mo							
3	12	6	♂	47.5	1½	52.2	4.7	Advance	Improvement of chondro epiphysitis Improved generally more alert attitude Increased activity Improvement in gait
4	10	9	♀	42.7	14	46.0	3.3	Advance	Marked general mental and physical improvement
5	20	4	♂	52.5	15½	59.0	6.0	Not reported	Improved generally Increased appetite and activity
7	9		♀	36.7	14	40.5	3.8	Slight advance	Improved generally more alert more active Increased appetite excellent health past year

suspension of finely ground anterior beef pituitaries Since then improvements in preparation and extraction of this hormone have been made Putnam, Teel and Benedict in collaboration with Bugbee, Simond and Grimes salted out the protein fraction and demonstrated that the growth principle was contained in it This precipitate was dissolved in two-hundredths normal sodium hydroxide Butyl alcohol was added as a preservative It is gland specific, never having been obtained from any other tissue It is not entirely thermostable

recent work of Smith<sup>3</sup> demonstrates that immature animals dwarfed by hypophysectomy grow more rapidly if thyroid extract is given in combination with the

1 The therapeutic agent used in this study was Antutrin G This is a product not yet commercially available and was supplied to us by the Research Laboratory of Parke Davis & Co for a preliminary research test The letter G is used to differentiate the growth from the sex factor

2 Engelbach William Schaefer R L and Brosius W L Endocrine Growth Deficiencies Diagnosis and Treatment Endocrinology 17 250 (May June) 1933

3 Smith P E Increased Skeletal Effects in A P Growth Hormone Injections by Thyroid in Hypophysectomized Thyroparathyroidectomized Rats Proc Soc Exper Biol & Med 30 1252 (June) 1933

growth hormone than those animals dwarfed in the same manner and treated with the growth hormone alone

Patients 1 and 2 exhibited no further growth after their initial stimulation, although treatment was carried on for a considerable period of time. They displayed a normal or advanced roentgenographic study of osseous development. They were at or approximating adolescence or sex maturity. This study of the normal growth increment curve reveals that epiphyseal closure and sex maturity are coincidental phenomena at this epoch of life. This suggested that there is an antagonism between the sex and growth hormones of the anterior lobe of the hypophysis. This belief is further substantiated clinically in patient 2, in whom normal rhythmic periods had been established at 12 years and continued to 15. The administration of this substance produced two periods of amenorrhea. In an additional case, not cited in the table, a male dwarf, aged 32, displaying normal libido and potentia, became temporarily impotent during his period of treatment. It is our theory that epiphyseal closure is dependent on gonadal development and consequent hormone function.

In case 6 there was a moderate genital aplasia, and roentgenographic study for osseous development showed retardation. His growth of 27 inches was termed a favorable response, but further cooperation could not be obtained and treatment necessarily was discontinued.

Four cases outlined in table 2 have been under treatment continuously for over a period of from fourteen to fifteen and one-half months. The increase in statural growth was from 3.3 to 6 inches. All of the patients received thyroid extract in therapeutic doses together with the growth substance with the exception of patient 7, who received the growth substance alone.



Fig 2 (case 3)—Condition of knee A before treatment, B fifteen and one-half months after treatment

COMMENT

If one bears in mind the control period of observation without treatment and the history of a lack of growth over a long period of time, it is not unwarranted to assume that the therapeutic response has been due to the specific medication administered. These four cases all demonstrated a definite retardation in roentgenographic studies for osseous development, the delay vary-

ing from one to four years. Nine out of sixteen cases observed, in addition to the delay in osseous development, presented another significant roentgenographic finding. This has been previously termed chondro-epiphysitis. It is more or less generalized, involving from a few to all of the developing epiphyses and osseous centers. This is characterized by a fuzzy,

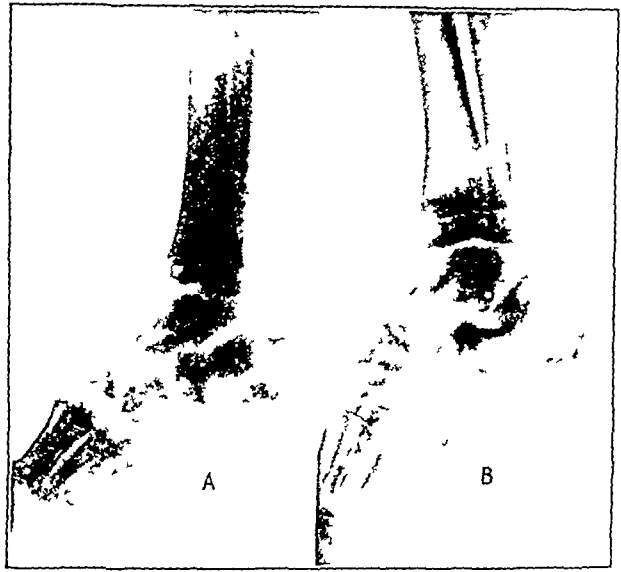


Fig 3 (case 3)—The ankle A before treatment B after treatment

ragged, poorly outlined appearance together with decreased bone density. Treatment produced an advance in osseous development, as can be seen in figure 2. The abnormal appearance of these developing osseous centers has almost approached the normal. Figure 3 was diagnosed roentgenologically as Köhler's disease, a similar type of disturbance involving the scaphoid and tarsal bones of the ankle. The comparative roentgenograms after treatment revealed a complete return to normal. This suggests the possibility that Köhler's disease, Osgood-Schlatter's disease, Perthes' disease and similarly allied conditions showing these chondro-epiphyseal changes in the growing child are not inflammatory in character but are due to an incretory imbalance.

These cases have recently displayed little or no further growth during a period of from three to five months, although the same dosage and number of injections were employed. This was rather disconcerting, but biologic assay revealed that the material we had been using over this period of time had lost its potency entirely. We are prone to view this as additional evidence that previous stimulation was entirely specific and, in addition, that this extract is not thermostable. It should further serve as another period of control without treatment.

SUMMARY

- 1 To secure results, diagnosis and treatment of dwarfism should be made early.
- 2 The extract employed does contain the growth hormone.
- 3 The work of Smith indicates that thyroid extract is a valuable adjunct in this form of treatment.
- 4 The cases giving the most favorable response displayed a delay in roentgenographic study of osseous development.

5 Sex maturity and epiphyseal closure, coincident phenomena, preclude further stimulation of statural growth

6 The chondro-epiphyseal changes described are not uncommon in this type of individual, and it is suggested that they are not inflammatory but endocrine in origin

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### ABSTRACT OF DISCUSSION

DR ROY G. HOSKINS, Boston Such a study as this is beset with difficulties. The first is the nuisance of the needle. Another is the uncertainty of potency and composition of the growth preparations now available. A third is the propensity of growth to occur in spurts at different ages in different individuals. The interpretation of the data necessitates consideration of this growth spurt—the possibility that it has been delayed and would have occurred spontaneously without any medication whatever. As a revulsion from the disgraceful shotgun pharmacy that has been employed a great deal in endocrinology, the feeling has grown up that an attempt should be made to reacquire some sort of scientific chastity and use only one hormone at a time. But in the treatment of growth deficiency by pituitary extracts, the thyrotropic and the supra-renalotropic principles must be used in addition to the growth hormone. Insistence on single gland medication in such cases is a sort of fetishism. In the practical management of these cases, different preparations that may be effective should be used. That is indicated, among other things, by the fact that after a while a resistance to any one preparation may be built up. The patients cease to react so well, or they may cease to react at all to the growth preparation. The explanation probably lies, as demonstrated, in new work at Collip's laboratory which suggests that the use of these hormone preparations induces in the body the production of antihormone substances, hence, after a time the material ceases to be effective. In cases such as Dr. Schaefer reports it is desirable when "growth extract" begins to be ineffective, to shift to thyroids and then

use of the growth hormone, as does the sugar of the blood with the use of insulin. Recent work in Collip's laboratory shows also that there is a very important relationship of the "growth hormone" to calcium metabolism. Speaking now from the standpoint of endocrinology in general, I hope that Dr. Schaefer and others pursuing this type of research will have the time and the inclination to make careful studies of the psychology of the situation. The human being is not

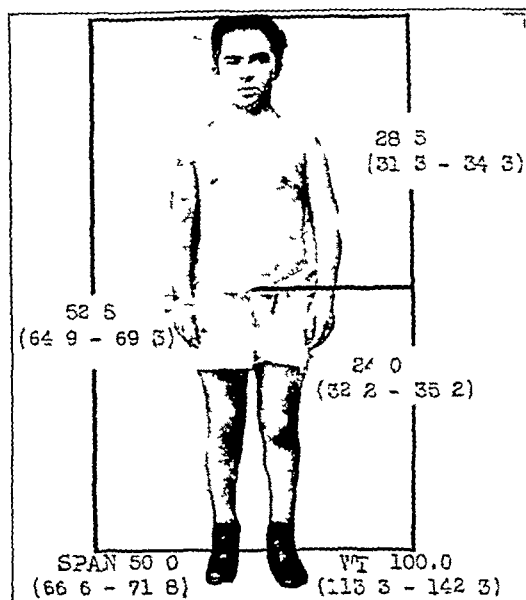


Fig 5 (case 5)—A youth, aged 18 years 6 months. Measurement of head 21 inches (22.4 optimal), chest 29.5 inches (34.1 optimal), abdomen 29.7 inches (28.4 optimal)

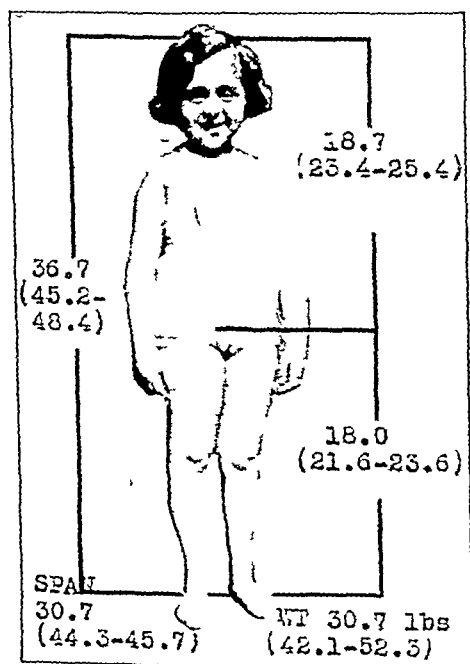


Fig 4 (case 7)—A girl aged 7 years 4 months. Measurement of head 18.5 inches (20.3 optimal), chest 19.5 inches (22.7 optimal), abdomen 19 inches (20.5 optimal)

perhaps to glycerine extract of suprarenal cortex. The underlying physiology of Dr. Schaefer's study is important. The work of Lee is making it appear that the pituitary growth hormone is the regulator of protein metabolism *par excellence*. The nonprotein nitrogen of the blood seems to vary with the

merely a collection of viscera and of interest, therefore, only as a physiologic specimen. The thing that gives meaning to this collection of viscera is the personality of the individual. The most difficult phase of endocrinology and one that now especially demands serious research is the effect of various hormones on personality and mentality.

DR MURRAY B. GORDON, Brooklyn In a recent study of about 1,000 children from the point of view of mentality, there were 529 with endocrine disturbances, and of these forty-seven were instances of anterior pituitary deficiency of growth. The children in this group were the most intelligent of the entire endocrine group. Nineteen per cent of those with anterior pituitary deficiency showed mental retardation, as against 97 per cent in childhood myxedema and 36 per cent in other pituitary conditions. In a developmental study, normal children with anterior pituitary deficiency of growth began teething at 9.3 months, walking at 15.06 months and talking at 16.97 months. In other words, a child with anterior deficiency of growth and normal mentality will teethe, walk and talk later than one with adipsogenital dystrophy and thyropituitary obesity but probably not earlier or later than one with hypothyroidism. A child with mental retardation and anterior pituitary deficiency will teethe and walk later than one with any other endocrine condition with exception of childhood myxedema and marked instances of hypothyroidism. There were several points not covered in the differential diagnosis between hypothyroidism and anterior pituitary deficiency of growth. In hypothyroidism, the outstanding features are delayed carpal development, low basal metabolic rate and high blood cholesterol. In anterior pituitary deficiency the specific dynamic action is lowered or absent, the basal metabolic rate may or may not be lowered, depending on the involvement of the thyrotropic hormone, and blood uric acid and blood chlorides are high in values. With regard to the general treatment of anterior pituitary deficiency of growth I must confirm the statement of Dr. Schaefer and Dr. Hoskins that how much of the increase in growth following combined treatment is due to the thyroid extract and to stimulation of the thyrotropic hormone of the anterior pituitary



gland is not known. It has been found empirically for the past twenty years that many patients with anterior pituitary deficiency, thyroepituitary obesity or adiposogenital dystrophy did much better when thyroid extract was given in conjunction with pituitary preparations. I now feel that this was due to stimulation of the thyrotropic element of the anterior pituitary gland. As to the question of treatment in mental retardation, I found that 66 per cent of the patients in the anterior pituitary deficiency group showed an improvement in the mental condition.

DR ROBERT L. SCHALFER, Detroit. There are fallacies in every human growth increment curve. It was shown only to emphasize the fact that diagnosis in endocrine statural undergrowth should be made before sex maturity or the coincident thing, epiphyseal closure. It stands to reason that, if epiphyseal closure has been effected, no increase in statural height can be attained. If the growth hormone is then given and is of sufficient potency, the therapeutic result would be an abnormal one. Those osseous structures which derive their growth from the periosteum would be stimulated, in other words, a state resembling acromegaly might be produced. Glandular interrelationship, as Dr Hoskins has pointed out, is a broad subject. While considerable of definite clinical value is known, it cannot be discussed in brief. As to the psychologic aspect, such as mental retardation, none of these cases displayed any signs. They were all normal mentally, two bordering on precocity. That there is a definite relationship between the pituitary and thyroid, I believe. In study of the hypopituitary type of individual over a period of years I have very often seen that he is born with a normal mentality but that as the pituitary failure advances and the subthyroid factor becomes more pronounced mental retardation will intervene unless adequate treatment is given.

## DIAGNOSTIC FACTORS CONCERNING HERPES ZOSTER OTICUS

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Many otitic and intracranial conditions are simulated by the various manifestations of herpes zoster oticus. It may therefore not be without interest to review its etiology and pathogenesis up to the present, indebtedness to the pioneer studies of Ramsay Hunt,<sup>1</sup> Frank Dennis,<sup>2</sup> and W. H. Sears,<sup>3</sup> being kept in mind.

Knowledge of the nature and effects of the herpetic virus has lately been amplified by extensive immunologic study. It seems now pretty well agreed that the infectious agent is a filtrable virus, entering probably by the nose or nasopharynx, not by the skin.<sup>4</sup> This specific pathogenic agent becomes localized simultaneously in ectodermal structures—the skin and mucous membrane—and in the tissues of the sensory nervous system. It may travel from the cortex to the periphery or vice versa, vaccinating the neural structures along which it travels, which serve as its culture medium.

Theories of the pathogenesis of herpes zoster have entirely changed, it is no longer considered to be a ganglionitis alone but rather an ascending or descending

infective process due to a specific filtrable virus with definite serum reactions and antibody production.<sup>5</sup> In the affected nerves, lesions ranging from inflammation to hemorrhage and actual necrosis are found not only in ganglionic structures but also along the nerve sheaths to the periphery, and ascending even into the medullary nuclei, some report involvement of the cortical region concerned.<sup>6</sup> Histologically, the external manifestations observed are lesions of ectodermal structures due to selective action of the virus on the peripheral sensory neuron.<sup>7</sup>

Predisposing factors seem to include excessive heat or cold, exposure, severe physical trauma, nervous shock or exhaustion, and sudden loss of endocrine equilibrium. Granulomatous ailments such as tuberculosis and syphilis seem to increase the vulnerability of peripheral neurons to the specific toxin of this disease.<sup>8</sup> It has been suggested that chronic septic states caused by long-standing colonic stasis, cholecystitis, dental apicitis or nasal sinusitis may similarly facilitate meningeal invasion by the herpetic virus.

Certain recent work in immunity raises the question of the transportation of this virus by connective tissue phagocytes (histiocytes), themselves not injured by its effects, along meningeal lymph channels or tissue spaces, but this has not yet been demonstrated.

Much discussion has taken place concerning the alleged kinship of the virus of chickenpox with that of herpes zoster, the latter being predominantly a disease of mature individuals.<sup>9</sup> Some consider herpes zoster to be due to the reactivation of a latent chickenpox virus by added toxic or infective stimuli. But zoster is not contact transmissible, nor does previous varicella immunize against herpetic disease. While Goodpasture and Teague<sup>10</sup> in 1923 decided that zoster was merely a virulent form of simple herpes, Levaditi and most of the recent investigators, including Olitsky of the Rockefeller Institute, are convinced that herpes zoster is due to a specific and distinct virus.<sup>11</sup> So far, it has not been inoculable into animals or man, while herpes simplex may be readily transferred by special methods.<sup>12</sup>

The skin lesion of herpes zoster, a vesicle, resembles that of smallpox but contains more exudate, it is due to intercellular edema with local necrosis and the appearance of Unna's "balloon" cells, large, swollen and multinuclear. Late skin changes include a thickened stratum corneum and proliferation of pigment cells, with depressed fibrotic zones when secondary infection has occurred.<sup>4b</sup>

The peripheral nerves at first show lymphocytic infiltration and small hemorrhages in their interfibrillary spaces. So-called oxyphilic inclusions—"herpetic bodies"—are later found along the nerve sheaths, with

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myelin degeneration, followed by regenerative changes on recovery<sup>13</sup>

The sensory ganglions show both interstitial and periganglionic round cell infiltration, occasionally with necrosis arising from severe congestion. Later, chromatolysis with atrophy, vacuolization and disappearance of ganglion cells may occur, followed by fibrotic capsular proliferation. The axon cylinders may become swollen to ten or fifteen times their normal size. Still later, fibrous changes occur, with histiocytes and fibroblasts carrying on the work of repair. Similar changes are found in the nerve roots and meningeal coverings involved. Postmortem reports on a few cases complicated by facial palsy disclose wallerian degeneration, especially below the geniculate ganglion, and, possibly owing to a retrograde process, involvement of the seventh nucleus has been found<sup>14</sup>.

Symptoms and signs, in addition to vesicle formation (which may be limited to the posterior wall of the external auditory meatus or to one or two small lesions on the concha or mastoid), include pain, which may rarely disappear on drying of the vesicles but usually lasts weeks, occasionally months, an enlarged preauricular lymph node (occasionally mastoid, cervical or parotid), loss of local tactile sensibility, and sometimes vesicles on the anterior two thirds of the tongue, the anterior pillar or soft palate of the same side. Facial paralysis may supervene four or five days after, rarely coincidental with or preceding the eruption. Extensiveness or depth of vesiculation has nothing to do with the advent of paralysis. Pain accompanying facial palsy should always suggest herpes zoster.

Vestibular and auditory symptoms—moderate vertigo, slight deafness or buzzing noises—may precede the eruption by several days or appear simultaneously. Transitory in character, the dizziness is usually more annoying than the hearing disturbances.

Various combined nerve involvements have been reported both facial and auditory nerves, one branch of the fifth, the first cervical, and, rarely, one intercostal nerve along with various cranial divisions<sup>15</sup>.

#### REPORT OF CASES

Classification of the symptoms may perhaps be facilitated by brief reports of three typical cases recently observed.

CASE 1—A woman, aged 36, somewhat neurotic, had noticed for two days a slight tingling and itching of the inner surface of the concha and posterior rim of the external meatus. Slight serous discharge had followed rubbing of this area with cotton. She complained of a slight buzzing in the ear but no loss of hearing. Seven herpetic vesicles, either drying or with their tops rubbed off, were found at the junction of the concha and the external canal, two being just inside. The posterior half of the tympanic membrane was slightly pinkish. These lesions healed in two days with dithymoldiodide dusting powder.

CASE 2—In a robust man, aged 42, accustomed to outdoor work, the condition came on forty-eight hours after severe exposure of his hatless scalp for an entire day to the summer sun. The next day he complained of some headache but kept on with his unusually heavy work. That night his headache became so violent that he became irrational, with a temperature of 101.6 F, requiring restraint and hypnotics. Before the

latter could take effect, however, thorough cocainization of both sphenopalatine areas of the nose was done, because of the retro-auricular localization of the pain. This gave him immediate relief, and he became quiet and tractable. Hearing was but slightly affected, although both tympanic membranes were pink. There was marked dizziness, however, with spontaneous rotatory nystagmus on abduction to either side, this was almost gone in forty-eight hours more. There was marked venous engorgement of both optic disks at first, disappearing after the first day. No herpetic vesicles were found on the anterior surface of either pinna or within the meatus, however, both ears showed a crop of from twenty-five to thirty vesicles over the back of each pinna, with three on the skin over the left mastoid. Additional herpetic vesicles were noted on the right ala nasi, about both angles of the mouth, and on the right side of the soft palate. Hearing loss or facial asymmetry was not noted at any time.

After rapid saline purgation and the local use of alcohol-acetone solution of metaphen 1/200, with daily shrinkage of the sphenopalatine regions, the vesicles were gone in three days, and the patient went to work after eight days.

CASE 3—A woman, aged 45, referred by the medical and neurologic services in Multnomah Hospital for diagnosis, had been having a temperature of from 101 to 102 F for several days, with swelling and tenderness back of one ear suggesting erysipelas. Roentgenograms showed slight blurring without loss of trabecular sharpness. The external meatus was almost swollen shut and the tympanic membrane was deep red, but hearing was almost normal. A constant deep boring pain behind the ear had suggested the idea of a fulminant mastoid, there was a history of otitis media in early childhood. After five days the face became paralyzed, remaining flaccid nearly nine weeks thereafter. Synchronous taste disturbances were noted on the back part of the tongue on the same side. But following the palsy, dizziness was the chief complaint for several days, there was also slight and transitory hearing loss, with the Weber test referred to the opposite side.

Several drying vesicles were found on the mastoid skin, behind the swollen concha and along the posterior meatal wall. An intercurrent bronchopneumonia kept her temperature high for ten days. Making the diagnosis of herpes zoster oticus, my service refused either a myringotomy or a mastoid operation. Under use of alcohol-acetone metaphen the skin swelling was gone in two weeks. Pain in the mastoid region running to the top of the head remained a most disagreeable feature for almost twelve weeks.

Here is seen, first, the very mild and superficial affair simulating an eczema, secondly, the furiously severe type with meningeal symptoms, but little local annoyance in spite of very extensive skin lesions in several nerve areas, and, thirdly, dermal manifestations resembling erysipelas followed by facial palsy, with severe mastoid pain and without meningeal symptoms.

I have not seen any of the cochlear-vestibular symptom complexes, often very severe and showing 11 per cent facial paralysis in the French series last reported<sup>16</sup>. These may show either much deafness, much dizziness, or both.

Based on these four clinical forms, differential diagnosis may be considered from several angles. First, the diffuse and painful swelling over the mastoid, concha and posterior wall of the external meatus, prior to the appearance of herpetic vesicles or after such vesicles have dried up or coalesced into open ulcers, must be distinguished carefully from other causes of similarly painful edema. Obviously, periosteal swelling from mastoiditis will show deep tenderness on pressure of the antrum and blurring of cell outlines in the roentgenogram. Edema from furunculosis, aside from the classic pain on traction of the pinna, will show definite tender swellings within the canal, often anteriorly. Eczema or pyoderma about the canal lacks the severe neuralgic pain of herpes zoster. Erysipelas

<sup>13</sup> Rebattu Mounier Kuhn Dechaume Bonnet and Colrat<sup>4</sup> Lipschutz<sup>5</sup> Centralbl. f. Bak. 93 361 (Nov.) 1924.  
<sup>14</sup> Rebattu Mounier Kuhn Dechaume Bonnet and Colrat<sup>4</sup> Marinesco<sup>6</sup> Lhermitte and Vermes<sup>7</sup> Faure and Dechaume<sup>8</sup> Lipschutz<sup>5</sup> Ri<sup>9</sup> and Sol<sup>10</sup> De la nevrite zosterienne Encéphale 28 380 (May) 1933 (bibliography).

<sup>15</sup> Browne<sup>11</sup> Rebattu Mounier Kuhn Dechaume Bonnet and Colrat<sup>4</sup> Pardee<sup>12</sup>

shows a higher temperature, from 101 to 104, rather than from 99 to 101 in herpes zoster. Its raised, subdermal lymphatic invasion, brawny and reddened, will speedily clear up the diagnosis. But occasionally bullae form over the mastoid or pinna in erysipelas, usually irregular in form, not small rounded vesicles as in herpes zoster. Such eruptions may cause much confusion for a day or two.

Within the auditory meatus, acute eczema or pyodermic lesions arising from fissures may suggest eroded herpetic areas, but the fissure concerned will always be found, after removal of crusts, and no vesicles will be noted on the back of the pinna or mastoid. Lesions from herpes zoster cannot be confused with the red, crusted, intertriginous fissuring of eczema between the pinna and its attachment to the mastoid skin.

Fungoid invasion of the meatal epithelium does not attack the pinna, although eczema, fissuring and erythema caused by the acrid discharge of various ringworm and mold invasions may be momentarily confusing. Musty smelling soft gray masses in trichophytosis or dry and powdery crusts in aspergillosis, filling the lumen of the canal, without vesicular lesions or neuralgic pain, remove any doubt. Myringitis bullosa lacks the characteristic pain of zoster and shows no skin vesicles.<sup>16</sup>

In the absence of middle ear infection, facial paralysis accompanied by severe pain suggests certain remote possibilities. For example, after an accident in which basal fracture or tearing of meningeal vessels has led to hemorrhage about the internal auditory meatus or within the tympanic cavity, facial paralysis may show up hours or even days after the injury, and tension of the dura across the gasserian fossa may produce associated pain of severe degree. But this history of direct violence is almost unheard of in herpes zoster oticus. Exposure, when it is a factor, is usually to sun and wind, during a long motor ride or work outdoors, occasionally this occurs when the patient goes out into sharp weather after some debilitating illness, notably syphilis. The action of chilling of the mucosal surfaces in facilitating invasion through the nose by lowered resistance to the herpetic virus deserves experimental study. Lesions of the seventh nerve from tumors or cysts at the cerebellopontile angle present definite vestibular and ocular symptoms which are constant, slowly increasing and usually painless. Vestibular and cochlear phenomena in herpes zoster are transitory, show up early and are always coupled with pain whether facial palsy is present or not.

When there is doubt concerning the presence of herpetic lesions with facial palsy, it is interesting to recall that Aitken and Brain, following Netter's preliminary studies, have recently discovered a specific antibody in the blood of eighty out of eighty-two convalescent zoster patients.<sup>17</sup> Eight cases of facial paralysis with a history of eruption gave a positive complement fixation to this antibody, while of twenty-two palsies without eruption eighteen gave negative complement reactions, two partially positive, and two positive. From the standpoint of prognosis, since zoster paralyzes due to swelling about the geniculate ganglion are almost all transitory, this test seems to afford a valuable aid

Disturbance of other nerves than the seventh and eighth is uncommon. Nevertheless in those cases of herpes zoster associated with marked meningeal symptoms (the so-called encephalitic type), numerous other nerves of either side may be involved, notably the maxillary and mandibular divisions of the fifth. Thus palatal, nasal and labial herpes may accompany herpes zoster oticus, usually at the start, activated apparently by the same dose of virus in adjacent regions of the medulla. Disturbance of taste without facial palsy and, very rarely, slight involvement of the forehead from the ophthalmic fifth<sup>18</sup> have been reported but are of brief duration. Certain observers bring up the question whether synchronous invasion of motor nerves along with that of the sensory pathways may not occur, but the usual delay of several days in motor symptoms speaks for the generally accepted opinion that such involvement is due to secondary pressure on and infiltration of motor nerves passing through the bony canals, foramina or dural envelops concerned.<sup>19</sup>

Symptoms referred to the brain and meninges—violent, boring or band-like headaches, often with transitory rise in temperature and mental irritability and confusion—may suggest analogies to other diseases of these structures, whenever the early external manifestations of herpes zoster have not been noted. Such conditions include intracranial hemorrhage in hypertension or thrombosis, when blood pressure is low, the prodromal stages of encephalitis or of epidemic cerebrospinal meningitis and invasion by or extension of intracranial neoplasms or abscesses. Urinalysis, blood pressure readings and electrocardiograms may be needed in the first class, lumbar puncture, disclosing pressure, high cell count or turbid fluid, may relieve the acute intracranial pressure pain of meningitis but will not allay the intrinsic neuralgia from swelling of the radicular ganglionic structures in herpes zoster. Similar transitory relief from spinal or ventricular puncture may occur in cases of tumor or abscess in which encephalograms will disclose characteristic deformation of the ventricle nearest the lesion. Also, in absence of the causatory chronic otitis or frontal sinusitis may readily be located. However, none of these difficult diagnostic procedures will be necessary if the clinician is on the lookout early and often for local signs of herpes zoster—erythema, edema, vesiculation, and superficial pain limited to the sensory distribution of the seventh nerve.<sup>20</sup>

It should be recalled that herpes material inoculated into the meninges of experimental animals causes encephalitic changes but no herpetic manifestations. Oltsky and his co-workers on filtrable viruses have repeatedly demonstrated that the neurotropic action of encephalitis virus can be changed into a dermatotropic attack by subdermal pad inoculation in animals. Stomatitis virus can thus be made neurotropic, and it will be found to pass readily from the nasal mucosa of mice to the meninges and brain.<sup>11b</sup>

It seems probable that increased susceptibility in syphilitic patients to herpes zoster may be due at least in part to blocking of the normal histiocytic defensive structures of the brain, nerves and meninges by the previous spirochetal infestation, with subsequent fibrotic changes. Similarly impaired resistance to the herpetic

16 Somogyi L. *Beitrage zum otolaryngologischem Krankheitsbilde des Herpes Zoster*. Ztschr f Laryng Rhin Otol 23 436 1932

17 Netter and Urban. Bedson S P and Bland J O W. Complement Fixation with Filtrable Viruses and Their Antisera. Brit J Exper Path 10 393 (Dec) 1929. Aitken R S and Brain R T. Facial Palsy and Infection with Zoster Virus. Lancet 1 19 (Jan 7) 1933

18 Browne. McDonald C A and Taylor E W. Herpes Zoster Oticus. Arch Neurol & Psychiat 25 601 (March) 1931

19 Browne. Rebattu Mounier Kuhn Dechaume Bonnet and Colrat. Marinesco. McDonald and Taylor.

20 Rebattu Mounier Kuhn Dechaume Bonnet and Colrat. Lhermitte and Verme. Favre and Dechaume. Riser and Sol.

virus is noted in leukemic, diabetic, arteriosclerotic and senile individuals and in those long subject to treatment with arsenic and bismuth compounds. Irritation of the skin of guinea-pigs by coal tar was a necessary preliminary to successful production of herpetic lesions by human material in the classic work of Teague and Goodpasture, they also demonstrated encephalitis and typical herpetic inclusion bodies in the brains of inoculated rabbits.

Severe pain in the facial sensory distribution, relayed at the geniculate ganglion from the great superficial petrosal and vidian nerves, may be caused by sinusitis affecting the sphenoid or posterior ethmoid, and rarely by various irritative or malignant lesions of the nasopharynx, larynx and basilar process<sup>21</sup>. Here, again, close observation will disclose no skin lesions and rarely any enlarged or painful glands, unless very severe sinusitis or a metastatic malignant condition is present. Neuralgias due to dental caries, use of arsenicals in root canals, impacted third molars, undescended cuspids, cysts, osseous tumors of the jaw and like conditions are similarly easy to segregate, if necessary by roentgenographic evidence, from the pains of herpes zoster. Obviously, interference with speech and other characteristic local conditions will rule out otalgias caused by ulcers, granulomas or neoplasms of the tonsil, epiglottis, larynx and lateral pharyngeal wall.

The management of herpes zoster oticus is symptomatic. So far, since the virus has not yet been isolated, no specific treatment is possible. The serum of cured cases has been stated to attenuate or shorten the duration of postherpetic pain. "Shock" treatment has been advocated—foreign protein injection—as well as auto-hemotherapy, from 5 to 10 cc of the patient's own blood being used intramuscularly<sup>4b</sup>. Recumbency aggravates the pain of herpes zoster, such individuals are better off out of bed unless they have a fever or other complications. Ultraviolet irradiation is found very helpful in shortening the duration of the pain.

Locally, dry open treatment with nonirritating powders or mild, quick-drying antiseptics will obviate secondary infection of the vesicles and prevent scarring.

Cocainization of the sphenopalatine region is often very helpful in cutting down pain and vertigo at the period of geniculate ganglion swelling. The middle ear should be left severely alone unless an intercurrent otitis media requires surgical measures, a very rare complication.

After the congestive stage has passed, diathermy may be tried if residual pain is excessive. Alcohol injection of the sphenopalatine ganglion and pericarotid sympathectomy have been tried, but confirmation of their good effects is conspicuously lacking.

Since the facial paralysis usually clears up within a few weeks, faradic treatment or operative procedures for decompression of the seventh nerve should not be considered until the paralysis has lasted, unchanged, for at least two or three months. Every case of Bell's palsy should be closely examined for traces of herpetic vesicles, and in case of doubt a complement fixation test against a known herpes zoster virus should be made.

It is not unlikely that many cases of herpes zoster oticus pass unrecognized, because of their close resemblance to other diseases of this region, and it is

suggested that recognized cases receive careful immunologic study, particularly in those institutions possessing apes and monkeys for experimentation. Only through such laborious and long-continued studies of the filtrable viruses will it be possible to attack this disabling and painful disease effectively.

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#### ABSTRACT OF DISCUSSION

DR HARRIS P MOSHER, Boston. It has been a long time since I have had my imagination stimulated so much. This is a dramatic disease. The story fortunately, always ends happily. There is probably no other disease in otolaryngology which simulates so many other diseases. Its mimicry is shown by the fact that in one case meningitis has to be ruled out, in another mastoiditis, and in another even fracture of the base of the skull. It has been proved that it is not the ganglion alone that is involved but all nervous tissue. It can be either an ascending or a descending neuritis. There is, however, a selective action on the peripheral sensory nerves. Experimentation has shown that the stomatic virus can be made selective for nerve tissue in mice and that it will pass from the nasal mucosa to the meninges and the brain. The most important practical point is that in patients suffering from herpes there is a specific antibody in the blood. Therefore, in case of paralysis of the facial nerve of doubtful origin not only a careful examination for vesicles but also a complement fixation test against a known herpetic virus should be made. The innocence of the outcome of herpes zoster oticus, in spite of its worrying manifestations, seems to me to have a parallel in certain ear cases in which the Gradenigo syndrome is present. Some of these cases clear up without operation, some with a simple mastoid operation, by no means all require drainage of the petrous tip. In other words, the mild cases are accompanied by an innocent toxemia of the sixth nerve and of the gasserian ganglion. I have the feeling, in the light of a few recent autopsies, that the gasserian ganglion will bear close watching. I am wondering whether more often than is supposed it does not pick up infection from the nasal sinuses or pharynx. In other words, may it not be the first intracranial structure to be infected and the starting point for infection of the dura or the deeper tissues?

DR GORDON F HARKNESS, Davenport Iowa. Dr Fenton has reviewed a condition that is rare as a clinical entity, self limited, with unproved etiology, and without any specific therapy. Its differential diagnosis demands the exclusion of a fulminating type of mastoiditis. This is not so difficult, but the rarity of herpes zoster oticus is responsible for its symptomatology not always being kept in mind and has resulted in mastoid operations being performed when the significant symptoms were improperly interpreted. With the eruption and its characteristic distribution, diagnostic errors are largely eliminated. While the facial paralysis generally follows and less commonly is coincidental, it has been reported as preceding the vesicular stage. The deafness is always predominantly that of nerve involvement. The disturbance of taste and surface eruptions on the tongue, in the area of chorda tympani distribution, are significant. Careful observation of the membrana tympani, and the absence of any perforation, are important. Finally, the roentgenogram of the mastoid should add comfort to a course of watchful waiting. It is particularly confusing to speak of herpes zoster as a posterior polyomyelitis. Particularly in the seventh nerve does one have the close proximity of sensory and motor pathways enclosed in a bony canal, so that one can readily conceive of the ease with which inflammatory reactions are transmitted from sensory to motor fibers. The cells of the geniculate, gasserian, ninth, tenth and posterior spinal ganglia are unipolar in type. Histologically they are of a sensory type. The pars intermedia or nerve of Wrisberg constitutes the posterior root of the geniculate ganglion. Parasympathetic fibers from a nidus of cells in the medulla in close proximity to the facial nucleus, leave as constituent elements of the pars intermedia, the nerve of Wrisberg. They constitute preganglionic fibers and by way of the

<sup>21</sup> Somogyi<sup>14</sup>, Sluder, Greenfield. *Nasal Neurology, Headaches and Eye Disorders*. St. Louis, C. V. Mosby Company, 1927 (bibliography).  
Fenton, R. A. and Larsell, Olaf. *The Mechanism of Pain Transmission in Certain Types of Otalgia*. Tr. Int. Cong. Oto-Rhino-Lar. Copenhagen, Jensen, 1928, p. 562.

chorda tympani and lingual nerves go to the submaxillary and sublingual glands and, by the great superficial petrosal, to Meckel's ganglion. The relief afforded by cocainization of the sphenoid cavity would tend to support the contention of Sluder that the nerve of the pterygoid canal carries afferent impulses. I cannot discuss this paper from the standpoint of the sympathetics and the parasympathetics because I have been unable to find any data that would accord these nerve subdivisions a place as etiologic factors. There are probably variants of this disease involving the fifth, ninth, tenth and cervical nerves. They are also more frequently not so recognized. In this disease, anatomic structures and contiguity of tissues endow it with a striking clinical picture. When a study of the variant types is followed as closely, physicians may be in a better position to discuss etiologic factors.

DR HARRIS H. VAIL, Cincinnati. Herpes zoster is complicated by so many factors, such as trauma, syphilis, metastatic malignant conditions of the spine, tuberculosis and fracture of the spine, surgical operations, arsenic and bismuth poisonings, acute and chronic progressive central nervous disease and senility, that Dr Fenton's presentation is timely. While I can find no fault with the author for citing the comprehensive review of Rebutt and his associates as authority for the statement that the virus of the herpes may travel from cortex to periphery or vice versa, vaccinating the neural structures along which it travels, which serve as its culture medium, my reaction is to challenge that statement. Marinesco states that the process in herpes zoster is an ascending and descending one. My interpretation of Marinesco's article is that his case was not herpes zoster, as there were neurologic evidences of thalamic disease, and postmortem examination four years after a vesicular eruption on the thigh showed active infiltration of the involved ganglions with round and plasma cells. Plasma cell infiltration is not found in true zoster. Marinesco felt that the virus of herpes zoster entered through the skin. Dr Fenton states that the virus enters probably by the nose and nasopharynx and gives as an authority F. E. Browne of Australia. As three of Browne's four patients were orchardists, I presume that arsenic insecticides were used. Arsenic poisoning was not considered nor in my opinion was sufficient evidence given to prove that the nasopharyngitis was the factor. The second case reported by Dr Fenton is interesting but hardly one, I think, of herpes zoster. Cocaine injected into the sphenoid sinus might reach the vidian nerve better than that applied to the sphenopalatine area. Paracentesis seems to be under a taboo, and in reporting his third case Dr Fenton said "Making the diagnosis of herpes zoster oticus, my service refused either a myringotomy or a mastoid operation." The advisability of paracentesis in herpes zoster oticus with a normal tympanic membrane might be argued, but there should be no argument in a case presenting a deep red tympanic membrane. Why should this simple procedure be contraindicated when it will provide a drainage outlet? Can an inflammation localized to only a small portion of the middle ear be ruled out with certainty? In all other forms of acute otitis media, paracentesis is indicated. I wish to ask Dr Fenton why it was contraindicated in his case.

DR RALPH A. FENTON, Portland, Ore. I am grateful for these discussions. In case 1, the inflammation started posteriorly and worked forward. The inflammation did not proceed from the middle ear, there was no bulging, and I refused to do a paracentesis. The patient's hearing was normal, she had no middle ear disease. If paracentesis had been done, the middle ear would speedily have been infected from the open ulcers in the back wall of the canal. The second case was definitely one of herpes zoster but was bilateral, which is rather unusual, although I have found several reports of such things in the literature. There is no question about the case having run the regular course, because these vesicles dried up quickly behind the ears and on the face. Respecting the question of relief of the pain in this man's case by shrinking the sphenoid regions, it should be realized that he was out of his head, raging about the house, only because he was a good friend of mine could I get him to sit down long enough to get probes up past the middle turbinates. Shortly thereafter he said that he felt all right and went back to bed.

## GASOLINE AND KEROSENE POISONING IN CHILDREN

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AND

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This article comprises a summary of the clinical and laboratory examinations in seven cases of gasoline poisoning and sixty-five cases of kerosene poisoning in children admitted to the Robert B. Green Memorial Hospital between October 1931 and July 1933. The ages ranged from 10 months to 4 years. A considerable number of children have been brought to the emergency room of the hospital with a history of having taken one or the other of these petroleum products. Only those showing signs of acute poisoning, however, were admitted to the hospital. Those showing very little evidence of acute poisoning were allowed to return to their homes after treatment consisting of gastric lavage and a laxative. The essentials of several of the cases are herewith reported.

### REPORT OF CASES

CASE 1—A boy aged 14 months, Mexican, was admitted in a stuporous condition. He had swallowed a "small amount" of gasoline about thirty minutes before admission. Respiration was labored (40 per minute), the pulse was 140 per minute and the temperature 98.6 F. Examination of chest revealed many medium-sized and fine moist rales throughout both lungs. He was treated by gastric lavage, caffeine sodiobenzoate and atropine hypodermically. Death occurred one hour after admission. Autopsy revealed edema of the lungs, the alveoli being filled with fibrin and serous exudate, fatty degeneration of the liver and dilatation of the stomach. The stomach contents had a strong odor of gasoline.

CASE 2—A boy aged 17 months, white, drank about an ounce of kerosene a few minutes before admission. He was acutely ill and stuporous. The pulse was 140, the temperature was normal, and the respiration rate was 32. Examination of the chest revealed numerous large moist rales throughout both lungs. Treatment consisted of gastric lavage, atropine and caffeine sodiobenzoate hyperdermically and the administration of a saturated solution of magnesium sulphate through the stomach tube after the lavage. Two hours after admission, the temperature was 106.5 F. One hour later the temperature was unchanged, the respiration rate was 56 and the pulse was too rapid to count, at which time the patient died.

CASE 3—A boy, aged 2 years, a Mexican drank 2 ounces (60 cc) of kerosene thirty minutes before admission. He was stuporous and the abdomen was greatly distended. The lungs were clear, the temperature was 100, the pulse was 128 and the respiration rate was 50. During gastric lavage, the child aspirated some of the contents of the stomach, after which moist rales rapidly developed in both lungs. He became restless and twelve hours after admission convulsions developed, which persisted until death two hours later.

CASE 4—A white boy, aged 11 months, drank an unknown quantity of gasoline thirty minutes before admission. At the time of admission he was cyanotic and comatose. The pupils were dilated and the eyes were rolled upward. The temperature was 97.8, the pulse 150 and the respiration rate 40. He had been made to vomit before he was brought to the hospital. There were many moist rales throughout both lungs. In spite of routine treatment such as previously outlined, the patient showed no improvement and died one hour after admission.

CASE 5—A boy aged 1 year, drank an unknown quantity of kerosene just before admission. He was apparently not very sick. The temperature was 101 and the pulse and respiration rates were normal. The results of examination were essentially negative. Urinalysis was negative. The white blood count was 11,000 with polymorphonuclears 70 per cent.

and lymphocytes 30 per cent. Two days after admission, coryza developed and moist râles appeared in both lungs, caused, we believe, by the development of a respiratory infection subsequent to taking the gasoline rather than to pulmonary irritation from gasoline. The temperature remained around 101 for four days and then fell to normal. The lungs cleared and the patient was discharged on the fifth day in good condition. The treatment consisted of gastric lavage at the time of admission.

**CASE 6**—A girl, aged 15 months, a Mexican, drank a fourth of a cup of kerosene four and a half hours previous to admission. The mother immediately gave the child castor oil. There was no history of cyanosis or other evidence of respiratory embarrassment. Medium-sized moist râles were heard in the apex of the left lung, and the abdomen was distended. The temperature was 101, the pulse 110, and the respiration rate 30 on admission. Gastric lavage was omitted in this case. Atropine sulphate was given by mouth. The white blood count was 12,000, with polymorphonuclears 72 per cent, and lymphocytes 28 per cent. Urinalysis was negative. The temperature dropped to normal the next day and by two days after admission the signs in the lungs had disappeared. The patient went home in good condition on the third day.

**CASE 7**—A girl, aged 16 months, a Mexican, was admitted to the hospital three hours after drinking an unknown amount of kerosene. She had vomited some of the kerosene immediately after taking it. On admission she was comatose and cyanotic, and the respiration was labored. The temperature was 101 on admission and rose to 104 within two hours, at which height it remained for twelve hours. The examination on admission showed moist râles throughout both lungs. The white blood count was 9,650, with polymorphonuclears 80 per cent and lymphocytes 20 per cent. The urine showed a trace of albumin. When the temperature was at its height, the rate of respiration varied from 40 to 56 per minute. Sixteen hours later it dropped to 30 and the temperature became normal about the same time. The routine treatment of gastric lavage and atropine sulphate hypodermically was employed. The lungs cleared by the third day and the patient went home in good condition.

**CASE 8**—A girl, aged 2 years, a Mexican entered the hospital one and one-half hours after drinking half a glass of gasoline, according to the history. The mother gave the child 1 ounce (30 cc) of olive oil immediately. When seen in the emergency room, she was semicomatose and cyanotic, and appeared to be critically ill. The respiration rate was 50, the pulse 120 and the temperature 99. Many fine moist râles were heard throughout both lungs. The patient was given gastric lavage, caffeine sodiobenzoate and atropine, and external heat was applied. A mixture of carbon dioxide 5 per cent and oxygen 95 per cent was administered by nasal tube together with artificial respiration for eleven hours. During this critical period the temperature rose to 106. She became more cyanotic, and coma became more pronounced. After this the temperature began to decline and twelve hours later it was normal and the child was conscious. Twenty hours after admission she was greatly improved and at the end of forty eight hours the lungs were clear and the patient was discharged in good condition.

#### COMMENT

The total mortality of these seventy-two cases was 11 per cent. Among the kerosene poisoning cases it was 92 per cent, while in the small series of gasoline cases (seven) it was 28 per cent. In the fatal cases the children lived from two to eighteen hours after the ingestion and the aspiration of these substances. All the children who died showed definite clinical evidence of pathologic changes of the lung, namely, many moist râles in both lungs, rapid, shallow respirations and cyanosis. Convulsions occurred in two of the fatal cases and in two of the nonfatal cases. Of the nonfatal cases, twenty-two, about 32 per cent showed some evidence of pneumonitis, as evidenced by moist râles in the lungs. From these observations it would appear that about one third of the patients who had swallowed a

large enough quantity of the substance to become sufficiently ill to require hospitalization had also aspirated some of the fluid.

The temperature in this series ranged from 97 in the fatal cases to 103 in cases of moderate severity, and it reached 106 in a few of the severe cases. The pulse rate varied from 110 to 150 in the moderately severe cases and was so rapid and weak in some of the fatal cases that it could not be counted. The respiration rates were very rapid, ranging from 50 to 80 per minute in those cases showing evidence of pneumonitis.

The white blood counts varied from normal to 21,000, with polymorphonuclear percentages of 65 to 80. The blood pictures were otherwise normal. The red blood cells and hemoglobin were within normal limits. The urinalyses showed an acid reaction with an occasional 1 plus albumin (ten out of our seventy-two cases). Anuria or painful urination was not observed in any case.

The toxicity produced by the ingestion of coal oil or gasoline need not cause the great concern that aspiration or inhalation of these hydrocarbons causes. Our patients who only drank the fluid showed symptoms of intoxication such as restlessness, incoordination, cyanosis, vomiting and loose stools, with no signs of pneumonitis. These symptoms were followed by a period of depression, which persisted only a few hours, after which the patients were apparently out of danger. They usually responded well to stimulation, emptying of the stomach and catharsis.

The patients who aspirated, as well as ingested, one of these petroleum products presented a much graver clinical picture, owing to the rapid development of pneumonitis, which was evidenced by cough and many moist râles throughout both lungs. In all the fatal cases in our series, there were physical signs of pneumonitis. It is believed that the pneumonitis was produced by the irritating properties of these substances, while the marked evidence of involvement of the central nervous system (cyanosis, rapid and feeble respiration, rapid and weak pulse, restlessness, coma and convulsions) is due to the rapid and overwhelming absorption of the volatile fractions by the pulmonary circulation, this absorption being facilitated by the thin permeable alveolar wall. We feel that the toxic fractions of these oils reach the vital centers of the central nervous system much more rapidly and in larger amounts when absorption takes place in the lungs. Absorption of these substances from the gastro-intestinal tract alone is much slower. There is also the possibility of some detoxification being accomplished by the liver. We feel that the symptoms of gasoline and kerosene poisoning are produced by the toxic action of these substances on the central nervous system, principally the respiratory center motor areas and the vagus center.

There is apparently no loss of oxygen carrying capacity of the blood. Waring<sup>1</sup> in his blood studies in cases of kerosene poisoning was unable to find methemoglobin in the blood. He showed by his experiments on dogs that as much as 100 cc of kerosene administered by stomach tube produced only slight temporary ill effects, while as small a quantity as 10 cc injected into the trachea resulted in death in from six to eight hours.

The prognosis may be said to be in direct ratio to the amount of the hydrocarbon that enters the lungs,

<sup>1</sup> Waring, J. I. Pneumonia in Kerosene Poisoning. *Am J M Sc* 185: 325 (March) 1933.



and it has been our observation that if the patient survives several hours he recovers completely. There are practically no complications or sequelae in this type of poisoning. The irritating effects in the lungs and the gastro-intestinal tract disappear completely in from forty-eight to seventy-two hours.

#### TREATMENT

There appears to be no specific antidote for gasoline or kerosene poisoning. Treatment consists of removing as much of the offending agent as possible by gastric lavage or emesis and laxatives. During gastric lavage there is much retching, struggling and breath catching, which seem to favor aspiration of stomach contents into the lungs. It is our impression that there is less likelihood of aspiration of the fluid when emesis is produced by the oral administration of syrup of ipecac than when gastric lavage is employed. In our more recent cases when cyanosis and other signs of respiratory embarrassment are present, we believe that the use of oxygen (95 per cent) and carbon dioxide (5 per cent) has been of considerable benefit. We therefore recommend the administration of oxygen and carbon dioxide in all cases that show such signs. It is employed for its stimulating action on the respiratory center rather than to increase the oxygen-carrying power of the blood. We have also given atropine sulphate and caffeine sodiobenzoate hypodermically for their stimulating effects.

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### DILAUDID AND MORPHINE EFFECTS ON BASAL METABOLISM AND OTHER BODY FUNCTIONS

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Dilaudid (dihydromorphinone hydrochloride), a new morphine derivative,<sup>1</sup> was first introduced into this country from Germany in 1932 by Alvarez.<sup>2</sup> Eddy<sup>3</sup> has reviewed the foreign literature and reported preliminary experimental studies of the toxicity and action of this drug in animals. Paine, Carlson and Wangenstein<sup>4</sup> used dilaudid in the treatment of nineteen patients and considered it effective in controlling pain but not superior to morphine in decreasing the incidence of postoperative distention, nausea and vomiting. Diehl,<sup>5</sup> in his study on the medicinal treatment of the common cold, found a combination of dilaudid and papaverine as efficient as the codeine-papaverine preparation which he recommends but more likely to produce undesirable side-effects.

The chief advantages claimed for dilaudid over morphine are that its repeated use has less tendency to produce habit formation and that there are fewer unfavorable side-effects, such as nausea, constipation

and euphoria.<sup>6</sup> Eddy,<sup>3</sup> however, especially stresses that addiction to dilaudid as well as the occasional appearance of toxic symptoms has been reported by some German authors. When used in small therapeutic doses, dilaudid is said to allay pain and cough effectively with little tendency toward narcosis or depression of the respiratory center. Because the compound is more toxic than morphine the recommended dose is about one-fifth that for morphine,  $\frac{1}{32}$  grain (2 mg.) of dilaudid corresponding to  $\frac{1}{6}$  grain (10 mg.) of morphine sulphate.

Information of practical value may be obtained by a comparative study of the effects of dilaudid and morphine on the basal metabolism, tactile discrimination and other body functions in normal adults. Previous workers<sup>7</sup> have shown that morphine and codeine within therapeutic ranges tend to lower the basal metabolic rate in proportion to the dose given. Correlation of this effect with the reduction of tactile discrimination offers a method of estimating the intensity of the action of central nervous system depressants, particularly those which produce both analgesia and narcosis.<sup>8</sup> Further significant data are to be obtained in carrying out a study of this nature by observing the changes in the various body functions and recording the incidence of unfavorable side-actions.

#### METHODS

The drugs were administered subcutaneously in proportion to body weight to normal young adults, mostly male, aged from 18 to 31 years. One group of ten subjects served as controls and received a placebo of a grain of lactose in 1 cc. of water.

The determinations of oxygen consumption were made by the closed method with the Sanborn "graphic" apparatus, and the Sanborn averages were used for estimating the basal metabolic rate. All initial determinations were made after a fast lasting fifteen hours and after a period of rest in bed lasting thirty minutes. Following the administration of the drug, metabolism tests were taken at intervals of twenty, sixty, ninety and one hundred and twenty minutes. The pulse rate, blood pressure, temperature and tactile discrimination were also observed and the subjective symptoms were recorded between the metabolism tests. The respiratory rate was obtained directly from the metabolism chart. Tactile discrimination was studied by noting the subjects' ability to distinguish between one or two points of pins on the volar surface of the wrist, care being taken that the same restricted area was tested each time. Two days after the test, the subjects returned to report on the occurrence of unfavorable after-effects.

Table 1 shows the doses of the drugs employed, the number of subjects treated in each group and the average maximum changes from normal during the two hours after the drug was given. The accompanying chart shows for each dose and drug used the changes in the metabolic rate over the two hour period of the test. The incidence of undesirable side-effects is shown in table 2. In this table data have been included on a number of additional subjects who received drugs but

From the Department of Pharmacology, University of West Virginia School of Medicine. Appreciation is acknowledged of the assistance rendered by Kenneth A. Rothey, M.D., Rupert W. Powell, A.B., and D. Gerald Nyhan, A.B., in many of these experiments.

1. The Bilhuber Knoll Company, Jersey City, N. J., supplied generous amounts of dilaudid preparations for this study.

2. Alvarez, W. C. Dihydromorphinone Hydrochloride, Dilaudid. Bilhuber Knoll. Proc. Staff Meet. Mayo Clin. 7: 480 (Aug. 17) 1932.

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4. Paine, J. R., Carlson, H. A., and Wangenstein, O. H. The Postoperative Control of Distention, Nausea and Vomiting. J. A. M. A. 100: 1910 (June 17) 1933.

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whose cases have not been reported either because the initial metabolic rates were not within normal ranges or because they did not take the metabolism tests. In the latter group are a number of medical students who received subcutaneous doses of these drugs in the laboratory in order to study the effects of opium derivatives in man.

A control group of ten subjects who were given placebos was tested in the same manner as those taking drugs. This provided information with respect to the influence of various environmental factors on the individual when subjected to a number of metabolism tests and observations over a period of several hours. While precautions were taken to secure complete relaxation and the subjects, believing they had received a drug, attempted to sleep between tests, it is interesting to note that there was a gradual rise in their metabolic rates. This may be attributed to the subject's increasing restlessness due to hunger, the discomfort from prolonged lying in bed, the psychic fear of the hypodermic injection and the annoyance of constant subjection to the tests. The other body functions showed little variation from the normal, the temperature and respiratory rate tending to increase slightly and the pulse rate and pulse pressure tending to fall. In three subjects tactile discrimination decreased in sensitivity, while in the majority an increase in acuity was noted with successive trials.

#### DRUG EFFECT

Dilaudid seemed to act more rapidly than morphine. With either drug within a period of five to fifteen minutes after the injection the subject usually experienced a sense of intense hunger and noted considerable borborygmus. This lasted a short while and then the face became a deep red, relaxation occurred and usually the subject remained practically motionless unless disturbed by itching. About one fourth of the subjects slept lightly at some time during the test, sleep usually coming on about forty minutes after administration of the drug.

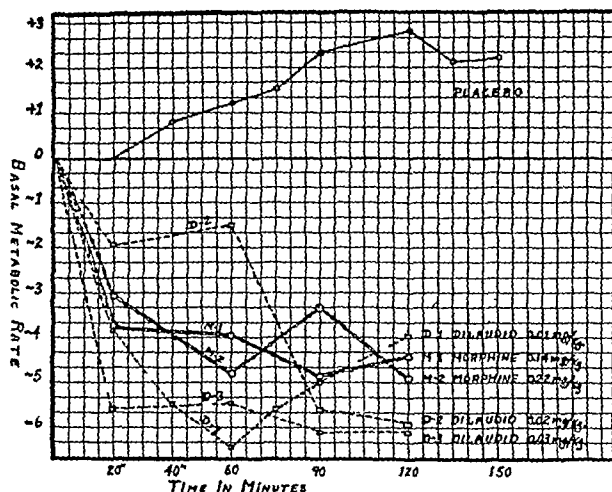
TABLE 1—Summary of Average Maximum Changes in Metabolic Rate and Body Functions Following Subcutaneous Administration of Placebo, Morphine and Dilaudid

Drug	Dose in Mg per Kg of Body Weight	Num- ber of Sub- jects	Respi- rations per Minute	Pulse Rate	Pulse Pressure Mm of Mercury	Tem- pera- ture, °C	Basal Meta- bolic Rate
Placebo		10	+12	-32	-14	+0.7	+3.1
Morphine	0.14	10	-0.7	-14	-12	+0.01	-5.5
Morphine	0.22	10	-0.7	-27	-51	-0.12	-6.1
Dilaudid	0.01	10	-1.4	-78	0.0	-0.12	-7.0
Dilaudid	0.02	10	+0.6	-47	-24	0.0	-7.6
Dilaudid	0.03	20	-1.1	-12	-22	-0.1	-8.3

**Morphine Sulphate**—Morphine was administered to two groups of ten subjects. In the group receiving an average dose of 0.14 mg per kilogram of body weight, or a total of approximately  $\frac{1}{4}$  gram (10 mg), the average maximum depression in the metabolic rate for the entire period was minus 5.5 per cent. Within twenty minutes after giving the drug the metabolic rate dropped to an average of minus 3.7 per cent and then gradually fell to a level of 4.8 per cent after ninety minutes. It stayed near this level for the remainder of the experiment. Changes in the respiratory rate, pulse rate and pulse pressure were inconstant, some subjects showing an increase although in the majority there was a decrease. The temperature tended to increase slightly

from 0.1 to 0.3 degree centigrade in six subjects, but similar decreases in the others brought the average to a negligible amount. Tactile discrimination showed a slight but definite decrease in six subjects, no change in two and an increase in two.

The group receiving an average dose of 0.22 mg of morphine sulphate per kilogram of body weight (approximately  $\frac{1}{4}$  gram per subject) showed a slightly greater depression of the basal metabolic rate



Average maximum changes in basal metabolic rate after administration of placebo, morphine and dilaudid. Ordinate basal metabolic rate; abscissa, time in minutes. Broken line, dilaudid; chain line, morphine; straight line, placebo.

The rise noted at the period of ninety minutes may have been due to the fact that several subjects complained of slight itching at this time. The respirations tended to slow down somewhat, only three subjects showing increases of from one to three respirations per minute, with an average decrease for the group of 0.7 per minute. The pulse pressure dropped in all but two subjects resulting in an average decrease of 5.1 mm of mercury. While individual changes in the pulse rate and temperature varied, the tendency was toward a decrease. Tactile discrimination was uniformly decreased.

**Dilaudid**—Three ranges of doses were used for dilaudid. A small dose of 0.01 mg per kilogram of body weight (approximately 0.5 to 1 mg per subject) was given to ten subjects. With one exception, a maximum depression of the basal metabolism of from 5 to 13 per cent, with an average of minus 7 per cent for the two hour period, was noted. A gradual wearing off of the effect of the drug was evident and at the end of the test the average decrease was only 3.9 per cent. With this low dosage there was some tendency to depress the respiration, six subjects showing a decrease of from one to three respirations per minute. The average change in the respiratory rate was a fall of 1.4 per minute. A consistent decrease in the pulse rate varying from two to sixteen per minute was noted in all subjects, with an average decrease of 7.8 beats per minute. The pulse pressure increased from 4 to 10 mm of mercury in seven subjects, although this gain was offset by greater decreases of 10 to 14 mm of mercury in the other three. The temperature dropped from 0.1 to 0.5 degree centigrade in seven subjects, resulting in an average fall of 0.12 degree. Tactile discrimination was definitely decreased in all but two subjects, who gave unreliable readings.

A second series of ten subjects received a dose of 0.02 mg of dilaudid per kilogram of body weight (the average total dose per subject was 1.4 mg). Again, all except one showed decreases in the metabolic rate ranging from 6 to 19 per cent, with an average for the group of minus 7.6 per cent. This value would have been even greater had it not been offset by an increase of 14 per cent in one subject, who complained severely of itching. The failure of the average basal metabolic rate to drop further was undoubtedly due to the fact that most of the subjects experienced intense itching. With this group the respirations tended to increase, the pulse rate was decreased in all but two resulting in an average fall of 4.7 beats per minute, and the pulse pressure showed the slight average fall of 2.4 mm of mercury. Changes in temperature were inconstant. Tactile discrimination decreased definitely in all but one patient.

TABLE 2—Side-Effects Following Subcutaneous Administration of Morphine and Dilaudid

Drug and Type of Test	Number of Patients	Dose	Number Noting Symptoms							After Effects
			Euphoria	Itching	Vertigo	Nausea	Vomiting	Constipation	Diarrhea	
Morphine	10	0.14 mg /kg	2	4	8	4	0	5	0	1
	10	0.22 mg /kg	2	4	10	5	4	1	0	4
	5	$\frac{1}{4}$ grain	1	2	5	5	4	3	1	2
	16	$\frac{1}{4}$ grain	8	6	7	12	3	6	0	4
Total	41		13	16	30	26	11	15	1	11
Percentage			32%	40%	73%	63%	27%	37%		27%
Dilaudid	10	0.01 mg /kg	1	2	6	4	0	3	0	3
	10	0.02 mg /kg	3	8	4	12	0	2	0	1
	20	0.03 mg /kg	4	11	17	15	5	5	1	4
	14	0.01-0.04 mg /kg	2	8	8	8	4	3	1	4
Students	20	2 mg to each	3	10	10	14	6	9	4	10
Total	74		13	39	45	43	15	22	6	23
Percentage			17%	53%	61%	58%	20%	30%	8%	30%

A third group of twenty patients receiving a dose of 0.03 mg of dilaudid per kilogram of body weight (a total of 2 mg, the usual therapeutic dose) likewise showed inconstant changes for the individual body functions, although the effect in the majority was a decrease from normal. While a maximum increase in the metabolic rate of 3, 6 and 10 per cent was observed in three subjects, the others showed a decided decrease. In four patients a marked depression in the rate of 16, 19, 22 and 33 per cent respectively occurred. The average maximum decrease in the metabolic rate was 8.3 per cent. The changes in the other body functions were slightly more marked than those noted with the previous doses. A decrease in the respiratory rate ranging from one to three per minute occurred in fourteen subjects, but since an increase was noted in the others, the average decrease was only 1.1 per minute. In twelve subjects the pulse rate showed an average decrease of 6.8 but in the others increased an average of 4.4 per minute, resulting in an average change for the group of 1.2 less beats per minute. The pulse pressure decreased in thirteen of the twenty subjects, giving an average fall of 2.2 mm of mercury. The temperature likewise dropped in thirteen subjects, while the tactile discrimination was decreased markedly in every case.

#### SIDE-EFFECTS

Itching, perspiration or other symptoms were not noted in the group receiving placebos. Three subjects slept lightly during the experiments, while several noted transient vertigo on arising, due probably to prolonged lying in bed and increasing hunger.

In those receiving drugs the incidence of reported side-effects as shown in table 2 is higher than might otherwise be expected, since a special effort was made to note all untoward reactions whether severe or not. Since both drugs were used in therapeutic dosages and in nearly equivalent amount, the incidence of side-actions has been reported in the percentage of the total number of subjects receiving either drug. Euphoria, a difficult symptom to gauge, was considered to be present only when the subject strongly endorsed the immediate effects of the drug as decidedly pleasant. With larger doses of either drug, several subjects fell asleep and had fantastic dreams while others seemed content to remain and be tested for the remainder of the day. In five, priapism lasting an hour or more was noted. A sense of nausea while in a recumbent position was experienced by only eight, of whom one vomited. The high incidence of itching, particularly with dilaudid, was considered to be a result of drug action.

The fact that each subject was made to arise and walk home on completing the tests, usually at noontime, may have been a factor in causing nausea and vomiting in many. In a number, an attempt to eat lunch or drink coffee seemed to provoke these symptoms. Of the seventy-four subjects who were given dilaudid six complained of diarrhea during the night, while six others complained of severe pubic pain and inability to void for some time. Headache was noted in about a dozen subjects, most of whom had taken morphine. Dilaudid was given to seven girls and in four it caused severe reactions characterized by evidences of mental excitement such as crying, restlessness, nervousness and, in two, muscular cramps and tremors. Of the five girls who received morphine, only two showed similar unfavorable reactions.

#### TOXIC DOSES OF DILAUDID

Through error two subjects were given unusually large subcutaneous doses of dilaudid, one (J D R) receiving 13 mg and the other (P T M) 21 mg. The following observations were made:

The effects came on rapidly. Both patients became very sleepy and found it impossible to stay awake. Metabolism tests were taken for only an hour thereafter, J D R showing a decrease of only 8 per cent in the metabolic rate while P T M showed a decrease of 23 per cent. Intense itching caused considerable annoyance to both subjects and may have been responsible for the failure of the metabolic rate to decrease further. In P T M the respirations showed from 15 to 4 per minute within half an hour. After being observed for an hour, the subjects were made to arise and were taken home. Following attempts to drink coffee, both vomited and continued doing so for the rest of the day. P T M noting blood in the vomitus at times. They were greatly depressed and attempted to sleep, but their rest was periodically disturbed by nausea and vomiting and attacks of apnea and dyspnea.

At about 10 p.m. the symptoms subsided and they slept soundly until the next noon. The following day they felt very weak, tired and doxy and suffered from constipation but two days later they appeared to be none the worse for their experience. It is interesting to note that a few months later one fourth grain of morphine sulphate provoked considerable nausea and vomiting in both these patients.

## COMMENT

Because of the limited number of subjects used in this study and the unavoidable occasional variation in individual responses, it has been possible to show little more than the trend of the effect of the drugs on the various functions. It is apparent that both morphine and dilaudid lower the metabolic rate, as shown in the chart, generally in proportion to the dose given. In direct contrast, an increase in the metabolic rate was shown in the subjects of the control series. With dilaudid the metabolism is depressed sooner and to a more marked degree than with the supposedly equivalent doses of morphine. While it is stated<sup>9</sup> that "a dose of  $\frac{1}{32}$  grain (2 mg) of dilaudid is comparable to  $\frac{1}{6}$  grain (10 mg) of morphine sulphate and  $\frac{1}{20}$  grain (3.2 mg) to  $\frac{1}{4}$  grain (16 mg) of morphine" or, practically, that dilaudid is five times more active than morphine, our results indicate a greater difference. At least with respect to the effects on the metabolic rate, dilaudid appears more than ten times as depressant on the basis of dosage per kilogram of body weight. Unfortunately, it was impossible to estimate accurately quantitative changes in tactile discrimination, although the lowest dose of dilaudid used, 0.01 mg per kilogram of body weight, produced more loss of discrimination than morphine given in a dosage of 0.14 mg per kilogram of body weight.

Paine and his associates<sup>4</sup> state that dilaudid occasionally depresses the respiration markedly. We experienced in several subjects dangerous slowing of the respirations following therapeutic doses of both morphine and dilaudid.

## REPORT OF CASES

CASE 1—C K, a female medical student, aged 26, weighing 67 Kg, was given a 2 mg dose of dilaudid at 2:30 p.m. Within an hour she showed marked sleepiness, mental depression and slowing of the respiration from the normal rate of seventeen to three per minute. As collapse was feared after the respiratory rate had remained at this level for twenty minutes while the subject slept, she was aroused and made to walk. After drinking a cup of coffee she vomited several times and in a short while appeared to be less depressed. During the evening she was able to carry on her usual duties as clerk in a drug store.

CASE 2—B J M, a male medical student, aged 24, weighing 60 Kg, during a metabolism test after the small dose of 0.5 mg of dilaudid showed a depression of the respiratory rate from fifteen to six per minute, which lasted for nearly an hour.

Similar idiosyncrasies were noted with therapeutic doses of morphine, although the symptoms seemed to be more prolonged as shown in the following cases.

CASE 3—P D N, a medical student, aged 27, weighing 61 Kg, was given one fourth grain (0.016 Gm) of morphine sulphate during class at 2:30 p.m. Within two hours he was greatly depressed, very sleepy and showed a drop in respirations from seventeen to three per minute. After attempting to drink some bitter black coffee he vomited and became very weak. He was taken home and that evening, while in the care of several other students, he fell asleep a number of times but had to be awakened each time because his respiratory rate fell to about three or four per minute. At midnight the patient was able to keep down some coffee and soon afterward seemed improved. He was allowed to sleep but was watched carefully and from then until noon the next day slept soundly.

CASE 4—H G E, female medical student, aged 22, weighing 53 Kg, received one sixth grain (0.01 Gm) of morphine in class and within an hour showed a transient depression of the respiratory rate from eighteen to five. During this time she voided incontinently, vomited three or four times and when

aroused for observations to be made by her fellow students, cried hysterically. Two hours after receiving the drug she was taken home and remained depressed during the evening. She vomited several times but showed no further respiratory embarrassment.

From these observations and, more particularly, from our experience with the two patients receiving toxic doses of dilaudid, we feel that dilaudid is slightly less depressant to the respiratory center than morphine.

With respect to the effects of these drugs on the circulation, Anderson<sup>7</sup> has shown that within an hour following the oral administration of therapeutic doses of morphine a very definite constant increase occurs in the pulse rate and the pulse pressure. We also have noted this phenomenon in a large number of our cases, but it occurred within twenty minutes following injection of either drug. After an hour, however, the full depressant effect of these drugs becomes evident and a definite drop occurs in both functions. The notable slowing of the pulse rate with the lowest dose of dilaudid (table 1) is probably a reflection of the depressant effect of the drug on the metabolism, lack of an appreciable stimulatory effect, and also the absence of itching.

Several factors seem to play a part in causing the general fall in body temperature observed after these drugs. With the lowered basal metabolism there is less heat production and also there is increased heat loss through dilated cutaneous vessels and through excessive perspiration.

In general, it is apparent that therapeutic doses of either morphine or dilaudid have little appreciable effect on the pulse rate, pulse pressure, respiratory rate and body temperature, although the tendency is toward a decrease from the normal level. While the changes occurring in the respiratory rate may be due to the depressant action of the drug directly on the respiratory center, it is felt that what changes occur in the circulation and temperature are secondary to the lowering of the basal metabolic rate.

In this study no consideration has been given to the habit-forming tendencies of the two drugs. However, we feel that since dilaudid compares favorably with morphine and offers the possibility of being less habit forming, it deserves critical clinical trial.

## SUMMARY

1 In normal subjects receiving placebos and tested over a period of several hours, the basal metabolic rate tended to rise with successive observations.

2 Morphine and dilaudid, administered subcutaneously in therapeutic doses, tend to lower the basal metabolic rate in proportion, usually, to the dose given.

3 Dilaudid acts more rapidly but over a shorter period of time than morphine.

4 While dilaudid is said to be about five times as potent as morphine, our results with respect to the effects on the basal metabolism indicate that it is at least ten times as active. We believe the recommended subcutaneous dose of 2 mg to be sufficient in ordinary cases and about equal to 16 mg ( $\frac{1}{4}$  grain) of morphine.

5 Tactile discrimination is decreased to a slightly greater extent by a dose of dilaudid (0.01 mg per kilogram of body weight) about one-tenth that of morphine (0.14 mg per kilogram of body weight).

6 Slightly less respiratory depression seems to result from dilaudid than from morphine.

7 Both drugs tend to cause similar slight decreases from normal in the heart rate, pulse pressure and temperature

8 Undesirable side-effects occur with slightly less frequency following the administration of dilaudid than after morphine Itching, however, seems to be a prominent complaint after dilaudid

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ALUM-PRECIPITATED DIPHTHERIA  
TOXOID

THE RAPIDITY OF IMMUNIZATION FOLLOWING  
ONE DOSE

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During the past few years the methods of immunization against diphtheria have been greatly improved Safe immunizing agents have been produced which contain a large amount of specific antigen, so that it is now possible to bring about a reversal in the Schick reaction from positive to negative in a larger proportion of individuals in a shorter period of time than by the older methods of immunization

The results following the use of toxoid in the prevention of diphtheria are well known Certain improvements in the production of toxoid have been made in an attempt to increase or concentrate the antigenic content and reduce the number of injections necessary to protect against infection Various substances have been added to toxoid with the idea of decreasing the rate of absorption from the site of injection and thereby producing a longer stimulation to the production of protective antibodies The most common of these substances has been some form of alum The work of various investigators who have used diphtheria toxoid treated with alum is covered in a recent report by Baker and Gill<sup>1</sup> Havens and Wells<sup>2</sup> reported that by precipitating toxoid with from 10 to 25 per cent of aluminum potassium sulphate the foreign protein content could be reduced to from 13 to 20 per cent of the amount it contained originally They were also able to protect guinea-pigs against 5 minimum lethal doses of diphtheria toxin by an injection of 0.1 unit of alum-precipitated diphtheria toxoid Subsequent reports by Graham, Murphree and Gill<sup>3</sup> show that, with one injection of 1 cc of alum-precipitated diphtheria toxoid containing from 5 to 10 antigenic units, 92.4 per cent of Schick positive children became Schick negative

This investigation was done to determine the rapidity with which a positive Schick test could be changed to a negative one in susceptible persons by the use of alum-precipitated diphtheria toxoid The toxoid used for this purpose was supplied by the state board of

health of Alabama and the Schick testing material was obtained from the state board of health of Massachusetts The same materials were used throughout for the original tests and the retests

In order to control these observations with preliminary Schick tests and repeated tests after the injections of the immunizing agent, children ranging in age from 4 to 19 years and residing in two institutions were tested with heated and unheated diphtheria toxin to determine the positive, pseudopositive, combined and negative Schick reactors Approximately 900 children were tested Of this number seventy-six, or 8.4 per cent, developed a positive Schick test, indicating a relatively low susceptibility rate on the part of the population tested It is not unusual to find such a small number of persons susceptible to diphtheria in institutions, owing to repeated exposure to and contact with persons harboring and discharging diphtheria bacilli from the upper respiratory tract It was found that those persons who were Schick positive had been in residence in these institutions for from one to five years The majority have lived in them more than two years It seems likely, therefore, that the positive reactors included in this report represent those persons who have been resistant to immunization through contact in the institution

The positive Schick reactors from each institution are reported separately as group A, consisting of fifty-three children, and group B, comprising twenty-three Each person was given one injection of 1 cc of alum-precipitated diphtheria toxoid subcutaneously in the deltoid region The members of group A were Schick tested twenty-two days after the injection Those remaining positive were retested sixty and ninety days later The plan of procedure was the same with the individuals in

Results Following One Subcutaneous Injection of 1 Cc of  
Alum-Precipitated Diphtheria Toxoid

Group A			
Total Number Schick Positive	Per Cent Schick Negative 22 Days After Injection	Per Cent Schick Negative 60 Days After Injection	Per Cent Schick Negative 90 Days After Injection
53	92.4	94.3	96.2

Group B			
Total Number Schick Positive	Per Cent Schick Negative 14 Days After Injection	Per Cent Schick Negative 28 Days After Injection	Per Cent Schick Negative 42 Days After Injection
23	60.0	95.6	100.0

group B except that the first retest was done fourteen days after the injection of alum-precipitated toxoid and those remaining positive were retested on the twenty-eighth and forty-second days The accompanying table shows the results following one subcutaneous injection of 1 cc of alum-precipitated diphtheria toxoid

In reporting the results of these observations we will give the data for all members of each group, as the distribution of males and females was approximately the same The results obtained following one subcutaneous injection of 1 cc of alum-precipitated diphtheria toxoid in these two groups of children indicate that a reversal of the Schick test from positive to negative may occur within a relatively short period of time

In group B, consisting of twenty-three children, 60 per cent were Schick negative fourteen days after the injection, while 95.6 and 100 per cent were negative

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We are indebted to Drs James C Gardner and Perry D Priest for their cooperation in making this work possible  
<sup>1</sup> Baker J N, and Gill D G Precipitated Toxoid as an Immunizing Agent Against Diphtheria Am J Pub Health 24 22 24 (Jan) 1934  
<sup>2</sup> Wells D M Graham A H and Havens L C Publication from the Laboratories of the State Board of Health of Alabama  
<sup>3</sup> Graham A H, Murphree L R and Gill D G Diphtheria Immunization with a Single Injection of Precipitated Diphtheria Toxoid J A M A 100 1096 1097 (April 8) 1933

twenty-eight and forty-two days respectively after immunization

In group A, 92.4 per cent of fifty-three children were Schick negative twenty-two days after the one injection of alum-precipitated diphtheria toxoid. There were slight increases in the number of negative reactions obtained in this group sixty and ninety days after immunization, 94.3 per cent being negative after sixty days and 96.2 per cent after ninety days.

It should be noted that in one group 92.4 per cent were Schick negative after twenty-two days and in the other group 95.6 per cent were negative twenty-eight days following immunization. While the number of Schick negative reactions in both groups increased after these periods, for practical purposes an interval of from three to four weeks seemed to be sufficient to bring about a reversal of the Schick test in a large percentage of the children observed.

The local and general reactions following the injection of diphtheria toxoid were noted for forty-eight hours. The reactions following the injection of 1 cc of alum-precipitated diphtheria toxoid consisted of the usual symptoms that may appear following any similar procedure. In a majority of those receiving the injection there was no increase in temperature twenty-four hours later. Only five or six had temperatures of more than 100 F. The highest temperature recorded was 101.4 F. Those in whom there was an increase in temperature complained of headache, slight nausea and general malaise. These symptoms usually disappeared within forty-eight hours.

There was some local reaction in a large percentage of those receiving the precipitated toxoid. This, however, was not of serious nature and cleared up quickly. There was apparently no relationship between the amount of increase in temperature and the local reaction. In only one instance was the general reaction severe enough to require bed rest. No abscess formation at the site of injection occurred. In two instances the area of injection remained red, swollen, hot and moderately tender for several days but no suppuration occurred. In a majority of the individuals a small firm nodule could be felt at the site of injection. It is not unusual for such an indurated area to occur following other immunizing procedures, so that it is not surprising to have such a formation occur following the injection of precipitated diphtheria toxoid.

In comparing the results of these observations with those reported following the use of other immunizing agents against diphtheria we found that immunity is probably developed more rapidly following the use of one dose of alum-precipitated diphtheria toxoid. Harrison<sup>4</sup> has shown that, following three injections of 1 cc each of 0.1 L + diphtheria toxin-antitoxin mixture, 64 per cent of Schick positive children became negative from 122 to 203 days after the last injection. He has also reported that 95 per cent of a group of children were Schick negative from 90 to 133 days following two or three injections of commercial preparations of untreated toxoid.

White and Schlageter<sup>5</sup> using toxoid with 0.2 per cent alum and without alum prepared in the laboratories of Dr. William H. Park<sup>6</sup> have reported that 96.1 per cent of a group of children were immunized in two

months and 100 per cent in six months following two doses of 1 cc each of toxoid with alum, while 94.6 per cent of another group of individuals were immunized in two months and 95.9 per cent in six months following two doses of toxoid without alum. They also report that, following three doses of 0.5 cc each of toxoid with alum, 94.2 per cent were immune at two months and 96.1 per cent at six months. Following one dose of toxoid with alum, 50.8 per cent were immune in two months and 73.2 per cent in six months, while with one dose of untreated toxoid 49.2 per cent were immune in two months and 82.0 per cent in six months.

These data indicate that, while essentially the same results can be obtained in from two to six months with untreated toxoid and toxoid with 0.2 per cent alum, from two to three doses are required, whereas only one injection of alum-precipitated toxoid is necessary. The results following only one dose of toxoid with and without alum or three doses of toxin-antitoxin mixture are not as good as with one dose of alum-precipitated toxoid.

#### SUMMARY

The results obtained following the injection of one dose of 1 cc of alum-precipitated diphtheria toxoid indicate that immunity to diphtheria may be produced rapidly.

In one group of twenty-three Schick positive children, 60 per cent were Schick negative in fourteen days. In the same group, 95.6 per cent were Schick negative in twenty-eight days and 100 per cent in forty-two days after the injection.

In another group of fifty-three children, 92.4 per cent were Schick negative twenty-two days after receiving one injection of alum-precipitated diphtheria toxoid, 94.3 per cent were negative in sixty days, and 96.2 per cent were negative in ninety days after immunization.

The results following immunization with a single dose of alum-precipitated diphtheria toxoid compare favorably with those obtained following two doses of toxoid without alum or toxoid with alum and are much better than those reported following one dose of toxoid without alum and with alum or three injections of standard diphtheria toxin-antitoxin mixture.

**Headache**—The most important varieties of headache which possess somewhat distinctive characteristics are as follows. Nephritic headache—except the sudden attacks due to uremia—is in most cases caused by the arteriosclerosis which so often forms an essential part of chronic nephritis. The pain is apt to be of a throbbing character, somewhat shifting and often accompanied by vertigo and tinnitus. Headache from disorders of digestion and constipation is usually of a throbbing, pulsating character, it affects the frontal and orbital regions, and is made worse by sudden movements of the head. The headache of uterine diseases is usually occipital, sharp and radiating. Anemic headache is a sore and pressing pain, usually felt in the forehead and orbital region or in the vertex and is often associated with occipital pressure. As its name indicates, it is found in connection with the general and special forms of impoverished blood. In the typical headache of hysteria the patient feels as if a nail was being driven into the top of the head (clavus) but this type is of comparatively infrequent occurrence. The headache of neurasthenia, probably the most frequent of all headaches which require treatment, is of a pressing character, it is usually vertical, but is sometimes described as a band around the head. It is almost invariably worse in the morning becoming lighter or disappearing toward the latter part of the day.—Gordon, B. L. Importance of Cephalalgia in Ocular Diagnosis. *Arch. Ophth.* 11:769 (May) 1934.

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## Clinical Notes, Suggestions and New Instruments

### OTOGENIC TETANUS REPORT OF A CASE

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LOS ANGELES

Medical literature reveals that tetanus of otogenic origin is a rare occurrence, and when it does occur it is seldom suspected. Usually the underlying cause of the condition is trauma to the drum, a foreign body in the canal, or external irritation, all followed by a chronic suppurative otitis media or other suppurative process.

The following case was characterized by an acute onset, with death resulting in a very short time.

W S, a white boy, aged 4½ years, admitted to the hospital at 11 p m, Oct 14, 1932, had had a cold in the head for two weeks, with a discharging ear for the preceding five days, he had been unable to open the mouth for one day.

The parents stated that the patient had had a cold for about two weeks, which lasted until three days prior to admission. October 7 the right ear began to discharge and continued for five days. Except for buzzing in the right ear on the morning of admission, the patient presented no other complaint. On the date of admission he was taken to a clinic, where the examining physicians were unable to open his mouth, which they attributed to stubbornness, and made an appointment for him to return at a later date. The same evening the parents put the patient to bed at home, and half an hour later he got up, walked across the room and fell, his jaws locked, he choked several times and he turned purple. A physician in the neighborhood was called. He referred the patient to the hospital.

The recent past history was entirely negative. However, on detailed questioning, additional history was obtained from the parents as follows:

About six months before, a milk case fell on the child's head, making a deep gash on the scalp. The wound was treated with mercurochrome and healed without trouble. From time to time the child had gotten splinters in his hands while playing in the street, and the last incident of this type was about three weeks prior to admission. He also had had several scratches of the right heel, which troubled him some when putting on his shoes, but the duration of these scratches was unknown.

On physical examination the patient was breathing rapidly, the rectal temperature was 98.4 F, the jaws were tightly locked and the head was retracted.

The membrane of the right ear was ruptured and draining pus. The left ear was normal. The mouth could not be forcibly opened until 4 grains (0.26 Gm) of sodium amytal was given intravenously for relaxation. Examination of the throat was negative. The tongue, however, was scalloped and quite swollen, and the neck was rigid and spastic. The heart and lungs were normal, the abdomen was markedly relaxed and the spleen was enlarged a distance of 2 fingerbreadths below the costal margin.

Following the diagnosis of clinical tetanus, a cisternal puncture was performed, 25 cc of fluid being withdrawn. 60,000 units of tetanus antitoxin (previously warmed to body temperature) was allowed to flow in by the gravity method, and 140,000 units was given intramuscularly.

Seven hours following this therapy the temperature was elevated to 106 F and dropped to 104 four hours later and was associated with a pulse of over 180.

Eight hours following the cisternal and intramuscular injections, 150,000 additional units of serum was given intravenously, very slowly. After this procedure the temperature again became elevated to 107.6 F but gradually subsided to 103.

Death, which ensued thirty-six hours after admission, was due to both cardiac and respiratory failure. During the entire stay in the hospital, the respirations were rapid and shallow, the pulse was thready and rapid and the patient was cyanosed much of the time, so that an oxygen-carbon dioxide mixture was required at frequent intervals.

During the hospitalization period the patient received 32 grains (2 Gm.) of sodium amytal, subcutaneously, for sedation, an average of 4 grains every three hours.

The colloidal benzoin test was negative.

Report (by Dr Anson Hoyt of the pathology department) of the smears and culture from the draining ear, five days later, was as follows: *Clostridium tetani* (tetanus bacillus) was isolated from the culture from the right ear. This was definitely proved to be *Clostridium tetani* by mouse inoculation and by protection of a control with tetanus antitoxin.

### COMMENT

A clinical case of tetanus following an acute otitis media without any definite history of trauma to the ear was preceded by an acute infection of the upper respiratory tract.

It is possible that this patient may have been a carrier and that the acute infection of the upper respiratory tract activated and resulted in the clinical case as reported.

It is also conceivable that the splinters or the head injury previously mentioned might have played a role. This is purely conjectural, as the organism was recovered from the discharge from the ear.

1531 Purdue Avenue

### NEUTROPENIA FOLLOWING DINITROPHENOL WITH IMPROVEMENT AFTER PENTNUCLEOTIDE AND LEUKOCYTE CREAM

ELIZABETH N DAVIDSON MS AND MATTHEW SHAPIRO MD  
NEW YORK

Mrs M G, aged 31, admitted to the hospital, May 8 1934, had suffered from progressive pain with swelling in the gums and submaxillary glands for forty hours prior to admission. Two chills had occurred in the twelve hours previous to admission, and the temperature ranged from 101.6 to 102.4 F. She had vomited once on the day of onset and once the following day, and she was constantly nauseated.

She stated that on April 13 she had begun taking, under direction of a physician, sodium alpha-dinitrophenol in 100 mg capsules with meals, three times a day. According to her record of that date, her weight was 159 pounds (72 Kg), the temperature 98.6, pulse 80 and blood pressure 140 systolic, 96 diastolic. By April 24, she had lost 5½ pounds (2.5 Kg) and the record showed that the temperature was 98.6, pulse 104 and blood pressure 130 systolic, 90 diastolic.

She recalled that during the period while she was taking sodium alpha-dinitrophenol there had been three episodes of yellow tinging of the sclerae, each lasting about two days. The urine had been a deep yellow brown at all times.

During approximately the last ten days before admission, nausea and diaphoresis had been observed frequently, together with a fever of 101 F. On both the third and the fourth day before admission the patient had attempted to take a capsule of the dinitrophenol but had vomited each time. Examination of her supply of remaining capsules of dinitrophenol and a record of the original number purchased revealed that she had taken 6 Gm in about twenty days plus 0.2 Gm, which she had attempted to take at the beginning of the present illness but had vomited. She had taken no amidopyrine nor barbiturates during that time.

On admission, the patient was obese and did not appear acutely ill. There was a yellow tinge to the sclerae. The mucosa of the nose and pharynx was inflamed and an ulcer was noted in the right posterior pharynx. There was a dark purple hue and swelling of the gums with hemorrhagic appearance, and whitish patches about a few teeth. There was swelling and tenderness on the left side of the mandible and in both submaxillary areas. The nodes of the posterior cervical chain were palpable and very tender.

Laboratory examination on admission showed red blood cells, 3,450,000, hemoglobin, 78 per cent, white blood cells, 1,100, with 1 per cent neutrophils, 4 per cent basophils, 12 per cent monocytes and 83 per cent lymphocytes. The blood culture was negative and bacteriologic examination of smears and

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cultures from the throat indicated nothing of significance. The routine urine examination was negative and the nonprotein and urea nitrogen of the blood were both normal. The icterus index was 10, the direct van den Bergh test showed a delayed positive and the indirect a trace. Three days later the icterus index was 14.4, the direct van den Bergh test showed a delayed positive and the indirect a trace.

During the second day of hospitalization the urine showed an occasional specimen positive for alpha-dinitrophenol according to the indicator test. The Derrien test was also positive. The following twenty-four hour urine was negative to the Derrien test and slightly positive to the indicator test.

On the third day, May 10, a bromsulphalein test for liver function was performed and resulted in 70 per cent recovery thirty minutes after dye injection and 60 per cent recovery sixty minutes after dye injection. There was therefore evidence of impaired liver function.

The following day, May 11, the Derrien test of the urine was negative and the indicator test was impossible because of bromsulphalein interference. May 13 and 14, twenty-four hour urine specimens were again tested but were negative.

Therapy in part administered to the patient consisted of intramuscular injection of 10 cc of pentnucleotide given once on the day of admission, twice the second day, once the third day, twice the fourth day, twice on the fifth and once on the sixth day, making a total of nine injections.

As soon as the leukopenia was recognized it was decided to give a transfusion and to bleed a number of human donors for the preparation of leukocyte cream according to the method of Strumia.<sup>1</sup> Nine persons were bled for the purpose, about 300 cc being furnished by each one. Beginning on the day after admission and during the first week, from two to four daily intramuscular injections of leukocytic cream were given. They represent the preparations from a total of approximately 1,800 cc of whole blood. During the second week five small injections were given, the total of which had been prepared from 300 cc of blood.

#### Blood Counts

May 1934	Hour	Per Cubic Millimeter		Percentage in Differential Count						
		White Blood Cells	Neutrophils	Neutrophils	Eosinophils	Basophils	Mononuclears	Lymphocytes	Myelocytes	Myeloblasts
8	1 30 p m	1 100	11	1	0	4	12	83	0	0
	6 00 p m	2 375	0	0	0	1	6	92	1	0
9	10 00 a m	1 125	11	1	3	10	12	69	4	0
	4 00 p m	1 280	0	0	4	11	25	60	0	0
10	10 00 a m	925	9	1	5	6	36	50	2	0
	4 00 p m	900	0	0	4	2	32	61	0	1
11	9 30 a m	1 750	52.5	3	2	5	44	48	0	0
	4 00 p m	2 450	38.0	4	2	1	30	59	2	1
12	10 00 a m	2 175	130.5	6	1	3	26	53	1	0
13	10 50 a m	4 975	1 443	29	0	1	16	54	0	0
	6 00 p m	5 650	2 656	47	0	1	20	20	7	5
14	9 00 a m	7 025	3 442	49	0	0	10	27	13	1
	4 00 p m	8 150	3 560	43	1	2	15	32	6	1
15	10 00 a m	10 450	4 912	47	1	0	3	30	19	0
	4 00 p m	10 050	5 327	53	1	0	5	25	14	2
16	10 00 a m	10 150	5 451	54	0	1	4	23	17	1
	4 00 p m	11 500	7 198	61	2	0	11	24	1	1
17	10 00 a m	9 900	6 072	66	0	0	7	27	0	0
	4 00 p m	11 400	7 980	70	1	0	11	17	1	0
18	10 00 a m	10 900	6 976	64	1	0	8	26	1	0
19	10 00 a m	12 240	7 228	59	1	0	13	26	1	0
20	6 00 p m	13 000	8 580	66	0	0	5	27	2	0
21	11 00 a m	11 400	7 410	63	0	0	7	27	1	0

One per cent plasma cells

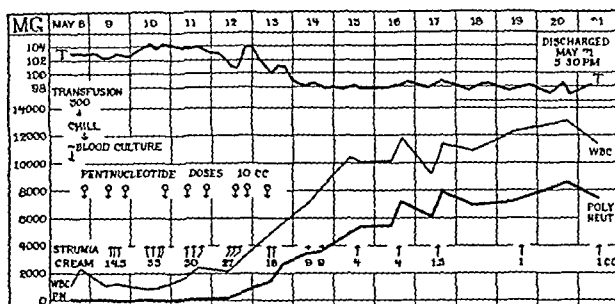
The soporific and analgesic drugs used were codeine mainly, together with one dose each of acetylsalicylic acid, triple bromides and chloral hydrate.

The blood count was done twice daily, during the morning and afternoon at six hour intervals. On the second day the count revealed red blood cells 4,800,000, hemoglobin 86 per cent, platelets 240,000, and in the morning white blood cells 1,125, neutrophils 1 per cent, basophils 10 per cent, eosinophils 3 per cent, monocytes 12 per cent, lymphocytes 69 per cent,

metamyelocytes 4 per cent, while in the afternoon, white blood cells 1,280, basophils 11 per cent, eosinophils 4 per cent, monocytes 25 per cent, and lymphocytes 60 per cent.

At no time during these observations was there an absence of granulocytes with the exception of the neutrophils. The percentages of eosinophils and basophils were increased. On the third day the total white count had dropped to 900 with no neutrophils and 1 per cent myeloblasts. The temperature of the patient was 104.4 F and her general condition was worse.

The fourth day, May 11, the white count doubled and almost tripled that of the preceding day and the neutrophils per cubic millimeter had risen to 52.5 in the morning and to 98.0 in the afternoon. On the fifth day only one observation was made,



Abstracted clinical record of M. G. a woman aged 31 admitted at 12 30 p m May 8, 1934. The temperature is indicated by T. A transfusion of 500 cc was given at 6 20 p m May 8 followed by a moderate chill at 8 30. A blood culture taken at 1 p m May 8 remained sterile. The time of administration of the doses of pentnucleotide is indicated by the arrow points. Leukocyte cream (Strumia) was given by intramuscular injections: the first dose at 12 17 p m, May 9, and a total of 14.5 cc in three doses on this day at the time indicated by the arrow points, 35 cc in four doses on May 10 and on following days as indicated. May 14 there were two injections, each of 9 cc. WBC shows the total count of white blood cells. The heavier line below it shows the count of polymorphonuclear neutrophilic leukocytes per cubic millimeter. The count of these cells May 8 was 11 at 1 30 p m and zero at 6 o'clock May 9, it was 11 in the forenoon and zero in the afternoon May 10 it was 9 in the forenoon and again zero in the afternoon. May 11 it rose to 52 at 9 30 a m and 98 in the afternoon. After this the increase of these cells was more rapid. Definite improvement in this respect was observed therefore about forty five hours after the first injection of the leukocyte cream.

at which time the white count was slightly lower, though the neutrophils were 130.5 per cubic millimeter. On the seventh day the patient was greatly improved, her temperature was normal, the morning count showed white blood cells 7,025 and neutrophils 3,442, and the afternoon count showed white blood cells 8,150 and neutrophils 3,505. From the eighth day to the day of discharge her white blood count ranged from 9,200 to 13,000 and the neutrophils from 5,327 to 8,580.

She received three intramuscular injections of leukocyte cream prepared from a total of about 300 cc of blood, on the second, fourth and seventh days after leaving the hospital. The white blood counts during this period were 10,350, 10,600, 17,000 and 8,750, with 43, 78, 57 and 58 per cent neutrophils, respectively. No abnormal white cells were observed.

The patient had a tonsillectomy in 1933 and has had for several years a definite pelvic infection with curettage in 1924 and unilateral salpingectomy in 1926. The present pelvic condition appears to require further surgical treatment. She stated that six months before her white count was found to be 18,000, with 70 per cent neutrophils. The initial symptoms of the dinitrophenol poisoning were attributed by the patient to the pelvic infection and consequently ignored by her.

#### COMMENT

Hoffman, Butt and Hickey<sup>2</sup> in a preliminary report have listed fourteen cases of neutropenia. Thirteen of these were fatal, and without exception the patients had ingested amidopyrine prior to their illness. The remaining patient recovered. This one had taken 100 mg of dinitrophenol four times a day for two weeks without other medication. This patient received roentgen and pentnucleotide therapy as did several of the patients who died. The authors suggest the benzene ring as a common factor in these substances, "all of which have produced neutropenia experimentally or clinically."

<sup>2</sup> Hoffman A. M., Butt E. M. and Hickey N. G. Neutropenia Following Amidopyrine. J. A. M. A. 102: 1213-1214 (April 14) 1934.

<sup>1</sup> Strumia M. M. The Effect of Leukocytic Cream Injections in the Treatment of the Neutropenias. Am. J. M. Sc. 187: 527-544 (April) 1934.

Our case, with the exception of the positive finding of lymphadenopathy, resembles the eight cases reported by Rosenthal,<sup>3</sup> which he termed "leukopenic infectious monocytosis," a benign form of agranulocytosis. One of his patients had arspenamine therapy and in the remainder an exogenous toxic factor was ruled out and the cause was assumed to be bacterial. He found monocytosis to be from 14 to 66 per cent, together with a leukopenia of from 900 to 4,200, and neutropenia. Our case showed a monocyte percentage of from 6 to 44.

We feel that there is evidence of dinitrophenol poisoning in this case, since the indicator test showed the presence of dinitrophenol and the positive Derrien test, according to the report of Perkins,<sup>4</sup> indicated dinitrophenol intoxication.

Since the use of dinitrophenol seems to be increasing from the time of its clinical introduction as a metabolic stimulant by Cutting, Mehrtens and Tainter,<sup>5</sup> the need for vigilant supervision of the patient taking this drug requires emphasis. Individual reactions together with their symptoms seem to be exceedingly variable. The record of our patient suggests the wisdom of frequent blood counts during the administration of drugs of this type. Early recognition of a leukopenia may avert an impending tragedy.

303 East Twentieth Street

ANURIA FOLLOWING DIABETIC COMA RELIEVED  
BY HYPERTONIC SALT SOLUTION

HOWARD F. ROOT, M.D., BOSTON

Deaths from diabetic coma frequently are accompanied by anuria developing from six to twelve hours before death. Such anuria in the aged patient is sometimes due to chronic nephritis. In the young it is usually regarded as due to renal block brought about by the acidosis and the fall in blood pressure. In certain cases vomiting, especially in children, may continue after acidosis, as indicated by the presence of diacetic acid in the urine, has disappeared. The renal irritation, due to diabetic coma and shown not only by the typical coma casts but also in many cases by leukocytes and even red blood cells, may persist and indeed may explain the vomiting, as in the first case to be reported. However the microscopic observations in the urinary sediment are interpreted, the effect of dehydration and loss of chloride due to frequent vomiting must not be overlooked. It is important to investigate the level of the plasma chloride in

Relief of Anuria in Diabetic Coma in a Girl, Aged 7 (Case 1)

Date	Clinical Condition	Urine		Blood			Treatment			
		24 Hr Amount Cc	Sugar per Cent	Sugar per Cent	Nonprotein Nitrogen	Chloride	Insulin Units	Salt Solution Cc	50% Dextrose Solution Intra- venously Cc	10% Salt Solu- tion Intra- venously Cc
Dec 23	Acidosis		3.6	0.32			13			
26	Vomited 720 cc	175	0.7	0.24			24			
27	Vomited 360 cc	380	tr							
28	Anuria for 35 hours after 6 a m convulsions from 7:30 to 10:30 p m	15	2.7	0.57	126	463	20	500	30	10
29	Urine beginning 1 hr after 50 cc of 10 per cent salt solution given intrave- nously	710		0.09	118		6			50
31		2,500	2.8	0.10	40	512	22			

every case of anuria, since in some instances the administration of hypertonic salt solution is actually life saving. The following three cases illustrate its value.

REPORT OF CASES

CASE 1.—In a schoolgirl, aged 6 years and 11 months, diabetes developed in December 1933. She entered the New England Deaconess Hospital, December 23, with beginning coma. The

3 Rosenthal Nathan. Leukopenic Infectious Monocytosis (Benign Form of Agranulocytosis). Libman Annals. Vols. 3, 1003-1027, 1932.  
4 Perkins R. G. A Study of the Munnition Intoxications in France. Pub. Health Rep. 24, 2335-2374 (Oct. 24), 1919.  
5 Cutting W. C., Mehrtens, H. G. and Tainter M. L. Actions and Uses of Dinitrophenol Promising Metabolic Applications. J. A. M. A. 101, 193-195 (July 15), 1933.  
From the George F. Baker Clinic of the New England Deaconess Hospital.

skin was dry. She had Kussmaul respiration. The lips were cherry red. The urine contained 36 per cent sugar and 3 plus diacetic acid as well as a trace of albumin, many red blood cells, leukocytes and a few granular casts. The blood sugar was 0.32 per cent. Acidosis was not far advanced and with 13 units of insulin during the night the urine became sugar free. However, the next morning the sugar returned. On that day she had 14 units and on the following day she again had 14 units. Vomiting began December 26, and the urinary output from December 26 to December 27 fell to 175 cc. From December 27 to December 28 only 360 cc of urine was excreted and she vomited 360 cc. December 28 only 15 cc of urine was obtained. That evening at 7:30 p m she became cyanotic and stopped breathing, and Jacksonian convulsions developed. During the next three hours she had generalized convulsions and was given the following treatment:

- 1 Thirty cubic centimeters of 50 per cent dextrose solution intravenously.
- 2 One cubic centimeter of epinephrine hydrochloride, 1:1,000.
- 3 One-sixth gram (0.01 Gm) of morphine.
- 4 Caffeine sodiobenzoate, 3/4 grains (0.24 Gm).
- 5 Salt solution, 500 cc subcutaneously.
- 6 Ten per cent salt solution, 10 cc intravenously.

At 11 p m the blood sugar was 0.57 per cent, the plasma chloride was 463 mg and the nonprotein nitrogen was 126 mg. During the succeeding day no urine was obtained and at noon the nonprotein nitrogen was still 118 mg. At 4 p m, therefore, she was given 50 cc of 10 per cent salt solution intravenously and within one hour she voided 2 ounces (60 cc) of urine. From that time on she voided normally and the nitrogen of the blood fell to normal on December 31. She left the hospital, January 11, on a diet of 169 Gm of carbohydrate, 75 Gm of protein and 85 Gm of fat, a total of 1,741 calories, and 16 units of insulin daily. A blood sugar test was 0.08 per cent at 11 o'clock in the morning. April 16, 1934, she was in excellent condition, and the urine was free from albumin, blood, pus and casts.

CASE 2.—A man, aged 24, in whom diabetes had developed in October 1931, entered the Miami Valley Hospital in Dayton, Ohio, at 5 p m, December 20, in diabetic coma. He had felt weak and drowsy for ten days, had broken his insulin needle and had omitted insulin. Respiration was Kussmaul in type. The skin was dry. He received 215 units of insulin between 5:45 p m and midnight and 280 units during the next day. Anuria developed at 2 a m, December 21. He was given 50 cc of 50 per cent dextrose because of a blood sugar that had fallen to 0.087 per cent. Anuria continued, until December 22 he was given 60 cc of 10 per cent saline solution intravenously twice. At this time the blood urea nitrogen was 60 mg and the blood creatinine was 5.45 mg. Following the administration of the hypertonic salt solution he passed 930 cc of urine that day and thereafter his recovery was uneventful, although the blood urea nitrogen was still 60 mg on December 27. January 4, however, the blood urea nitrogen had fallen to 18 mg and the creatinine to 1.6 mg. He was discharged from the hospital, Jan. 26, 1933, in good condition, having been sugar free from December 28 to that day.

CASE 3.—A woman, aged 48, entered the Brattleboro Memorial Hospital, Jan. 5, 1934, in diabetic coma, following three days of vomiting and diarrhea. During the first twenty-four hours she received 150 units of insulin and thereafter from 20 to 65 units daily. In spite of daily administration of salt solution subcutaneously, from 1,500 to 3,000 cc, some vomiting and diarrhea continued, and the urinary secretion fell to an average of 150 cc daily. General edema developed, but the patient became anuric on January 11. On this date the nonprotein nitrogen of the blood reached 120 mg per hundred cubic centimeters. Sixty-five cubic centimeters of 10 per cent saline solution was given intravenously and only 335 cc of urine was obtained. A second injection of 65 cc of 10 per cent saline solution was followed by improved urinary secretion, so that during the next five days the urinary output varied from 1,650 to 2,340 cc. She later died from carcinoma of the rectum.

1 Reported through the courtesy of Dr. Benedict Olch, Dayton, Ohio.  
2 Reported through the courtesy of Dr. Chester Leach and Dr. E. P. Joslin.

COMMENT

The most important point in these cases, as in the case of a 5 year old boy previously reported,<sup>3</sup> is that salt solution given under the skin and dextrose solution given either under the skin or intravenously failed to produce urinary secretion. When such treatment fails, the physician is apt to consider that nothing more can be done. An analysis of the plasma chloride may then show a low value, which clearly indicates the lack of chloride. In case 1, in a child, the first dose of 10 cc of 10 per cent sodium chloride solution was ineffective because the amount was too small. Usually 50 cc of such a solution is necessary, and in cases 2 and 3, in adults, totals of 120 and 130 cc, respectively, of 10 per cent salt solution were needed.

81 Bay State Road

A CASE OF PENTOSURIA OF THIRTEEN YEARS STANDING

S R SALZMAN MD TOLEDO OHIO

In their article on pentosuria with a report of twelve cases, Enklewitz and Lasker<sup>1</sup> called attention to the infrequency with which this diagnosis is made. These authors give a summary of the diagnostic data together with chemical studies of the pentose bodies.

The point of interest in the case reported here is the known presence in the urine of a reducing substance for a period of thirteen years, which was finally shown to be pentose. Except for the presence of this reducing body in the urine, the patient is in excellent health.

REPORT OF CASE

F M S, a girl, aged 17 years, of Jewish parentage, was 5 feet 3½ inches (161 cm) tall and weighed 115 pounds (52 Kg). Except for whooping cough at 16 months she was in good health until the age of 4½ years, when persistent infection in the tonsils resulted in their removal. At the time, sugar was found in the urine. She was put under the care of a pediatrician of national prominence in a large city. She was hospitalized for ten days. The reports of this period of study are not available but it is known that the reducing sub-

Laboratory Data

Date	Diet	Urinary Sugar 24 Hour Quantity	Blood Sugar Fasting	Blood Sugar 1 Hour After Dextrose
3/13	Protela 45 Gm Fat 90 Gm Carbohydrate 75 Gm	2 Gm	0.98	
3/17	Protela 45 Gm Fat 90 Gm Carbohydrate 60 Gm	3.11 Gm	0.100	
3/20	Protela 45 Gm Fat 90 Gm Carbohydrate 100 Gm	2.2 Gm	0.100	
3/24	Protela 45 Gm Fat 90 Gm Carbohydrate 1.0 Gm	2.0 Gm	0.100	
3/25	50 Gm of dextrose	Trace	0.94	112

The concentration of the sugar in the urine varied from 0.4 to 0.7 per cent.

stance was thought to be dextrose, and a diagnosis of renal diabetes was made.

No further attention was given to the problem, and the diet was unrestricted.

In March 1926, at the age of 9, she was again hospitalized because of numerous furuncles on the back and in the axilla. These cleared up promptly after surgical attention.

The laboratory data of the study made at this time at St Vincent's Hospital is given in the accompanying table. It will be noted that all the blood sugar determinations were normal and that the output of the reducing substance was unrelated to the carbohydrate in the diet. The quantity was fairly constant and was highest during the time the patient was on the low carbohydrate diet.

J Root, H F and Henson P D Postoperative Suppression of Urine Relieved by the Intravenous Injection of Hypertonic Salt Solution J. A. M. A. 97: 540 (Aug 22) 1931  
1 Enklewitz Morris and Lasker Margaret Studies in Pentosuria Am J. M. Sc. 156: 539 (Oct) 1933

The reducing substance in the urine was again reported as dextrose. The diagnosis of renal diabetes was made, and no dietetic restrictions were imposed.

The patient remained in good health, except for an attack of measles, until December 1932. Following exposure at a football game, lobar pneumonia developed, from which she made an uncomplicated recovery. Sugar was noted in the urine throughout the illness but was not increased in quantity.

Following the publication of the article on pentosuria<sup>1</sup> a study of the urine was again undertaken. The twenty-four hour quantity obtained was 760 cc and contained 0.4 per cent sugar, a total output of 3 Gm for twenty-four hours.

A positive Bial test was obtained. A portion of the urine was then fermented for forty-eight hours and again tested. The reducing substance was still present in the same percentage, and again the Bial test was positive. It reduced Benedict's solution in the cold at room temperature after several hours.

It can be safely assumed that the substance present in the urine is a pentose and the original assumption that it was dextrose was in error.

After at least thirteen years of pentosuria the patient is in excellent health and her physical development has been in no way retarded. That pentosuria is essentially a harmless anomaly of metabolism may be presumed, and the importance of its recognition from the standpoint of prognosis as well as from the standpoint of the insurability of the individual should be stressed.

1708 Jefferson Avenue

DRUG ERUPTION DUE TO QUININE RECURRENCE FOLLOWING USE OF CONTRACEPTIVE

WILLIAM K FORD, MD ROCKFORD ILL

E W D, a man, aged 26, consulted me, Nov 16, 1933, because of a vesicular dermatitis accompanied by intense itching of the scalp, face and neck of thirty-six hours' duration. The eruption began within twenty-four hours after two applications of Kreml hair tonic and consisted of tense, acuminate, split pea sized vesicles filled with a clear to straw colored fluid. There was edema of the scalp and eyes. November 17 his face became swollen and he had nausea, abdominal distress and loose stools.

The patient refused to have a patch test of the hair tonic but agreed to patch tests of the various ingredients. The manufacturer supplied a list of the ingredients and the patch tests were applied to the inner surface of the right arm. The patch containing 39A alcohol (18 Gm of cinchonidine sulphate to 1 gallon of isopropyl alcohol) gave a definite papulovesicular reaction on an erythematous base which was limited sharply to the area of the patch. Patch tests were then applied containing isopropyl alcohol and dilute quinine sulphate. The test for quinine responded with a marked vesicular eruption, which spread over the entire arm and forearm and was similar to the dermatitis of the face and scalp. The patient was dismissed with a warning regarding the use of quinine.

March 23, 1934 he returned with an edematous vesicular dermatitis involving the penis, scrotum, eyes, cheeks, ears and sides of the neck. He stated that his wife had used a contraceptive (vaginal suppository) the evening of March 20 and that early the following morning he awoke with a severe itching of the scrotum and penis which were fiery red and swollen. In the afternoon of March 21 the eruption appeared on the face involving the same areas that had been affected following the use of the hair tonic. The eruption was accompanied by a diarrhea for two days.

Investigation revealed that the contraceptive contained quinine bisulphate and boric acid in a base of oil of theobroma.

COMMENT

A case of dermatitis venenata in a patient known to be sensitive to quinine, followed the use of a contraceptive suppository containing quinine bisulphate.

CONCLUSION

Contraceptives must be added to the list of causes of dermatitis venenata in cases of obscure etiology.  
805 Talcott Building

## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.  
CHICAGO

*NOTE—In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The series of articles will be continued from time to time in these columns.—Ed*

#### FEVER REGIMEN

Unless excessive, pyrexia is beneficial to the organism attacked by microbial invasion.

The first aim in the treatment of all fevers is causal therapy, i. e., the discovery of the nature of the exciting cause, and the application of whatever specific remedy there may be to jugulate it. Still, no matter what the name or nature of the causative organism is, the care and general management (regimen) of all fever patients is essentially the same.

#### REST

Complete rest in bed is indicated by even the most moderate degree of pyrexia, for it means (aseptic fever excepted) that the system is engaged in a conflict which, no matter how seemingly insignificant at the beginning, may assume serious proportions, either because of inadequate mobilization of defensive forces in the early stages of the fight or because of secondary invasion by other foes. Indeed, in apyrexial and hypopyrexial infections with a tendency to chronicity, the therapeutic induction of fever (pyretotherapy) is indicated. Whenever, therefore, the body temperature (whether registered by mouth or by rectum) does not go below 99° F. some time during the day or exceeds 99.5° F. at any time of the day, fever regimen should be instituted.

Complete rest means more than merely going to bed. It means securing a person (a nurse) to take care of the patient. It means making the patient comfortable in bed, which is an important part of the art of nursing. It means the use of a urinal and bed pan. It means securing an abundance of fresh air by appropriate ventilation. It means protection against chilling, which is most especially liable to occur when the temperature drops suddenly and the patient is drenched in sweat, when the fever patient leaves the bed for any purpose whatever, and when he is permitted to be in garments wet from involuntary urination. The prevention of bed sores (q. v.), the daily cleansing bath, the alcohol back rub, the occasional changing of position (to prevent hypostatic pneumonia), especially important in the mentally or physically depressed patient, are items so well taken care of by the average trained nurse that the young physician is liable to forget ordering them when a case must be managed without such trained help.

Mental rest also must be enforced. This does not necessarily mean condemning the patient to absolute inactivity. There is occupation therapy appropriate to the fever patient to be resorted to when the temperature is not high, the mind is clear and the patient is quite free from suffering. It must take cognizance of the fatigability of the fever patient's nervous system, must

avoid increased heat production by not requiring movement of large muscle groups, and above all must not interfere with the principle of immobilization of infected tissue. It is only by means of suitable occupation therapy that patients can be kept happy and contented in bed such conditions as tuberculosis or endocarditis. Excitement, anxiety and worry must be eliminated as far as possible. This can best be secured by tactful exclusion of visiting, with only such exceptions as may be conducive to the patient's peace of mind.

Securing adequate sleep is an essential part of this regimen. As a rule, fever patients do not sleep well or for many hours at a stretch. They should be permitted to sleep as much during the day as they possibly can. Enforcing hours of quiet for this purpose may render unnecessary the always more or less objectionable administration of hypnotics. Nevertheless, one must not go to the extreme of failing to give an appropriate hypnotic (see Insomnia) when the patient does not secure sufficient sleep in the twenty-four hours for how much sleep the patient has had during the early days of his sickness may become of as crucial importance to ultimate recovery as how much food he has digested. A patient who is delirious or who may become delirious must never be left alone, even for one minute. In such cases two attendants are required. If this is impossible, the patient should be protected by bed rails against falling out of bed and kept by straps to the wrists and ankles from getting out of bed.

#### ALIMENTARY HYGIENE

The febrile anorexia may be humored for the first day or two. Then comes the time, if the fever shows a tendency to continue, when skilful feeding to maintain optimal nutrition in spite of the febrile impairment of digestive function comes to be of great importance. Now appetite is a luxury, not a necessity. For a critical stage may have to be passed through when digestive and circulatory functions are at such a low ebb that feeding may need to be all but discontinued.

*Administration of Fluid*—A liberal fluid intake is of the utmost importance throughout the course of fever. Fluid should be administered so frequently, as not only to quench but even to prevent the fever patient's proverbial thirst and to keep his tongue moist. It may be taken as an axiom that whenever the patient's mind is clouded he will not be given enough of that which he needs most, namely, water, unless special provision is made for it.

There is no substitute for fresh cold water as a thirst quencher unless it be carbonated water, which is likely to be more efficient because it stimulates the stomach to empty itself. The administration of carbonated fluid is a help in securing more rapid water absorption that should be invoked whenever possible. It is contraindicated by gas distention of the abdomen or by weakness of the heart.

The test whether the patient receives enough fluid is the quantity and color of the urine. The quantity should be recorded as a routine in all very sick patients and maintained above 1,000 cc. in the twenty-four hours, which should always be possible unless the kidney itself is diseased.

When enough fluid cannot be given by mouth, retention enemas of fluid, preferably rendered isotonic by the addition of 5 per cent corn syrup, should be resorted to unless these are contraindicated by necessity for complete enteric rest, as in peritonitis or diarrhea.

When neither oral nor rectal administration is adequate, some form of injection of fluid becomes imperative, and whether this is to be by hypodermoclysis or phleboclysis or possibly, in children, by intraperitoneal injection will depend on the urgency of the indication. Phleboclysis is the only method whereby an adequate parenteral intake of fluid can be maintained for any length of time. These injections should not be withheld until an emergency exists but rather used to prevent emergencies. They should be resorted to as soon as there is an obvious threatening of fluid deficit that cannot be overcome by simpler means. Their prompt and adequate use may save life. The choice of the fluid to be injected depends on the following considerations:

(a) Five per cent dextrose solution is the standard injection fluid to antagonize hypohydration.

(b) Five per cent dextrose in physiologic solution of sodium chloride should be employed whenever there is hypochloridemia, but only until this is corrected. Continuous injection of this solution introduces an excess of salt into the system.

(c) Ten per cent dextrose solution is the one to be injected when parenteral supply of carbohydrate as well as of fluid is required.

(d) Twenty-five per cent dextrose solution, in amounts of from 10 to 20 cc given very slowly every few hours, is to be employed when the heart is failing because of prolonged malnutrition or when dextrose is indicated but the heart is too enfeebled to permit of bulky injections.

**Amplified Milk Diet**—Considerations as to Quantity. After the first few days, during which the patient's anorexia may be respected and the patient be given only as much as he cares to take, the diet should be progressively increased—signs of digestive disturbance always being watched for—until the caloric intake is adequate for the needs of the patient. This should, at its minimum be 30 calories per kilogram in the twenty-four hours. A temperature averaging 102 F adds about 25 per cent, i. e., increases it to about 40 calories per kilogram, still higher fever may add 50 per cent. Hence an adult weighing 70 Kg (150 pounds) needs at least 2,100 calories, but generally 3,000 calories in twenty-four hours. A protein income of from 65 to 80 Gm having been provided the remainder is made up chiefly of carbohydrate. Fat is not well taken care of in fever.

An exclusive milk diet is not adequate to provide such an intake. The caloric value of 1 liter of milk is 700, so that 4 liters (1 gallon) would be required to yield 2,800 calories, a quantity that it is obviously impossible to ingest in the twenty-four hours. The most a fever patient can ingest of milk is 2 liters in the twenty-four hours which at feeding intervals of three hours would require the administration of 250 cc (1 large tumblerful) at a time. This would take care of the protein requirement (1 liter of milk = 30 Gm of protein, 2 liters = 60 Gm) and of about one-half the caloric intake (1,400 calories).

Addition of carbohydrate to the extent of 400 Gm renders the diet adequate ( $400 \times 4 = 1,600$ ). A 40 Gm slice of toast adds about 100 calories, so does a serving of oatmeal or other gruel or of pudding. Eating four crackers yields a similar amount. If the patient receives—to make calculation easy—one such 100 caloric addition with each of his eight milk feedings 800 calories of the deficit will have been taken care of and it will still be necessary to provide about 800 calories

to yield an ample (3,000 caloric) diet. If this is introduced in the form of sugar or of lactose (1 teaspoonful = 5 Gm = 20 calories), 40 teaspoonfuls will be required, a rather large amount to be disposed of. Some of this sugar may be given with the drinks. A tumblerful of orangeade is worth about 100 calories. Lemonade sweetened with  $2\frac{1}{2}$  teaspoonfuls of sugar yields 50 calories. If the patient is given six fruit drinks (lemonade and orangeade alternating) every three hours alternating with his feedings, 450 calories can be disposed of. Lactose, less sweet than sugar, may be added to milk (lactose milk, two teaspoonfuls per tumblerful), and sugar may be used to sweeten milk toast or cereal gruel.

The moderate use of fat makes the problem of adequate feeding of the fever patient a practical possibility. One egg adds 70 calories (and seven and one-half eggs yield the amount of iron<sup>1</sup> required in the twenty-four hours), two slices of crisp bacon yield 70 calories, and so do one square of butter or of margarine and two tablespoonfuls of cream. A serving of ice cream is worth 200 calories. One tumblerful of "special" eggnog 180 cc of milk (= 126 calories), two eggs (= 140 calories) and two tablespoonfuls of molasses (= 84 calories) yield 350 calories. But it is rather difficult to digest.

Considerations as to Quality. It goes without saying that only the best quality of food may be served to patients. "Spoiled" food, which may produce a transient illness in a well person, may kill a fever patient. Furthermore, food must be palatable and varied. This means that milk should not always be served plain but also as buttermilk, that it may be flavored with "malted milk" or with cocoa (which also adds to the caloric value, 1 cup of cocoa = 200 calories), or with coffee or tea (which lessen it). It may be served in the form of eggnog or of cream soups. It is evident that the skilful administration of an adequate, enjoyable and digestible diet to the fever patient is an important item in the art of nursing and that the longer the fever lasts, as in typhoid, tuberculosis or endocarditis, the greater the responsibility devolving on the nurse as well as the physician to maintain as good a state of nutrition as possible.

It is not necessary that the fever patient be plied with cold food exclusively. He may have, for instance, hot broth in which one or two well beaten eggs may be stirred, or to which croutons (small cubes of toast) may be added, to make it nutritious.

As long as the fever patient's mouth is dry, it is customary to prescribe only liquid or soft food. As soon as the salivary glands have recovered their activity, as indicated by the tongue being moist, dry toast, zwieback and crackers, poached or scrambled eggs, tender meats and other food that requires chewing may be added, thereby greatly facilitating adequate caloric intake.

Coffee and tea may be useful not only as flavoring for food but also as stimulants to the circulation. A cup of hot, black coffee may help a fever patient who is chilly or shivering after a cold bath, but it should not be used for this purpose at bedtime, as it may make the patient restless and sleepless. At that time a hot "toddy" with alcohol is better.

Alcohol occupies a position somewhere midway between a dietetic article and a drug. In the therapy

<sup>1</sup> Two liters of milk furnishes less than one fourth the required amount of iron.



of fever patients it may be employed in one of four different ways, but it should be given only when and as indicated and not in a routine manner

(a) For its caloric value (1 cc = 7 calories) in the alcohol addict, to whom it needs to be given from the very first in liberal doses (possibly 250 cc or even 500 cc) of whisky or brandy or "cologne spirit" Addiction and fever both increase the degree to which alcohol is oxidized and acute disease should never be taken as the opportunity to break a drug habit. Such an attempt may cost the patient's life. In patients difficult to feed, most especially the aged, smaller doses (from one-half to one tablespoonful of brandy or "cologne spirit" every two to four hours) may be given with food.

(b) For its stomachic value and the flavoring of food, in the form of wine or brandy (teaspoonful to tablespoonful) added to milk or egg-nog.

(c) For its narcotic value, to lessen restlessness, sleeplessness or delirium. When the alcoholic addict develops fever he is very prone to delirium, which may require a more powerful narcotic (e. g., paraldehyde).

(d) As a "diffusible" stimulant to the circulation when required to bring blood to the skin, before or after cold hydrotherapy, or both, in the form of from 25 to 50 cc of wine, 15 cc of brandy (or "cologne spirit") in a wineglassful of water, or from 4 to 8 cc of aromatic spirit of ammonia also in a wineglassful of water.

*Care of the Mouth*—The mouth of the fever patient must be thoroughly cleansed after each feeding. Warm water is the essential thing for this purpose. "Mouth wash" is merely "flavoring" but it makes the procedure more pleasant. Solution of Hydrogen Dioxide, diluted with an equal amount of warm water, helps in cleansing a mouth that is in bad condition. If the patient is too sick to brush his teeth, the nurse must do it for him. A short piece of whalebone (or similar material) around which a pledget of gauze is wrapped dispenses with the necessity of employing the gauze-wrapped finger. False teeth should be kept out of the mouth until the patient receives diet that requires their use, then they should be removed between feedings, cleansed and kept in cold water. The lips of all fever patients should be kept anointed with cold cream or petrolatum. The appearance of sordes, the presence of a heavily coated dry tongue, or a foul mouth reflect on the quality of the nursing care and bring with them danger of painful fissures and ulcers that may make feeding difficult and proper cleansing impossible, and invite infection of salivary glands and even of the middle ear and possibly the mastoid.

When the physician at each visit looks at the patient's tongue, as he always should, he gathers indications not only as to the state of the patient's general condition and the kind of diet that will probably be tolerated but also as to the kind of nursing care he is receiving.

*Care of Intestine*—It is the physician's duty to see to it that the food administered is properly digested and its residue adequately eliminated. It is the nurse's duty to keep the physician informed on how well these functions are performed not only by recording the number of stools each day but also their character, if there is any departure from the normal.

When the fever patient's diet is well digested there is a tendency to constipation, which is best corrected by adding cooked fruit and vegetable purees.

When diarrhea is present, the first thing to do is to revise the diet in accordance with the principles laid down in connection with the Therapy of Diarrhea (q. v.). The same is true of tympanites (q. v.). The physician should regularly inspect and palpate the abdomen to detect, at the earliest possible moment, appearance of tympanites and the accumulation of fecal masses.

Physic should not be ordered as a routine but only as and of the kind required. Whenever rectal examination reveals the presence of scybala in the ampulla, an evacuant enema is indicated. If the stools are dry and hard, Liquid Petrolatum (one tablespoonful at bedtime or morning and evening) or a Petrolatum Emulsion (if the patient objects to the oil) should be ordered. The bed patient's tendency to colon atony is best antagonized by stimulants to peristalsis, e. g., Aloe Pills (one or two at bedtime) or Cascara Sagrada (fluidextract, from one-half to one teaspoonful at bedtime, the Aromatic Fluidextract of Cascara Sagrada to be preferred for women and children). Salines, so frequently ordered for bed patients, are less desirable because they do not adequately stimulate peristalsis.

#### ANTIPYRESIS

Antipyresis is indicated only when the body temperature exceeds 105 F in a fever with a relatively short course, such as pneumonia, or 103 F in a prolonged febrile disease, such as typhoid, because such temperatures are in themselves detrimental to the tissue cells. For the reduction of such excessive temperatures, appropriate hydrotherapy offers the only method of real advantage to the patient. Even if these temperatures are not reached, fever patients should from time to time, say, twice daily, be bathed with cool water so as to be refreshed, just as healthy persons refresh themselves by a cool plunge on a hot summer day, and a restless and sleepless patient might be given a cool pack to comfort and quiet him. Indeed, the main object of hydrotherapy, even when the temperature is excessive, is not mere reduction of temperature but improvement in the febrile disturbances of the nervous system and the circulation, the stimulation of respiration and of kidney elimination and, what is most important, the raising of metabolic activity and the increasing of resistance to infection. The latter effects of hydrotherapy may be compared to "opening the drafts so as to permit the fire to burn more briskly."

The essential thing to remember in attempting reduction of excessive fever temperature is that it is not merely a matter of simple temperature equalization between a hot body and a cool medium but a matter of circumventing the heat-regulating mechanism, which tends to maintain the fever temperature by the same means by which normal body temperature is maintained, namely, by peripheral vasoconstriction and increased metabolic activity. The peripheral vasoconstriction must be antagonized, so as to bring the hot blood from the interior of the body under the influence of the cooling medium, this is generally accomplished by appropriate covering in the "packs" or by vigorous rubbing in the baths. By such means these procedures are made less disagreeable as well as more efficient, not only by exposing the blood to the cooling influence but also by preventing shivering with its excessive heat production. During the procedure the skin must be kept red as constantly as possible, and, at the end of it, left red, warm and moist, i. e., in the best condition for heat elimination. If the skin is permitted

to stay pale during the bath and allowed to remain pale and cold at its conclusion, the patient feels miserable and shivers, and presently the temperature may be higher than it was before the bath

*The Choice of the Antipyretic Procedure* — This depends on the condition of the skin, of the general circulation, of the kidneys, and of the nervous system

When the skin is hot and dry, reduction of temperature is relatively easy, mere moistening with tepid water (85 F) will give the patient comfort. When the skin is cold, the blood must be made to flow into the skin by preliminary use of heat (105 F) with friction or, if this fails, by a mustard pack or bath, supported by a stimulant to the circulation (coffee or alcohol). Cold should never be applied to a cold skin.

The feebler the circulation, the gentler must be the procedure. One should beware of using heroic hydrotherapy in a collapsed patient, even if the internal temperature is very high.

When nephritis is present as a complication, prolonged tepid (85 F) baths should be used, rather than cold procedures.

When the nervous system is depressed, the sudden impact of cold water and vigorous rubbing are invaluable to arouse the patient, to make him breathe better, and to take nourishment more readily. When the patient is restless and sleepless, a suitable cold wet pack is the best sedative that can be prescribed for the fever patient.

The following hydropathic procedures, arranged somewhat in order of increasing severity and antipyretic efficiency, may be needed to meet these various indications:

- (a) The cold head-compress
- (b) The antipyretic pack
- (c) Antipyretic ablution, or "sponging"
- (d) The sheet bath
- (e) The half bath
- (f) The full bath

(a) The cold head-compress is the single most universal hydropathic procedure in fever. It should, without exception or special order, accompany all antipyretic procedures. This compress is useful by itself to lessen febrile headache and to quiet the delirium of the fever patient. It is a wet towel, well wrung out of ice water, applied to the head like a turban. To be kept cold it must not be covered and it should be changed frequently (as often as it warms up) unless an ice-cap is included, which should be done in all severe cases.

It is a general principle in all hydrotherapy to keep the head cool and the feet warm. Hence, whenever there is a tendency for the feet to be cold, a properly protected hot water bag should be kept near them as a routine accompaniment of all other procedures.

(b) The most useful form of the antipyretic pack is the "trunk compress." It is mild enough to be used even for children and collapsed patients, and it is of value even in cases presenting very high temperatures in the intervals between the more radical procedures. The cold trunk compress for the child is a Turkish towel, for the adult a sheet folded so as to extend from the axilla to the hips and all round the body. It is wrung out of water at 60 F, covered with dry flannel (but not water proof), and changed every two hours for temperatures above 104 F. It is changed every hour for temperatures above 105 F and removed when the temperature falls below 103 F. In a fever with a long course, the temperature points may be set 1 degree

lower. If the trunk compress has not warmed up when changing is due, it should not be changed. If the skin is cold to start with, a mustard pack should be employed.

The anterior trunk-compress differs from the foregoing in that the wet cloth covers only the front and the sides to the posterior axillary lines, while the dry flannel covering extends round the patient. It is to be preferred because less disturbing when the patient is very sick and frequent changing is necessary. When changing is due, the flannel covering is opened and the fresh compress slipped in place.

For children and very sensitive patients the graduated trunk compress may be ordered. The first application may be at a neutral temperature (90 F) to avoid shock and fright, and the temperature of subsequent compresses should be reduced progressively by 5 degrees F each time until the desired result has been secured.

The cold wet pack is indicated in conditions of febrile restlessness and sleeplessness. It includes the patient's arms and shoulders as well as the legs down to the knees, the sheet being placed in such a way that wet sheet is between adjoining skin surfaces at all points. The sheet, having been lightly wrung out of water at about 60 F is placed on a dry woolen blanket and both are put underneath the patient so that the wet sheet is next to him. The patient then raises his arms above his head and half of the sheet is drawn across his body and tucked alongside the trunk and between the legs. Then the patient brings the arms down to his side and the other half of the sheet is brought around the body, covering the arms and shoulders and the rest of the body, its border being tucked in along the opposite side. Finally the woolen blanket is brought together in such a way as to make snug closure, most especially about neck and shoulders, and tucked under the feet so as to keep "air from getting at the wet." If a patient is chilly, additional covering may be used. Should the patient go to sleep in the pack, he is not disturbed. Otherwise the pack might be changed after it has thoroughly warmed up, possibly in an hour or two.

The "mustard pack" is a modification of the wet pack, consisting of the use of hot (105 F) water to which mustard (one heaping tablespoonful per liter) has been added for wetting the sheet (doubled up for this purpose). A dry blanket surrounds the wet sheet, particularly snug closure being made about the neck to keep the mustard fumes from affecting the patient's eyes. Every five minutes the skin is inspected for reaction, which first occurs on the surface on which the patient lies, and within fifteen to thirty minutes the application should be removed. This powerful appeal to redden the skin should be used whenever, in antipyretic hydrotherapy, redness cannot be brought to the skin by other means. A suitable ablution should be used as a finishing procedure to free the skin from the adhering mustard particles.

(c) Antipyretic ablution ("sponging") is the simplest and most commonly employed, but also mildest, measure. It may fail to make an impression on high or stubborn temperatures. It is, nevertheless, a useful preliminary to more powerful procedures, serving as a test of the patient's reactive capacity. The mattress is protected by water-proof material (oil cloth or mackintosh) covered with a blanket and a linen sheet that have been placed underneath the patient. After the head-compress has been applied and the patient's face

has been bathed with cold water, such water (at about 60 F) is freely thrown on the arms down to the elbow, the trunk both front and back, and the lower extremities down to the knees. A crumpled piece of gauze or the hollow of the hand may be used for carrying the water, which is dashed on the skin with one hand while the other hand carries out a continual chafing movement until the treated part warms up. Then another portion of the body is attended to and this is continued until all parts have been treated, special attention being given to the back, which is the hottest as well as the best reacting part of the fever patient's body. The surface is gone over in this manner two or three times until the temperature has been reduced, but never below 101 F, as it may sink further subsequently. The procedure should be ended earlier when it is found that the skin does not warm up readily under the rubbing. As finishing treatment, the patient is not dried at all if he is vigorous but merely rolled onto a dry sheet, the wet bed coverings being simultaneously withdrawn. If he is less vigorous, he is gently dried by wiping off excess of fluid but leaving the surface somewhat moist. If the patient is very sensitive, small portions of the body at a time are treated, dried, and covered immediately. If sedation is aimed at, the procedure might be finished by means of a general wet pack to keep the temperature from going up too rapidly and to lessen the number of spongings required. Trunk compresses may also be used for this purpose.

"Hot sponging," at 105 F, of portions of the body at a time followed by a warm (100 F) alcohol rub may give satisfactory results as an initial procedure for very nervous patients, especially children. The temperature of the water and of the alcohol may be progressively lowered at subsequent treatments, as judgment and experience indicate.

(d) The sheet bath is intermediate in potency between the ablution and the tub bath, for which it serves as a valuable substitute when a suitable tub is not available. It should be resorted to when the "sponge" is inadequate to reduce excessive febrile temperature satisfactorily. With the bed prepared as directed for "ablution," a sheet partly wrung out of water, ranging in temperature from 80 down to 50 F according to indications, is placed underneath the patient and wrapped about him so that no two body surfaces are in opposition without wet sheet between them. Then the sheet is chafed until it warms up, whereupon cold water (60 F) is dashed on by means of a cup and the sheet is again briskly rubbed and patted until "reaction" takes place, as indicated by warming up of the sheet. Then this process is repeated on another part of the body, and the entire surface (arms and legs excepted) is gone over and over again until the sheet does not warm up as readily as it did, until the patient shivers, or until the temperature has been reduced to 101 F. The procedure may be finished as discussed under "ablution."

The "ice rub" is the sheet bath modified by using a lump of ice, partly wrapped in cheese-cloth and passed over the surface with one hand while the other strokes and pats the part just treated with the ice for not more than fifteen seconds in any one place. It adds severity and efficiency to the sheet rub.

"Cold sprinkling" may often be successfully employed instead of a tub bath, when a tub is not available. In the emergencies of "heat stroke" it should be carried out wherever the patient with hyperpyrexia is found

and even before he is transported to the hospital, where recurrence of the high temperature may call for its renewed use. Sprinkling may be carried out in bed by raising the head of the bed about 1 foot from the floor and placing a rubber sheet (covered with a linen or cotton one) under the patient in such a way as to provide for drainage into a tub or pail. To keep the mattress from sagging, three boards the width of the bed may be placed under it. The sprinkling can should have a rather large rose nozzle and should be held 2 or 3 feet above the patient. A sprinkling hose attached to a hydrant may be employed, but of course excessive force of water impact should be avoided. Constant active friction must be kept up throughout the procedure. The sprinkling should be stopped from time to time to permit "reaction" to take place, and when this finally does not occur as readily as it did before or when the temperature has been reduced to 101 F, one of the finishing procedures is employed.

(e) The half bath is given in a tub containing water that reaches to the navel when the patient is sitting. While "tubbing" is always more or less troublesome for helpless adult patients, it is so easily carried out for small children that for these it should be the antipyretic procedure of choice, whenever the trunk pack proves inadequate.

Half baths may be prescribed as follows: "Neutral half bath (at 95 F) for five minutes with constant friction. Finish by cool affusion (at 75 F), followed by gentle drying."

For a more vigorous effect one might prescribe "Cool half bath (at 75 F) for ten minutes with friction. Finish by cold affusion (60 F) to neck, back and chest. Dry lightly."

In febrile collapse, when the skin is pale and cool and the pulse rapid, one might prescribe "Hot half bath (at 105 F) for five minutes, until skin reddens. Finish with brief sprinkling (from sprinkling can) of nape of neck with cool water (at 75 F). Rub dry."

Still more powerful a stimulant to the skin is the "mustard bath." Powdered mustard (one tablespoonful to the gallon) is mixed with a little water to form a thick paste and this is folded in a towel in such a way as to form a bag, which is hung in a hot (105 F), warm (100 F) or neutral (95 F) half bath for five or ten minutes, until the bath is sufficiently impregnated with oil of mustard. To protect the patient's nose and eyes a sheet may be thrown over the tub. The patient is bathed until the skin reddens.

(f) The full bath is one that reaches to the bather's chin. It must always be given with friction. "Rubbing is the keynote to successful tubbing." Two types may be recognized: the graduated bath and the full cold bath.

The graduated bath ("von Ziemssen bath") is given in a tub one third full with water at 90 F and accompanied by constant rubbing until the skin reddens. Then bucketfuls of cold water are added, so as not to impinge directly on the patient, until the temperature is lowered to 75 or even 70 F in the course of half an hour. It may be finished with a cold (60 F) affusion to the back of the head.

The full cold bath ("Brand bath"), the most powerful hydropathic procedure, has made a special reputation for itself in the prevention and treatment of the "typhoid" state (not only of that which occurs in typhoid). It is much more stimulating than the von Ziemssen bath. One might prescribe it at first as

follows "A full bath at 85 F with constant rubbing (abdomen excepted in typhoid) for five minutes with cold (60 F) affusions to head and back of neck for last two minutes followed by light drying"

If after such initial baths the temperature continues to rise and is not kept within bounds by these given every four to six hours, the temperature of the bath water is lowered to 75 F and the duration increased up to ten minutes, provided the patient reacts adequately. The feebler the patient, the briefer must be the duration of the bath, which makes the stimulating effect greatly overshadow the temperature reducing action.

#### "ELIMINATION"

Perhaps the least objectionable routine medication in fever—if routine medication there must be—is the administration of a diuretic. While it is extremely doubtful that the fever-producing toxins are sufficiently diffusible to be flushed out of the system by way of the urine, it is probably of advantage to the kidneys to secrete urine of lesser rather than of higher concentration; it might possibly lessen the danger of nephritis as a complication. The old fashioned "fever mixtures" handed down with such reverence for tradition by one generation of clinicians to another are nothing more or less than diuretics. It remains to be shown—though the possibility is not denied—that they are superior in value to simple and single agents. Of the various diuretics, the one that might be preferred is Sodium Citrate (prescription 1), which is a veritable fever "polychrest," being diuretic, expectorant, and in limit

#### PRESCRIPTION 1—Sodium Citrate

R Sodium citrate	30 00 Gm
Water	30 00 cc
Strawberry syrup	to make 120 00 cc
Mix Label Teaspoonful in glassful of water or fruit juice every two hours	

doses also laxative. Furthermore, it is an indirect alkali, i. e., increases the alkali reserve of the system without neutralizing gastric juice, and it well may be that by antagonizing febrile acidosis it improves systemic functions in general and possibly thus even favors antimicrobial resistance. To secure these effects one must push it up to the limit of tolerance, which is usually set by either the stomach or the bowel. To minimize the production of nausea and possibly vomiting, each dose should be given in a glassful of fluid, preferably fruit juice such as lemonade, orangeade or grapeade. When it causes nausea in spite of this dilution or if it produces diarrhea, its dose needs to be lessened. It is believed to decrease the coagulability of the blood, possibly by inactivating calcium, which may also be the reason why its use is occasionally followed by urticaria.

#### RELIEF OF DISTRESS

The medicinal antipyretics, more appropriately termed "fever narcotics," differ fundamentally from antipyretic hydrotherapy in that they depress metabolism while lowering febrile temperature. As this depression may also mean a lessening of resistance, they should not be employed merely for the purpose of temperature reduction. They are useful, however, for the relief of the discomforts of fever such as headache and general aching restlessness, sleeplessness, and impairment of digestion especially because such comfort can generally be secured from doses inadequate to reduce the body temperature markedly or to produce untoward results, such as excessive sweating or collapse. They should be

given merely as required for the relief of these symptoms, which are usually most marked at the beginning of fever, and should be discontinued as soon as these symptoms are no longer complained of.

It is of advantage to distinguish between three groups (a) quinine, (b) salicylates and (c) pyrazol-  
paramidophenol compounds.

(a) Aside from its specific value in malaria (q v), quinine lowers temperature by depressing metabolism, slows the pulse, relieves neuralgic pains, and quiets the nervous system. By these effects it may favor a good night's sleep in a fever patient who might otherwise be restless and sleepless, and it might be given at bed time for this purpose, 0.3 Gm capsules of Quinine Hydrochloride every hour for two or three doses, administration to be discontinued if the ears ring. For children, Quinine Ethylcarbonate (euquinine, prescription 2) is preferable.

#### PRESCRIPTION 2—Quinine Ethylcarbonate

R Quinine ethylcarbonate	5 00 Gm
Aromatic syrup of eriodictyon	60 00 cc
Mix Label Shake the bottle and give teaspoonful at bedtime (For child 5 years old)	

(b) While in rheumatic fever (q v) salicylate has a special value and is pushed to the limit of tolerance, preferably in the form of sodium salicylate, Acetylsalicylic Acid may be employed in 0.3 Gm capsules for its analgesic value every two to four hours (as required) to relieve aches and pains, provided it does not cause excessive sweating.

(c) The cheapest and most active of the pyrazol-  
paramidophenol compounds, acetanilid, is best given in unit doses of 0.1 Gm capsules or tablets every hour or two until the patient is relieved. The administration is at once discontinued if pallor, cyanosis, faintness or tachycardia is produced. Acetphenetidin, in twice the dose, produces almost identical effects, excepting that these are slower in appearing and there is less tendency to cyanosis and faintness. It is best given in 0.3 Gm capsules or tablets at intervals of two to four hours as required. Amidopyrine, given in doses of 0.3 Gm tablets every two to four hours, has of late been suspected of the possibility of producing neutropenia. Hence, while patients are given this drug, the leukocyte count should be particularly studied. A periodic leukocyte count should be routine, however, in every fever patient, no matter how treated. Antipyrine is the one of this group that is sufficiently soluble to be administered in liquid dosage form, hence it is suitable for children (prescription 3). As it may be irritative to the stomach when given in solid dosage form, it should always be prescribed in solution. It is the only one of these that may be given as an enema if oral administration is impossible.

#### PRESCRIPTION 3—Antipyrine

R Antipyrine	2 00 Gm
Syrup of raspberry	60 00 cc
Mix Label Teaspoonful every two hours as required (For child 3 years old)	

#### COMBATING PYREXIAL COLLAPSE

At the bedside of every fever patient stands the dread specter of collapse, commonly due to primary paresis of the blood vessels, especially of the capillaries. It is probably the result of direct poisoning of the histiocytic system by bacteria deposited there from the blood stream. All the previously discussed regimen includes a recognition of this danger of collapse and aims, as far as possible, at its prevention.

For appropriate therapy it is necessary to distinguish between primary myocardial failure and vascular collapse. In certain diseases, e g, diphtheria, myocardial involvement is the anatomic substratum of the sudden appearance of often rapidly fatal heart failure, which may occur even when convalescence seems assured. For the treatment of this condition, see Acute Myocarditis. In vascular collapse, the first territory to be attacked is the splanchnic, so that with blood accumulating there the skin becomes pale and cool, and the heart, attempting to keep the gaping blood ways filled, beats faster and faster. At first there is but little lowering of the blood pressure. When the vasomotor center fails, probably owing to insufficient circulation in it, a vicious circle develops and the blood pressure becomes greatly depressed—a serious second stage sets in, which is characterized by paresis of the skin capillaries with development of cyanosis of the lips and nose, finger tips and toes. When finally the heart itself fails from malnutrition and overwork (a second vicious circle) and the pulse becomes irregular—sometimes, at intervals only—the condition is desperate indeed.

If the foregoing characterization of events is correct, the physician must aim at forestalling the development of the vicious circles referred to. On the other hand, circulation stimulants should not be employed too early or unnecessarily, because some, such as digitalis, may by cumulative action produce intoxication and also because they may call out a display of stored energy when it is not required and fail to do so when this is needed.

**Digitalis**—The employment of digitalis when the pulse commences to become rapid is based on the relative slowness with which—unless it is used in heroic dosage or by injection—its effects are secured. One may start from 1 to 2 cc of the Tincture of Digitalis or with 0.1 to 0.2 Gm of Digitalis Leaves (in capsules) given every eight hours. It should not be continued in these doses for more than three or four days unless the patient is under close observation. In either case the dose should be lessened or stopped as soon as improvement is secured, as evidenced by better quality of heart sounds, better pulse quality (the rate may not be lessened), improvement in blood pressure, or when the pulse becomes slow or irregular, or if nausea and vomiting ensue. In view of the efficiency of the official preparations made by reliable manufacturers, it is inexcusable to prescribe higher priced proprietaries on the basis merely of high pressure salesmanship, nor is there any justification for prescribing the injectable preparations that are required in an emergency, unless such an emergency really exists, and then only during the emergency, to be followed by oral digitalis administration. For injection purposes, if digitalis has not been given previously, strophanthin may be injected intravenously very slowly, in doses of from 0.25 to 0.5 mg, preferably in 10 cc of 25 per cent solution of dextrose once daily every third day or, if given daily, for not more than three days. Digitalis administration should have been discontinued for two or three days before the injection of strophanthin.

**Camphor**—Because of the possibility that it may have a favorable stimulant action on the peripheral circulation with a quieting effect on the central nervous system, camphorated oil (20 per cent) injected intramuscularly in large doses (5 cc) is recommended once or twice a day to establish a depot from which this

agent of otherwise but fleeting action may gradually be absorbed. It is probably contraindicated when there is evidence of myocardial failure.

**Caffeine Sodibenzoate**—Five-tenths gram of caffeine sodibenzoate in 2 cc of ampule water given intramuscularly may be special value in cases in which there is also cerebral depression. Its effect is rather fleeting and it may have to be repeated several times daily. Cupfuls of "black" coffee may be given as a retention enema.

**Strychnine Nitrate**—In doses of 2 mg hypodermically given every two hours or even every hour, until the pulse is slowed or the reflexes are exaggerated, strychnine nitrate is too well established clinically to be discarded as an available stimulant on the basis of negative experiments on healthy animals. It may possibly act indirectly by stimulating suprarenal secretion.

**Solution of Epinephrine**—In doses of 0.5 to 0.75 cc, Solution of Epinephrine, preferably administered in dextrose phleboclysis, may be of telling but unfortunately transient effect. If there is myocardial weakness, one must be careful not to overwhelm the heart with a large bulk of injected solution, and it is at such a time that the epinephrine might with advantage be added to the hypertonic (25 per cent) dextrose solution injected slowly in quantities of from 10 to 20 cc.

**Atropine Sulphate**—From 0.5 to 1 mg of Atropine Sulphate, given hypodermically every two to four hours up to the pharmacologic effect (dryness of the mouth, dilated pupils), is especially indicated in collapse with "leaky" skin such as may occur during a crisis in pneumonia. After its use, improvement in the circulation must be judged by the increased determination of the blood to the skin rather than by slowing of the pulse, for atropine in liberal doses may accelerate the heart beat while improving circulatory conditions.

**Volatile Agents**—So-called diffusible stimulants, such as alcoholic liquor and Aromatic Spirit of Ammonia, have been discussed under alcohol. Amyl nitrite inhalation (0.3 cc glass capsules) may be tried in an effort to bring blood to the skin, especially in an attempt to check a chill.

**Mechanical Means**—Methods of improving the distribution of the blood, such as elevation of the foot of the bed in vasomotor collapse or propping the patient up in bed in myocardial failure, should not be neglected in desperate cases. In sudden vascular collapse, centripetal massage of the limbs followed by snug bandaging from the feet to the hips and a tight abdominal binder may help tide a patient over a critical condition.

The very number of means employed in stimulating a failing circulation indicates lack of a really satisfactory remedy. The patient should not be plied with them indiscriminately but should rather receive them in accordance with one's knowledge of their pharmacologic action and special indications and with critical evaluation of results, whether good or bad.

#### TREATMENT OF CONVALESCENCE

When the temperature has become normal, the question of how rapidly the patient may get up and out of bed and back to work becomes important. As a general proposition, the convalescent patient feels better than he really is. It is a good rule to continue absolute bed treatment for as many days of normal temperature as there have been days of abnormal temperature. This rest period must be greatly extended in diseases with a tendency to the development of chronicity or of con-

plications Thus, in acute rheumatism or in acute nephritis, weeks rather than days of bed treatment are required, in acute endocarditis or in tuberculosis, months rather than weeks When there is a definite tendency to serious complications during convalescence, as the myocardial failure of diphtheria or the nephritis of scarlet fever, the patient should be kept in bed for several weeks, even though he seems perfectly well

The presence of even a slight rise in temperature day after day may be one of the troubles of a convalescent It usually indicates a focus of infection or a complication that requires being sedulously searched for Sometimes constipation or the premature assumption of a general diet is the cause of the rise in temperature, so that its occurrence indicates revision of diet and possibly the administration of a laxative

In cases in which subfebrile temperature continues and in which the blood picture and all other tests for complicating infection are negative, the possibility of a residual excessive irritability of the heat-regulating center may be tested for by the administration of amidopyrine (0.3 Gm tablets every hour for not more than three doses), the effect of each dose being observed to forestall collapse The temperature may not only go down but stay down In this manner prolonged sanatorium treatment has sometimes been shown to be unnecessary

Scarcely less important than the temperature record in the management of convalescence is the pulse rate As long as this goes up at the least exertion or after the slightest excitement, rest rather than exercise is indicated

When the patient seems ready to be permitted to get up, the transition should be made the more gradually the more severe, prolonged or exhausting the disease has been After a prolonged sickness, when the leg muscles have become very much weakened, the patient may be encouraged to exercise the legs by punching with them a pillow laid at the foot of the bed Sitting up in bed with the aid of a back rest is generally the first order for a patient after long continued recumbency At first this may have to be but for a short time, as the patient may get tired very easily Next the patient is helped to get into a chair at the side of the bed and sit there for say five minutes, possibly twice a day, morning and evening, while the bed is being made The time spent out of bed may usually be doubled daily, and, after a few days, the patient may be assisted in taking walking exercises During all first exertions of convalescents, one must be on the lookout for dizziness, faintness or even fainting This is especially apt to occur when a patient rises quickly for defecation or urination Stair climbing and walking in the open are all items of exercise to be carefully planned and graded Before a convalescent is exposed to the inclemencies of weather, he should be subjected to a graded course of hydropathic hardening procedures No greater error can be made than to send a feeble convalescent on a trip to the distant South before he is well able to get around and take care of himself Then a vacation of weeks or months before returning to work is of great advantage

**Diet**—A convalescent usually develops a good appetite, and thus should be appeased with discretion The mistake is often made at this time to feed the patient beyond his digestive capacity, and the resulting indiges-

tion may give rise to feeding problems that may delay recovery of strength

**Tonic**—The anemia usually present in the convalescent indicates the administration of iron, which may be given in the form of Pills of Ferrous Carbonate (Blaud's pills), of which one or two may be taken three times daily after meals For children, the Saccharated Ferrous Carbonate may be prescribed in the form of 0.3 Gm powders or of tablets, to be chewed like candy If a liquid administration form is desired, Iron and Ammonium Citrate (prescription 4) meets all requirements For infants and small children the Syrup of Ferrous Iodide, given in drop doses in the feedings, usually furnishes adequate iron intake

#### PRESCRIPTION 4—Iron and Ammonium Citrate

℞ Iron and ammonium citrate 10.00 Gm  
Syrup of orange to make 120.00 cc  
Mix Label Teaspoonful in water three times daily after meals

#### PRESCRIPTION 5—Arsenic and Mass of Ferrous Carbonate

℞ Arsenic trioxide 0.06 Gm  
Strychnine sulphate 0.06 Gm  
Mass of ferrous carbonate 10.00 Gm  
Mix and divide into thirty pills Label One three times a day after meals

If the patient's appetite is slow in returning, the addition of arsenic to the mass of ferrous carbonate may be of advantage Whether or not strychnine favors the return of "pep," the fact is that it is frequently added to "tonic" medication If used, it should be prescribed in pill form (prescription 5) rather than in the form of such an abominably tasting liquid as the Elixir of Iron, Quinine and Strychnine

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION

PAUL NICHOLAS LEECH Secretary

#### DEXTROSE (See New and Nonofficial Remedies, 1934, p 270)

The following dosage forms have been accepted

**Dextrose Solution 25 Gm 50 cc** A solution marketed in bottles and containing anhydrous dextrose 25 Gm in sufficient distilled water to make 50 cc

Prepared by the United States Standard Products Co Woodworth Wis

**Dextrose Solution 50 Gm 100 cc** A solution marketed in bottles and containing anhydrous dextrose 50 Gm in sufficient distilled water to make 100 cc

Prepared by the United States Standard Products Co Woodworth, Wis

#### TRIETHANOLAMINE-CRUDE (See New and Nonofficial Remedies, 1934, p 203)

**Triethanolamine-Carbide and Carbon Chemicals Corporation**—A brand of triethanolamine-crude (N N R)

Manufactured by the Carbide and Carbon Chemicals Corporation New York

#### TUBERCULIN-KOCH (See New and Nonofficial Remedies 1934, p 384)

Parke, Davis & Company, Detroit

**Tuberculin for the Mantoux Test**—A filtrate from bouillon cultures of both human and bovine strains of *Bacterium tuberculosis* containing 50 per cent of glycerin as a preservative Marketed in packages of two 10 cc vials one containing 0.01 cc tuberculin old and the other 10 cc of diluent



# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 18, 1934

## ANTI-HORMONES

In 1921 Harvey Cushing<sup>1</sup> delivered a notable address before the Association for the Study of Internal Secretions, in which he took severely to task those who would apply to therapeutics the contributions then but recently made in endocrinology. The association, he warned, "must discountenance the exploitation of the few discoveries which have already been made by those who recklessly under full sail plow through a fog bank of therapeutics, their horns tooting." Thirteen years ago, active glandular extracts were few and most endocrine therapy was "polyglandular." Today, however, there are many pure or nearly pure extracts the effects of which are fairly well known and more or less controllable. It was thought that these preparations must surely at last provide effective means for the treatment of disease, and they have been extensively (even incautiously) employed for this purpose. Thus, modern therapeutists have not heeded the excellent advice of Dr. Cushing, they have indeed been led "to embark glandward ho!" Little did they realize, however, how jealously nature guards our body economy, for, as Collip and his associates<sup>2</sup> have just shown, there are "antihormones."

Potent endocrine preparations are often administered to patients and frequently the desired effects may be attained, but, curiously, an individual here and there, who should promptly be cured by this extract or that, not only fails to improve but occasionally even becomes worse. The dose is increased without effect, the preparation is then condemned or the patient given up as hopelessly refractory. Now comes an answer to those who have been reckless enough to believe in the endocrine millennium. The organism does not so readily accept assaults on its glandular equilibrium—not without a struggle—it produces antihormones.

Zondek<sup>3</sup> and subsequently other investigators have pointed out that injection into animals of anterior

pituitary-like principle from urine of pregnancy results first in increase in the size of the ovaries, followed by regression to normal dimensions despite continued administration. Injection of this principle into rats over a sufficiently long time may lead to diminution in the size of the ovaries even to less than normal.<sup>4</sup> This loss of sensitivity appears to be specific for the factor administered, as ovaries refractory to the anterior pituitary-like principle will still respond to preparations of the anterior pituitary itself.<sup>4</sup> The reverse also has been demonstrated.<sup>5</sup> Hertz and Hisaw,<sup>6</sup> using an ovarian follicle stimulating fraction from the anterior pituitary,<sup>7</sup> noted that during repeated injection of their extract into young rabbits the ovaries, which at first were enlarged about fivefold, gradually regressed to their original size. Further injection of the extract failed to elicit any ovarian response, the glands became refractory and even after two or three months did not undergo normal development. The injection of sub-threshold doses, insufficient to induce a detectable morphologic change in the ovaries, also caused the latter in most cases to become resistant to the subsequent injection of large and usually effective amounts of the follicle stimulating factor.

Other examples of such phenomena are known. It has been claimed that the continuous administration of an extract of the corpus luteum cannot maintain the endometrium of the rabbit in a stage of progestational proliferation for more than about seventeen days.<sup>8</sup> Thereafter, despite further injections, the mucosa atrophies. Such reactions are not limited to the gonads and accessory reproductive organs. Loeb and Friedman<sup>9</sup> for instance, reported that guinea-pigs rapidly lose their sensitivity to the thyroid stimulating factor of the hypophysis, and recently, through the efforts of Collip and his associates,<sup>2</sup> other instances have come to light. In fact, these investigators have established the presence of specific antagonistic substances in the blood stream, which Collip has designated by the name already mentioned.

On injection of the thyrotropic principle of the pituitary into animals, hyperplasia of the thyroid gland occurs and the metabolic rate rises sharply. However, continued injections of the extract do not maintain this condition, the metabolic rate returns to normal in two or three weeks and may even go below normal. The animals fail to respond subsequently to doses even as large as eight times the previously effective dose.

4 Selye Hans, Collip J. B. and Thomson D. L. Loss of Sensitivity to Anterior Pituitary-Like Hormone of Pregnancy Urine. *Proc. Soc. Exper. Biol. & Med.* **31**: 487 (Jan.) 1934.

5 Selye Hans, Collip J. B. and Thomson D. L. Loss of Sensitivity to the Gonadotropic Hormone of the Hypophysis. *Proc. Soc. Exper. Biol. & Med.* **31**: 566 (Feb.) 1934.

6 Hertz Roy and Hisaw F. L. Effects of Follicle Stimulating and Luteinizing Pituitary Extracts on the Ovaries of the Infantile and Juvenile Rabbit. *Am. J. Physiol.* **108**: 1 (April) 1934.

7 Fevold H. L., Hisaw F. L., Hellbaum A. and Hertz Roy. Sex Hormones of Anterior Lobe of the Hypophysis. Follicular Stimulating Factor. *Am. J. Physiol.* **104**: 710 (June) 1933.

8 DeFremery P., Luchs and Tausk. *Arch. f. d. ges. Physiol.* **231**: 341 (1932) (cited from Collip).

9 Loeb Leo and Friedman H. Exophthalmos Produced by Injections of Acid Extract of Anterior Pituitary Gland of Cattle. *Proc. Soc. Exper. Biol. & Med.* **29**: 648 (Feb.) 1932.

1 Cushing Harvey. Disorders of the Pituitary Gland. *Retrospective and Prophetic*. J. A. M. A. **76**: 1721 (June 18) 1921.

2 Collip J. B. Some Recent Advances in the Physiology of the Anterior Pituitary. J. Mount Sinai Hosp. **1**: 28 (May/June) 1934.

3 Zondek Bernhard. Die Hormone des Ovariums und des Hypophysenvorderlappens. Berlin: Julius Springer 1931.

Transplantation of thyroid tissue from normal rats into refractory animals also is ineffective in raising the metabolic rate. Serum obtained from rats thus rendered refractory, when administered to other rats, effectually prevented the effect of the thyrotropic factor,<sup>10</sup> while normal rat serum or normal horse serum had no such effect. But rats the blood of which contained the inhibitory factor still responded to desiccated thyroid with a rise in metabolic rate.

Anderson and Collip<sup>11</sup> have succeeded in preparing highly potent antithyrotropic extracts of the serum of a horse injected for some time with thyrotropic factor. Similarly, a serum that inhibits the effects of the growth principle of the pituitary,<sup>2</sup> and another that prevents the gonadotropic activity of the hypophyseal-like fraction from the urine of pregnancy, have been obtained.<sup>12</sup> Evidence has also been adduced for the existence of yet other antihormones.<sup>2</sup>

Not only are these observations of great fundamental significance, they emphasize further the necessity for the utmost caution in the clinical use of endocrine products. Repeatedly, warnings against the indiscriminate application to therapeutics of our still fragmentary knowledge of glandular physiology have been issued by those who, like Cushing, have provided the foundation for the present exceedingly active work in this subject. Only a year ago the Council on Pharmacy and Chemistry<sup>13</sup> pointed out the possible dangers of the unconsidered administration of such active agents in the field of gynecology. The investigations discussed here provide emphatic substantiation of this point of view.

#### VITAMIN D IN BLOOD AND IN MILK

Irradiated milk and the milk from cows given feed that has been enriched in vitamin D through added viosterol, either as such or as irradiated yeast, rank peculiarly high in relative antirachitic potency when compared to other commonly used sources of this accessory food factor. This observation, naturally, has raised many questions. Granted the therapeutic excellence of these foods, is it advisable or practicable to insist that all market milk should be augmented in vitamin D potency?<sup>1</sup> What change occurs in the milk which renders it so much more efficacious in the treatment of rickets than an equivalent number of units of vitamin D in other forms?<sup>2</sup> What precautions must be taken in fitting the subject to this new form

of dietotherapy?<sup>3</sup> And one might reasonably inquire into the workings of the physiologic mechanism whereby the lactating mammal transports and possibly transforms the vitamin D of the food into that of the milk.

A recent study by Light, Wilson and Frey<sup>4</sup> bears on the vitamin D content of the blood and milk of cows fed irradiated yeast. The animals under investigation were part of a herd that was being regularly fed in this way for the commercial production of "yeast milk." It was observed that after one dose of the yeast the rate of disappearance of vitamin D from the plasma was more rapid in the early hours after feeding, when the concentration was high, than later. Furthermore, as might be expected, there was an apparent dependence of level of the antirachitic factor in the milk on that in the plasma. Examined more promptly after the irradiated yeast had been fed, the plasma showed a distinct rise in content of vitamin D in from one to two hours. Taking into account the quantity fed and the amount appearing in the blood, it was calculated that "practically 100 per cent of the vitamin D fed appears in the blood." In contrast is the relatively small proportion of the ingested antirachitic factor appearing in the milk, some 2 to 3 per cent.<sup>5</sup>

The studies of the fate of vitamin D in the cow doubtless have a significant bearing on the behavior of this substance in man; they indicate that a large part of this food factor ingested cannot be accounted for by bio-assays of feces, milk or tissues. There seems to be no doubt that it enters into metabolism in some manner, which in turn may be influenced by its own chemical make-up or that of the associated compounds.

#### SPIROCHETAL JAUNDICE IN SEWER WORKERS

Spirochetal jaundice (Weil's disease) has received occasional notice in the American literature for a number of years. It seems to be one of those conditions fated to play an ever larger part in medicine and public health. To date, however, it has been of sufficient rarity, at least as far as the diagnosis is concerned in this country, to be still in the realm of case reports. During the last ten years, according to Schuffner,<sup>1</sup> 452 cases have occurred in Holland with forty-six deaths. Since the chief vector appears to be the rat, it would be surprising if no further cases should appear in this country.

Additional interest in the possibilities of Weil's disease is aroused by the recent report of Fairley.<sup>2</sup> The case noted by him was in a man of 25 who for the

10 Collip J B and Anderson Evelyn M. The Production of Serum Inhibitory to the Thyrotropic Hormone. *Lancet* 1: 76 (Jan 13) 1934.

11 Anderson Evelyn M and Collip J B. Preparation and Properties of an Antithyrotropic Substance. *Lancet* 1: 784 (April 14) 1934.

12 Selye Hans, Bachman C, Thomson D L and Collip J B. Further Studies on Loss of Sensitivity to Anterior Pituitary Like Hormone of Pregnancy Urine. *Proc Soc Exper Biol & Med* 31: 1113 (June) 1934.

13 Estrogenic Substances. Theelin Report of the Council on Pharmacy and Chemistry. *J A M A* 100: 1331 (April 29) 1933.

1 Krauss W E, Bethke R M and Monroe C F. *J Nutrition* 5: 467 (Sept) 1932.

2 Sterols in Milk, editorial. *J A M A* 103: 190 (July 21) 1934.

3 Wilson W R. Prevention of Rickets by Milk Fortified with Vitamin D from Cod Liver Oil. *J A M A* 102: 1824 (June 2) 1934.

4 Light R F, Wilson L T and Frey C N. *J Nutrition* 8: 105 1934.

5 Hess A F, Light R F, Frey C N and Gross Joseph J. *Biol Chem* 97: 369 (Aug) 1932.

1 Schuffner W. Recent Work on Leptospirosis, *Tr Roy Soc Trop Med & Hyg* 28: 7 (June 30) 1934.

2 Fairley N H. Weil's Disease Among Sewer Workers in London, *Brit M J* 2: 10 (July 7) 1934.

greater part of two years had been unemployed but who twenty-two days before the onset of his illness had joined a gang of workmen engaged in repairing a sewer in London. From a clinical point of view his case was typical of fatal Weil's disease. It presented the usual sudden onset with rigor, extreme prostration, muscular tenderness and severe jaundice on the fifth day. Later multiple hemorrhages, herpes and renal involvement with albuminuria, oliguria and anuria occurred, terminating with death on the eleventh day. It was subsequently reported that two guinea-pigs inoculated with blood collected from the patient on the seventh day of the disease had sickened, and necropsy revealed jaundice and visceral hemorrhages, the characteristic postmortem features of Weil's disease. Typical leptospiras were demonstrated by dark field illumination in emulsion of liver pulp from one animal and in the heart blood of both. Serum collected from the patient on the tenth day of illness and sent to Professor Schuffner in Holland gave a strongly positive agglutination reaction with the typical Weil strain leptospira.

This unusual experience led Fairley to investigate the histories of a number of other sewer workers in London. In one fatal case, the history of which was somewhat similar to the first, the coroner had returned an "open verdict—toxic hepatitis—but there was no definite evidence to show how or by what means the toxic condition had arisen." In eight other sewer workers a more or less detailed history of severe illness associated with jaundice was obtained. Blood serum was collected from three individuals at varying times after their illness. The agglutination reactions, which were performed by Professor Schuffner, were strongly positive in seven of the eight cases, varying from 1 in 100 to 1 in 1,000 when living or formalized cultures of the classic "Weil" strain, *Leptospira icterohaemorrhagiae*, were employed.

The mode of infection was of particular interest. The series of cases reported comprised sewer laborers engaged in repairing or rebuilding old sewers. Among other duties their work consisted in chiseling away and removing the old brickwork in a section of sewer under repair, and during this process the skin of their hands was often traumatized. The inner surfaces of bricks lining the sewer are covered with a slimy deposit, and contact with sewer water was inevitable. Rats, which are recognized as the principal carriers of the leptospira of Weil's disease, are naturally numerous in many sewers. It is recognized, moreover, that leptospira can exist in slime for undetermined periods of time.<sup>3</sup>

In this country, up to 1933, eight cases of leptospiral jaundice had been reported. Ball<sup>4</sup> reported two more cases in that year, in neither of which was it possible to determine the exact source of infection, though both

individuals had apparently been in close contact with rat infested buildings. At least one of the American cases was in a sewer worker.<sup>5</sup>

Two points are worthy of emphasis in this connection. Diagnostic keenness in considering the possible leptospiral etiology of some obscure cases of jaundice is certainly desirable. The industrial hazard inherent in occupations involving close contact with rats or their moist excreta must be considered potentially important. In view of the widespread exposure to rat infested buildings, exaggerated by the depression, it is surprising that no more extensive infection with the leptospira of Weil's disease has been reported. As Fairley pointed out, however, since jaundice develops in only about 50 per cent of cases of leptospirosis, a serologic as well as clinical investigation of those exposed, e g, sewer workers, should be undertaken.

## Current Comment

### MUTUAL ANTAGONISM OF BACTERIAL VARIANTS

The test tube incompatibility of certain bacterial species has long been known. It has been generally assumed that different strains, types or variants of the same bacterial species can be grown together in perfect symbiosis. Now test tube antagonism has been demonstrated between different phases (R and S) of the same bacterial species. About two years ago Dr Ettinger-Tulczynska<sup>1</sup> of the Robert Koch Institute, Berlin, began to suspect such interphasic antagonism. He found, for example, that mice simultaneously inoculated with two types of pneumococci almost invariably yielded a pure culture of but one type at necropsy. In less than 10 per cent of the cases could both types be isolated from blood cultures or from necropsy material. A similar complete suppression of the minority type or phase was afterward demonstrated in artificial mediums. This interphasic antagonism was afterward shown to be due to an unknown integrating factor,<sup>2</sup> conceivably a type-stabilizing or type-transforming bacterial hormone.

## Association News

### MEDICAL BROADCASTS

#### Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Central daylight saving time. The next three broadcasts will be as follows:

August 23	Infantile Paralysis	W W Bauer	M D
August 30	Your Child Enters School	Morris Fishbein	M D
September 6	Football Hazards	Morris Fishbein	M D

5 Cushing E H	Leptospirosis Icterohaemorrhagica	J A M A
89 1014 (Sept 24) 1934		
1 Ettinger Tulczynska R	Ztschr f Hyg u Infektionskr	113
762 (March 19) 1932		
2 Gundel M and Mayer Ursula	Zentralbl f Bakt	129 305
(Sept 8) 1933	Neufeld F and Kuhn Helga	Ztschr f Hyg u
Infektionskr	116 95 (March 20) 1934	

3 Buchanan G. Spirochetal Jaundice. Special Report Series 113. Medical Research Council London 1927.  
4 Ball H A. Leptospirosis Jaundice. Am J Clin Path 3 283 (July) 1933.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION PUBLIC HEALTH, ETC.)

### ARKANSAS

**Another Impostor**—Using the name Louis Giraud, a man has been presenting letters of recommendation at various hospitals throughout the country in an effort to obtain financial aid or employment as a chemist. Rev Joseph H Schumacher, chaplain of St Vincent's Infirmary, Little Rock, writes that his name was fraudulently used on a letter presented at Mercy Hospital, Pittsburgh, by Giraud. When the man visited St Vincent's, authorities there were warned that the man was a fraud. Giraud claims that he was falsely sentenced to twenty years on a penal farm in Arkansas for forging signatures.

### CALIFORNIA

**Maternal Mortality Reduced**—There were 364 maternal deaths in California in 1933 as compared with 448 during 1932, giving respective rates of 48 and 57 per thousand births. Among white women the rate was 43, Mexican 65, Japanese 61, Negroes 11 and Indians 133. The rate was higher in rural districts than in urban centers. The state board of health pointed out that about 70 per cent of all confinements in the state take place in maternity homes and hospitals.

**Personal**—Dr Nolton N Ashley has been appointed health officer of Oakland, succeeding Dr Arthur Hieronymus, who has resigned after several years' service, effective June 11. Dr Stanley R Parkinson, Marysville, has succeeded Dr James H Barr as health officer of Yuba County. Dr Denver D Roos has been appointed health officer of Corona, following the retirement of Dr William S Davis. Dr Clelia D Mosher, emeritus professor of personal hygiene, Stanford University, received the honorary degree of doctor of laws from Mills College, June 11, at its seventy-seventh annual commencement.

### CONNECTICUT

**Psychiatric Society Formed**—The Connecticut Society of Psychiatry was organized at a meeting at the Connecticut State Hospital, Middletown, May 10, to foster the study of nervous and mental disorders, to improve standards of care for patients, and to advocate and foster preventive psychiatry. Dr Allen R. Diefendorf, New Haven, was elected president.

### DISTRICT OF COLUMBIA

**Ophthalmic Society Organized**—The Washington Ophthalmological Society was organized in May. Membership is also open to physicians in Maryland, Virginia, West Virginia and North Carolina. Officers are Drs William Thornwall Davis, chairman, Le Roy W Hyde, vice chairman, and James N Greear Jr, secretary.

**Society News**—Dr Joseph G Pasternack of the National Institute of Health was installed as president of the Washington Pathological Society, June 2. Dr George A Alden, pathologist, U S Naval Medical School, was chosen vice president, and Dr Virgil H Cornell, curator of the Army Medical Museum, was reelected secretary. At the opening meeting of the society this fall a symposium on lymphatic tumors will be presented.

### FLORIDA

**Society News**—At a meeting of the Pasco-Hernando-Citrus Counties Medical Society in Inverness, June 15, Dr Henry C Dozier, Ocala, gave a paper on "Cancer Problems—The Responsibility of the Larynx" and Dr Robert D Ferguson, Ocala, one on "Aneurysm." Dr Ralph E Russell, Ocala, discussed glaucoma. Drs Charles D Cleghorn and John W Snyder addressed the Dade County Medical Society, August 3, Miami, on "Skin Tumors" and "Gritti-Stokes Amputation for Gangrene of the Leg," respectively.

### GEORGIA

**Society News**—Speakers before the Telfair County Medical Society in Lumber City, July 10 were Drs Wade H Born and Frank R Mann, both of McRae, on "Afflictions of the Anus and Rectum" and "Tonsillar Infection and Its Importance to the General Practitioner," respectively. Dr Loren

Gary Jr, Shellman, discussed typhoid before the Randolph County Medical Society in Cuthbert, July 5. Dr Theodore Toepel, Atlanta, read a paper on arthritis before the Walker County Medical Society at Rossville, July 6. At a meeting of the Jackson-Barrow Counties Medical Society in Jefferson, July 2, Dr Samuel A Boland, Jefferson, read a paper on treatment of rheumatism in children. The Fulton County Medical Society was addressed, August 2, by Dr Stacy C Howell, Atlanta, on "The Action of Epinephrine on the Normal Human Eye." Dr Lewis M Gaines, Atlanta, gave a clinical talk on "Heart Symptoms without Heart Disease." Dr William Perrin Nicholson Jr, Atlanta, addressed the Tenth District Medical Society in Washington, August 8, on "Breast Lesions."

### ILLINOIS

**Personal**—A public celebration was held at Cissna Park, July 15, in honor of Dr William R Roberts, who has practiced thirty-five years in the community.

**Society News**—Dr William J Carter, Mattoon, discussed stomach disorders, among other speakers before the Coles-Cumberland Medical Association at Neoga, July 19. Dr Felix W Sokolowski addressed the Madison County Medical Society in Alton, August 3, on increase of mental disorders and importance of mental hygiene.

**Epidemic Encephalitis at Highland**—An outbreak of nine cases of epidemic encephalitis with four deaths in Highland was reported by the state board of health, August 8. The disease appears to be of the same type that prevailed in St Louis during the summer of 1933. Twenty-five cases occurred in Highland and Madison County during last year's epidemic. All the patients except one were more than 50 years old.

### Chicago

**Research on Asthma and Hay Fever**—The Research and Educational Hospital of the University of Illinois College of Medicine, 1819 West Polk Street, is carrying on experiments to determine whether electrical changes in the air during storms are related to attacks of pollen asthma. Ten women were invited to participate in the research, which began August 15 and will continue until September 31.

**Dr David Made Chairman of Surgical Department**—Dr Vernon C David, since 1929 clinical professor of surgery, Rush Medical College, has been appointed chairman of the department, succeeding Dr Arthur Dean Bevan, who has held the position since 1902. Dr David graduated from Rush in 1907 and has been connected with the school since 1910. His first appointment was as assistant in surgery. Dr Bevan will continue with his work at Presbyterian Hospital and at Rush as Nicholas Senn professor of surgery. He began his association with the school in 1887 as professor of anatomy. He is also an alumnus of Rush, having graduated in 1883.

### INDIANA

**Personal**—Dr George W Willison, Dale, has received the Raydin medal, which is awarded annually by Dr Marcus Raydin, Evansville, to the member of the senior class of Indiana University School of Medicine making the highest average in the four years course for the degree of doctor of medicine. Dr Willison graduated in medicine at the recent commencement. Dr Henry F Beckman, clinical professor of obstetrics, has been made head of the department of obstetrics of Indiana University School of Medicine, Indianapolis.

**The Credit Department**—Since the establishment of the Medical and Dental Business Bureau, Indianapolis, March 1, 6602 accounts for collection have been referred by 156 physicians, and 1,251 accounts by sixty-six dentists. The bureau is now serving in delinquent collections a total of 222 physicians and dentists on 7,853 accounts. A total of \$4,767.80 has been collected from March 1 to July 21. About 400 of the accounts filed for collection owe from two to eight physicians and dentists each. The bureau was established for members of the medical and dental societies of Indianapolis.

**Sanitation Programs**—An appropriation of \$2,000 for cleaning and repairing drainage ditches in Marion County, including the sanitation of a sewage ditch at New Bethel, where a typhoid outbreak recently occurred was voted by the county council, July 14. Judge Schlosser of the superior court recently ordered the council to appropriate money for cleaning the New Bethel system. June 20, eleven cases of typhoid were reported in New Bethel, which has a population of about 350 (THE JOURNAL, July 21, p 194). A sanitation program has also been initiated in Shelby County as a project of the Emergency Relief Administration.

## IOWA

**Society News**—Dr Merle J McGrane, New Hampton, was elected president of the Cedar Valley Medical Society at its meeting at Clear Lake in July, and Dr Ray A Fox, Charles City, secretary—Dr Paul J Hanzlik, San Francisco, addressed the Linn County Medical Society, July 26, at Cedar Rapids, on "Advancement in Pharmacology and Treatment"

**Annual District Meeting**—The Iowa and Illinois Central District Medical Association held its annual meeting in Davenport, July 27, with the following speakers

Dr Harry L Alexander, St Louis Allergy  
Dr Herbert W Rathe Waverly Value of Theophylline in Treatment of Arteriosclerotic Heart Disease  
Dr Owen H Wangenstein Minneapolis Diagnostic and Therapeutic Considerations in Management of Acute Abdominal Lesions  
Dr Clifford J Barborka Chicago Diet and Disease

Dr John C Souders, Rock Island, Ill., was elected president and Dr James Dunn, Davenport, secretary

## KANSAS

**Reelect Board Members**—Dr John F Hassig, Kansas City, was reelected president of the Kansas Board of Registration and Examination at its annual meeting in Topeka, June 19, and Dr Charles H Ewing, Larned, was reelected secretary Dr Edwin C Morgan, Clay Center, was appointed a member of the board for four years

## MARYLAND

**Changes at Johns Hopkins**—Dr Ludwig Edelstein, formerly of the University of Berlin, has been appointed associate in the history of medicine at Johns Hopkins University School of Medicine It was also announced that Dr Edward H Hume New York, will give the Noguchi lecture and Dr Pasteur Vallery-Radot, Paris, the Thayer lecture during the coming year

**Health Survey in Montgomery County**—One thousand families in Montgomery County will be interviewed on health problems in a survey to be undertaken at once by the U S Public Health Service in cooperation with the local health department, it was announced, July 27 The survey is part of a general study being made in three counties of the country, Montgomery County, Forsyth, N C, and Fairfax County, Va Data on illness, medical, nursing or dental care during the last year will be gathered in addition to other information on general health problems It is hoped that the study will determine what services are performed by county health departments, which persons receive these services and what effect the services appear to have on existing health problems All information concerning individuals will be kept confidential

## MICHIGAN

**Dr Warnshuis Goes to California**—Dr Frederick C Warnshuis, Grand Rapids, for many years speaker of the House of Delegates of the American Medical Association and secretary of the Michigan State Medical Society, will go to California, October 1, to become secretary and director of public relations of the California State Medical Association Dr Warnshuis, a native of Iowa, has been secretary of the Michigan State Medical Society for about twenty-one years

**Annual Report of Children's Fund**—During the year ended April 30, 1934, a total of \$452,395.11 was expended by the Children's Fund of Michigan to carry on its work in emergency relief, child health, child guidance research and dependency Because of the depression some programs were eliminated and others were curtailed The greatest expenditures continued to be in the field of child health During this fifth year of the fund's existence, about 280,000 children received some form of service The feeding of malnourished children in the Detroit area was carried on as a supplemental program to that of the social service committee of the Detroit school system Eight dental clinics were maintained in school buildings, with an extraction clinic at Grace Hospital for serious cases and a tenth clinic at the Boys Club of Detroit Thirty-six counties and two urban areas were served by the all year dental program, and twenty additional counties received the benefit of the ten weeks summer program which was given over entirely to corrective processes as heretofore Eleven counties in the state were served by two traveling ophthalmologists, who examined children's eyes and prescribed glasses when necessary The fund purchases glasses when parents are not able to afford them At the beginning of the year all grants for research not done directly in the fund's laboratory were discontinued with the exception of the study of childhood

tuberculosis carried on through the St Vincent de Paul Society by Dr John A Johnston of Henry Ford Hospital The fund did not reduce its appropriation to the Michigan Children's Aid Society, which is used in helping dependent children in the less prosperous sections of northern Michigan, where the population is scattered The children taken care of under this grant are supported wholly by the fund during the whole year Green Pastures, summer camp for Negro children at Little Pleasant Lake, Jackson County, was also operated to its full capacity by the Urban League for Negroes Grants included one to a special committee of the Wayne County Medical Society that helps indigent persons receive medical treatment from practicing physicians

## MINNESOTA

**Society News**—Dr Charles W Mayo, Rochester, addressed the Mower County Medical Society at Austin, recently, on abdominal surgery—Dr James S Reynolds, Minneapolis, was recently elected president of the Minnesota Academy of Ophthalmology and Otolaryngology, Drs Hendrie W Grant St Paul, and Frank N Knapp, Duluth, vice presidents, and Dr Walter E Camp, Minneapolis, secretary

**Bell Lectureship Established**—The Hennepin County Tuberculosis Society has established the Dr John W Bell Lectureship in tuberculosis in the Hennepin County Medical Society Under this lectureship, an authority on tuberculosis will address members of the society at the December meeting, which this year will be December 3 Dr Bell, who died in 1933, was a member of the House of Delegates of the American Medical Association from 1919 to 1923 He was emeritus professor of medicine and at one time professor of physical diagnosis and clinical medicine, University of Minnesota Medical School Dr Bell also served as president of the Minnesota State Medical Association, Hennepin County Medical Society and the Minnesota Academy of Medicine and was a member of the state senate from 1891 to 1895

**President Roosevelt Presents Award to Drs William and Charles Mayo**—The President of the United States made the presentation address at a ceremony in Rochester, August 8, when the National American Legion Citation was conferred on Drs William James and Charles Horace Mayo "for distinguished service to our sick and disabled comrades and to humanity in general" Introductory addresses were made by Clarence L Fischer commander of William T McCoy Post, through which the citation was presented, Gregory P Gentling, chairman of the citation committee and Michael F Murray, St Cloud, state commander of the Legion Edward A Hayes, Decatur, Ill., national commander of the Legion, made the presentation of citations to the Doctors Mayo, to which Dr Charles H Mayo responded Then followed the unveiling of a bronze plaque, which the President presented President Roosevelt paid tribute to the physicians and to modern medicine, to which he said those concerned with government and economics are under obligation in two important respects Medicine has shown how it is possible for human beings to control and improve conditions under which they live, he declared from medicine also have been learned lessons in ethics of human relationships—"how devotion to the public good unselfish service, never ending consideration of human needs are in themselves conquering forces" The plaque, designed by Harold H Crawford, Rochester architect, bears profile portraits of the recipients in bas relief modeled by Mrs George Trenholm, daughter of Dr Charles H Mayo Charles Brioschi, St Paul was the sculptor It bears the inscription "Gift of the William T McCoy post, presented by Franklin Delano Roosevelt, president of the United States, at Rochester, Minn., August 8, 1934" It was estimated that 75,000 persons were present Before the ceremony the President laid a wreath at the foot of a statue of Dr William Worrell Mayo father of the honored physicians On the evening of August 7, a public testimonial meeting was held at Soldiers Field, attended by about 8,000 persons Speakers at this meeting were Gov Floyd B Olson St Paul Frank B Kellogg St Paul, former Secretary of State and now judge of the Permanent Court of International Justice Fred W Sargent, Chicago, president of the Chicago and Northwestern Railway Dr Walter L Bierring, Des Moines, Iowa President of the American Medical Association, Dr Morris Fishbein, Chicago, editor of THE JOURNAL, Dr William D Haggard, Nashville, Tenn, president of the American College of Surgeons Gerald V Barron national Legion committeeman from Minnesota and Earl Cliff, vice chairman of the national Legion rehabilitation committee Dr William J Mayo responded to these tributes At a dinner at the Kahler Hotel preceding this meeting Dr Francis J Savage, St Paul, president of the Minnesota State Medical Association, welcomed more than 300 distinguished guests

## NEW JERSEY

**Personal**—Col John H McCullough, Trenton, state surgeon of the national guard, was recently awarded a distinguished service medal by order of the governor, in recognition of his forty-two years' service in the infantry and medical corps of the national guard, according to *Military Surgeon*. Dr McCullough was also in federal service during the World War.

## NEW YORK

**Society News**—The Medical Society of the County of Erie has recently removed its offices from the Museum of Science to room 1810, Hotel Statler, Buffalo.—Dr Herman E. Wangler, Syracuse, addressed the Suffolk County Medical Society, July 25, at Southold, on medical treatment of gall-bladder disease.

**Heart Disease in High School Students**—The cardiac subcommittee of the Medical Society of the County of Monroe under the chairmanship of Dr Rufus B. Cram recently published results of a four year survey of heart disease among students in the high schools of Rochester. Of 425 adolescents examined, 197 were found to have organic heart disease, 62 potential disease and 110 possible disease. At the time of examination, 142 were not under medical supervision. Sixty-seven were recorded as not eligible for gymnasium or competitive athletics and 147 eligible for gymnasium only. Vocational guidance was recommended for 176. In 1931 this was found to be 38 per cent in 1932, 32 per cent. In 1933 the figure was 30 per cent and in 1934 it was 27 per cent, in these two years seventy-five reexaminations were made, which are not included in the estimates. Eighteen physicians contributed their services in making the examinations.

## New York City

**Society News**—Dr Howard Lilienthal was elected president of the New York Physicians' Art Club at the annual meeting in May, and Dr Louis C. Schroeder secretary. The club held its annual exhibit in April at the New York Academy of Medicine (THE JOURNAL May 19, page 1688).

**Seventh Graduate Fortnight**—The seventh annual graduate fortnight of the New York Academy of Medicine will be held October 22 to November 2, on diseases of the gastrointestinal tract. Clinics will be held each afternoon in various hospitals and there will be extensive scientific exhibits at the academy with demonstrations at regular intervals by many of the exhibitors. At evening sessions at the academy the following speakers will be presented:

Drs Harlow Brooks, Walton Martin and Robert E. Pound: General Principles Involved in Diagnosis of Gastrointestinal Diseases.  
Dr Andrew C. Ivy, Chicago: Applied Physiology of the Innervation of the Gastrointestinal Tract.  
Dr Henry James Spencer: Constipation.  
Dr John L. Kantor: Diarrhea.  
Dr Carl Eggers: Diseases of the Esophagus.  
Dr Burrill B. Crohn: Functional and Nervous Diseases of the Stomach.  
Dr John Douglas: Diseases of the Pancreas.  
Drs Williams McKim Marriott, St. Louis; Rustin McIntosh and Charles E. Farr: Disorders of the Gastrointestinal Tract in Children.  
Dr Charles F. Tenney: So Called Chronic Appendicitis.  
Dr John E. Jennings: Acute Appendicitis.  
Dr Charles Gordon Heyd: Peritonitis.  
Drs Arthur F. Chace and Eugene H. Pool: Peptic Ulcer.  
Dr Fordyce B. St. John: Carcinoma of the Stomach.  
Dr Reuben Ottenberg: Jaundice.  
Drs William W. Herrick and Allen O. Whipple: Gallbladder and Biliary Passages.  
Dr John F. Erdmann: Tumors of the Colon.  
Dr Harvey B. Stone: Baltimore Diseases of the Anus and Rectum Including Tumors.  
Drs Walter A. Bistado, Thomas T. Mackie and Francis W. O'Connor: Colitis.  
Dr Arthur M. Wright: Intestinal Obstruction.  
Dr Dean Lewis: Baltimore Diverticulitis.

**Epidemiologic Study of Trichinosis**—Within the past five years 166 cases of trichinosis have been reported to the New York City Department of Health. In all but sixteen there was a history of having eaten pork and twenty-nine persons admitted having eaten it raw. Seven stated that they had not eaten pork and in nine cases no information was available. Women were more frequently attacked than men, a fact accounted for by the closer contact of women with the preparation of food. The majority of the cases were in persons between 20 and 35 years of age and cases were numerous in the German and Italian populations of the city. The source of the food supply was traced to the wholesalers and it was found that in more than two thirds of the cases the food had been purchased from local butchers or eaten in local restaurants whose products had been passed by the inspectors of the U. S. Department of Agriculture. The government agencies have repeatedly called attention to the fact that inspection is

not a criterion of freedom from trichinae, the report points out. In view of the impossibility of subjecting every animal slaughtered to microscopic inspection, the government limits its regulations to the pork products that are customarily eaten raw and only for those products insists on adequate cooking or refrigeration for twenty days. Dry salting, pickling and smoking, which have been shown to be sufficient to destroy trichinae, are permitted. It is believed that many cases are not recognized or are not reported. Physicians are requested therefore, to report all suspicious cases of gastro-intestinal disease following ingestion of pork or pork products. In addition the problem of educating persons to eat pork only when thoroughly cooked cannot be emphasized too strongly, the report concluded.

## SOUTH CAROLINA

**Society News**—Drs Charles R. F. Baker and Robert B. Bultman, both of Sumter, addressed the Sumter County Medical Society, June 7, on fractures and early diagnosis of pregnancy, respectively.—Dr Edward A. Looper, Baltimore, addressed the Columbia Medical Society, Columbia, June 11, on "Diagnosis and Treatment of Diseases of the Larynx, Trachea and Bronchi."

## TENNESSEE

**Health Exhibit at Fair**—A health and medical exhibit has been planned for the Mid-South Fair in Memphis September 3-8, under the auspices of the Memphis and Shelby County Medical Society. The medical, dental, pharmaceutical and nursing departments of the University of Tennessee will have exhibits, and local physicians will prepare displays showing progress in prevention and treatment of various diseases. A special section will be devoted to food and dietetics. The Shelby County Tuberculosis Society will demonstrate its work.

**Graduate Courses in Nashville**—The Nashville Post-graduate Medical Association was recently chartered as a "nonprofitmaking organization for the purpose of giving to practitioners of medicine a brief review of medical and surgical subjects at the smallest cost of time and money" and the first series of courses was held June 25-29. Twenty-three physicians from towns of middle Tennessee attended the classes and clinic conducted by Nashville physicians. Dr Harrison H. Shoulders, Nashville, is president of the association. It is anticipated that the graduate course will be made an annual event.

**Health at Memphis**—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million for the week ended August 4 indicate that the highest death rate (187) appears for Memphis and the rate for the group of cities as a whole 99. The mortality rate for Memphis for the corresponding week of 1933 was 175 and for the group of cities, 106. The annual rate for eighty-six cities for the thirty-one weeks of 1934 was 119 as compared with 113 for the corresponding period of 1933. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

**Society News**—Physicians of Robertson, Montgomery, Cheatham, Stewart and Houston counties at a meeting at the Idaho Springs Hotel near Clarksville, July 17, organized the Black Patch Medical Society with Dr Maurice L. Hughes, Clarksville, as president and Drs William S. Rude, Ridgeway and Paul E. Wilson, Clarksville, as secretaries. Drs John M. Lee and James C. Overall, Nashville, among others, addressed the meeting on "Feeding Infants with Summer Diarrhea" and "Acute Respiratory Diseases," respectively.—Drs Jewell M. Dorris, Memphis, and Guthrie Y. Graves, Bowling Green, Ky., addressed the Tri-County Medical Society (Carroll, Henry and Weakley counties) at McKenzie, July 10.—Dr Henry Hedden, Memphis, among others, addressed the Memphis and Shelby County Medical Society, Memphis, July 3, on costs of medical care.

## VIRGINIA

**State Board Members Reappointed**—All members of the state board of medical examiners were reappointed recently with the exception of Dr Alex. F. Robertson, Jr., Staunton, who represented the tenth congressional district. As the number of districts was recently reduced to nine by legislative enactment, reappointment of Dr Robertson was precluded. Dr Philip W. Boyd, Winchester, is president of the board and Dr John W. Preston, Roanoke, secretary.



## WASHINGTON

**Society News**—Drs George H Anderson and Edward S Jennings, Spokane, addressed the Chelan County Medical Society, Wenatchee, June 7, on "Abdominal Symptoms of Cardiovascular Disease" and "Unusual Phases of Appendicitis," respectively—Three Seattle physicians addressed the Walla Walla Valley Medical Society, Walla Walla, June 14, as follows: Drs Edward D Hoedemaker, on "The Psychiatrist in Future Medicine," George W Swift, "The New Outlook for Medicine" and Donald V Trublood, "Importance of Early Diagnosis of Cancer"—Dr Charles E Watts, Seattle, among others, addressed the Yakima County Medical Society, Yakima, June 11, on cardiac disease.

## WEST VIRGINIA

**Society News**—Drs Frank S Johns and Marvin Pierce Rucker, Richmond, Va, addressed the Central West Virginia Medical Society, July 18, at Webster Springs, on "Treatment of Acute Appendicitis" and "Rupture of Membranes as a Means of Induction of Labor," respectively—Dr Moritz F Petersen, Charleston, addressed the Fayette County Medical Society, Oak Hill, July 10, on "Hypothyroidism in Infants"—Dr Athey R Lutz, Huntington, presented a paper on "Deformities Usually Encountered in the Crippled Child" before the Cabell County Medical Society, July 12—At a joint meeting of the Monongalia and Preston county medical societies in Hopemont, July 6, speakers were Drs George L Leslie, Howell, Mich, on "Collapse Therapy in the Treatment of Pulmonary Tuberculosis," and David Salkin, Hopemont, on "Intestinal Tuberculosis"

## GENERAL

**Changes in Status of Licensure**—The New York State Board of Medical Examiners reports the following revocations made at a meeting of the board of regents, June 22

Dr Malcolm Cameron Rose New York, license revoked following his conviction in federal court of violating the Harrison Narcotic Act, he was sentenced February 14 to serve three years in Northeastern Penitentiary, Lewisburg, Pa

Dr Maurice Minton New York license revoked on the charge of having performed an illegal operation

The New Mexico Board of Medical Examiners reports

The license of Dr Arthur H DeLong Gallup was revoked April 9, following his conviction on the charge of violating the Narcotic Act

**Study of Neoplastic Diseases**—The American Association for Study of Neoplastic Diseases will meet in Washington, D C, at the Mayflower Hotel, September 6-8. Seven sessions will be held, with chairmen as follows

Dr Joseph Colt Bloodgood, Baltimore Lantern Slide Demonstration of Microscopic Pathology

Dr Charles F Geschickter, Baltimore Microscopic Pathology

Dr Wright Clarkson Petersburg Va Symposium on Bone Tumors

Dr James F Kelly Omaha Ne Ray Diagnosis of Neoplastic Diseases

Dr John Shelton Horsley Richmond Va Symposium on Neoplastic Diseases of the Gastrointestinal Tract

Dr Edwin A Merritt Washington D C Radiation Therapy in Neoplastic Diseases

Dr Max Cutler Chicago Symposium on Neoplastic Diseases of the Breast.

**National Recreation Congress**—The twentieth National Recreation Congress will be held in Washington, D C, October 1-5, sponsored by the National Recreation Association. There will be no papers. The congress will divide itself into discussion groups beginning Tuesday morning and continuing through the day and each morning thereafter. Wednesday, Thursday and Friday mornings at 11 o'clock the entire congress will come together to hear reports from these discussion groups. Wednesday and Thursday afternoons will be left free for special meetings, Friday afternoon will be devoted to special meetings. General meetings will be held each evening, with addresses by prominent speakers. Headquarters will be at the Wardman Park Hotel.

**News of Epidemics**—Four new cases were reported, August 11, in the epidemic of bacillary dysentery in Jersey City, N J. Eighty cases remained in Jersey City hospitals. Deaths of two children in Monmouth County from the infection were also reported, August 11—Twenty-two cases of typhoid in Blackhawk County, Iowa, recently were traced to contaminated milk. All the families involved bought milk from the same dairy—Eighty-two cases of typhoid occurred in an epidemic in Augusta, Maine, recently, all living along a single milk route. An examination of all food handlers in the city resulted in the removal of four carriers from food handling jobs, one was found to be employed on a dairy farm—Five persons have died among twenty-five cases of Rocky Mountain spotted fever in Maryland this year, the state board of health reported August 6

**Congress of Physical Therapy**—The thirteenth annual session of the American Congress of Physical Therapy will be held at the Bellevue Stratford Hotel in Philadelphia, September 10-13, under the presidency of Dr Albert F Tyler, Omaha. The William Benham Snow Memorial Lecture will be given the opening day by Drs Andre Halphen and J Auclair of the Hopital H de Rothschild, Paris, on "Pyrotherapy by Means of Thermogenic Physical Agents." In addition to the clinical conferences of the various sections there will be symposiums on gynecology and cancer Wednesday and Thursday, respectively. Participating in the general sessions will be, among others

Dr Morel Kahn chief of service, department of electro-radiology

Hopital de la Pitie Paris on Applications of Lapicques Currents

Dr Joseph C Doane Philadelphia Histamine Iontophoresis in the Treatment of Vasospastic Conditions

Dr Jacob Gershon Cohen Philadelphia Roentgenologic Studies of the

Colon by Means of the Double Contrast Enema

Dr Leroy W Hubbard Warm Springs, Anterior Poliomyelitis (moving picture demonstration)

Dr Disraeli Kobak Chicago Radiotherapy in Medicine

Drs Charles J Suto and Michael S Burman New York Value of Fluorescence in Medicine

James Houston Shrader Ph D Johns Hopkins School of Hygiene and Public Health Baltimore The Fortification of Milk with Vitamin D

A joint meeting of the congress and the Philadelphia County Medical Society will be held Wednesday evening, September 12, with Dr Russell L Cecil, New York, as the speaker, on "The Modern Medical Approach to the Problem of Arthritis," and Dr Hugh H Young, Baltimore, "Malignant Tumors of the Bladder and Prostate"

## CANADA

**Society News**—The Canadian Public Health Association held its annual meeting in Montreal, June 11-13, among speakers were Drs Albert Grant Fleming, Montreal, on "The Relationship of Public Health to Medical Care" and Dr Antonio Bolduc, Montreal, "Amebic Dysentery Its Public Health Significance and Control"

**Hospital News**—It was recently reported that the Grenfell orphanage and school at Cartwright, Labrador, which served as a hospital for the region and for the northern fisheries, had been burned with the loss of one life. Erected four years ago, the institution was valued at \$100,000. Sir Wilfred and Lady Grenfell were at their summer home in Charlotte, Vt, when they received news of the fire.

**French-Speaking Physicians Meet in Quebec**—A congress of French-speaking physicians, a combined meeting of the Association of French-Speaking Physicians of North America and the French Congress of Medicine, will be held in Quebec, August 27-31. French physicians from France, Belgium and Switzerland will attend the congress and spend several weeks traveling in Canada and the United States. Subjects to be treated in symposiums include pancreatic syndromes, hypoglycemic states and pyrotherapy. Sessions will be held at the Chateau Frontenac and practical demonstrations will be given in various hospitals. Presidents of the joint congress are Drs Albert Paquet, Montreal, and Sergent, Paris. The general secretary is Dr Vaillancourt, Paris.

## FOREIGN

**British Medical Election**—Sir Richard R Stawell, Melbourne, Australia, was chosen president of the British Medical Association for 1935-1936 at the annual meeting at Bourne mouth in July. Dr Sydney Watson Smith, Bournemouth, was made president for the coming year. The annual meeting will be held in Melbourne next year.

**Society News**—The Manchester Medical Society, Manchester, England, will celebrate its hundredth anniversary in October. A commemorative meeting will be held October 3 with an exhibit of historical interest and a history of the society will be issued.—The ninth International Congress on Dermatology and Syphilology will be held at Budapest, Sept 15-21, 1935, under the presidency of Prof Ludwig Nekam, Budapest.—An International Congress of Medicine as applied to sports will be held in Vittel, Vosges, France, September 2-4.

**Congress on Biologic Action of Radiation**—The first International Congress on Electro-Radio-Biology will be held at the Doges Palace, Venice, Italy, September 10-15. Senator Guglielmo Marconi and Count Giuseppe Volpi di Misurata, secretary of state, will preside at the opening session. Among Americans listed on the program are William D Coolidge, Ph D, and C P Haskins Schenectady, N Y. Arthur H Compton, Ph D, Chicago, Otto Glasser, Ph D, Cleveland, and Robert W Wood, Ph D, Baltimore. Applications of radiation to medicine and therapy will not be examined in this congress.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

July 21, 1934

#### Eradication of Ancylostomiasis from South African Mines

Gold was discovered on the Rand in 1886 and crowds rushed there. At first all drilling was done into dry rock, an enormous amount of fine dust was raised and the miners developed silicosis in five years and on an average died from it after working ten years. About seventeen years ago a new method of drilling was introduced, in which water is automatically pumped through the drill, the mines became wet and after two years hookworm disease (ancylostomiasis) appeared. At first it was mild but after seven years it threatened the industry. As the native miners are recruited from districts where the disease is endemic, its introduction was inevitable. The ova of the worm are passed in the feces and under suitable conditions of temperature, moisture and darkness are hatched in about two days. The larvae bore through the human skin and so man is infected. The requisite conditions of temperature and moisture existed in the Rand mines for the flourishing of the larvae, and the latrines were misused or not used at all by the native miners. Feces were left on the floor, to be trodden on by later comers. The lowest levels of the mines (from 3,000 to 7,000 feet down), where the temperature is highest, became heavily infested with the larvae and the higher levels infested to less degree.

In the *Irish Journal of Medical Science*, Dr. J. H. Hodgman has described how by a simple method the infestation was overcome. In February 1927 the Transvaal Mine Medical Officers Association made a number of recommendations for prophylaxis. All East Coast natives were to take a dose of 3 cc of carbon tetrachloride prior to their distribution in the mines and again a week later. The underground latrines were to be so constructed as to prevent pollution of the mine, and a coal-tar disinfectant was to be applied daily. Unfortunately the carbon tetrachloride treatment was not without risk, and five natives succumbed to poisoning. The prophylactic campaign was carried out energetically, but it was found that the infected soil was sterilized only to a depth of about one-fourth inch, beneath which the larvae thrived. Moreover, disinfectants when so concentrated as to kill larvae were harmful to the miners' hands and boots, and the expense was enormous. It was then noticed that hookworm infestation in India was not so severe in the coastal villages as in centers farther away, and Dr. Fischer accidentally discovered that strong solution of common salt was fatal to the larvae. Salt disinfection of the mines was then carried out. Once a week the floors and walls of the latrines for at least a height of two feet, as well as the perches or seats were scrubbed with a 20 per cent solution. A layer of coarse salt was strewn over the floor in the vicinity of the latrines. A layer an inch thick was placed at the bottom of the underground buckets when put in position in the latrines, and a similar layer when they were removed. The layer of salt about the latrines took a week to melt. Eight days after this treatment the floor which previously swarmed with larvae, was found to be sterile. It was also found that salt solution had excellent and quick powers of penetration. Since October 1927 salt disinfection has been extensively used. All the shafts, slopes and drives of the mines are salted. The mines are now clear of hookworm ova and larvae and it is impossible for any miner to become infected.

After this success underground attention was turned to the miners in the hospitals suffering from ancylostomiasis. Thymol, 30 grams (2 Gm.), was given and the dose was repeated

after two hours and an ounce of magnesium sulphate was administered an hour later. The thymol proved a fairly good vermifuge but the natives objected to the repeated treatments and hated being purged. Carbon tetrachloride, 3 cc, was usually curative after two treatments but had to be abandoned because of the danger. Like chloroform, it is apt to damage the liver. Oil of chenopodium has the advantage that no preliminary starvation or purge is necessary, but it is nauseating and is usually given in capsules, 14 cc divided into three doses, which were taken at intervals of an hour. Complete cure resulted from four treatments and there were no fatalities. In 100 cases the maximum dose of 3 cc was given and in seven neurotoxic symptoms (dizziness, headache, deafness and depressed action of the heart) were produced. It was then decided to experiment with a combination of the two drugs. They mix freely and the mixture does not increase the toxic effect of either. On the other hand, the results show that on the worms their effects are supplementary. Carbon tetrachloride, 2 cc, and oil of chenopodium, 1 cc, were put into one gelatin capsule and given. There is no need for starvation or purgation. One capsule is taken on an empty stomach, and liquid or semisolid food can be allowed at once. The patients leave the hospital the same evening and may resume work on the following day. This treatment has been carried out for two years in thousands of cases. Most of the patients were cured by one treatment, some by two, and a third was occasionally necessary. A lapse of ten days was allowed between the treatments. Ancylostomiasis is now rare in the mines.

#### Tropical Macrocytic Anemia

At the London Association of the Medical Women's Federation, Dr. Lucy Wills described her work on tropical macrocytic anemia during the last five years. In 1928 tropical macrocytic anemia was described under the name of "the pernicious anemia of pregnancy," which was a serious cause of maternal and fetal mortality in the large cities of India. The blood picture resembles that of pernicious anemia but there are the following differences from idiopathic pernicious anemia: (1) earlier age incidence and association with pregnancy, (2) absence of remissions except after delivery, (3) free gastric hydrochloric acid in normal amounts in the majority of cases, (4) absence of a raised indirect van den Bergh reaction or increase in urinary urobilin, (5) absence of nervous involvement, (6) slight differences in the blood picture—less poikilocytosis, less polychromasia and higher leukocyte counts. The cases are febrile frequently, but no evidence can be obtained of infection or toxemia. The disease responds to liver treatment, which suggests a nutritional origin. It was later found to occur in men and nonpregnant women. It is evidently a deficiency disease and its prevalence in pregnancy can be explained by the increased demands on the maternal organism. A deplorable multiple deficiency in diet was found among the hospital classes of Bombay, particularly want of vitamins A and C. Macrocytic anemia was produced in rats and monkeys on this diet. The addition of marmite to the diet proved curative. At this time Castle's work on the intrinsic and extrinsic factors of blood formation appeared. As the tropical cases apparently presented normal gastric secretion, it was inferred that it was the extrinsic factor which was deficient.

#### The Medical Service of the Air Force

In *THE JOURNAL*, June 23, p. 2124, revised conditions for the medical services of the army and navy were reported. A reduction in the medical establishment of the air force is to be brought about by abrogating at all stations other than the college and flying training schools the rule that a medical officer must stand by whenever flying is in progress. The result will be that it will be necessary to carry only one medical officer at flying stations. Arrangements will be made for a

local physician to be summoned in the absence of a medical officer. After five years' service all permanent officers will be given the opportunity of taking a course of specialist study and the promotion to squadron leader of officers who obtain a specialist qualification will be accelerated. The ages of promotion will be reduced and the proportion of officers enabled to reach higher ranks will be increased. The pay of squadron leaders will be increased by \$125 a day. The gratuities payable to short service officers will be \$2,000 on transfer to the reserve after three years' service and \$5,000 after five years.

#### International Memorial to Florence Nightingale

The Florence Nightingale International Foundation was inaugurated in London under the chairmanship of Sir Arthur Stanley, who read to delegates of nursing societies from all over the world a telegram from the queen. She was glad to hear that the memorial would take an educational form, as this would have commended itself to Miss Nightingale, who had the training of nurses so much at heart. Telegrams of congratulation from the Japanese and Chinese Red Cross societies were read. The chairman explained that the business was to elect officers and committees of management for the foundation. The purpose of the foundation was to provide postgraduate nursing education on a permanent basis for a selected group of fully trained nurses, drawn from those in the forefront in all countries. The foundation would be governed by a grand council comprising representatives of the International Council of Nurses, the League of Red Cross Societies and the Nightingale memorial committees, formed or to be formed in each country. Eighteen such committees had already been constituted. The foundation started its work at once and took over the international courses for nurses conducted in London until last year by a committee including representatives of the International Council of Nurses and the League of Red Cross Societies. In handing over its task the committee reported that arrangements for continuing the courses during 1934 and 1935 had already been made, and twenty nurses with suitable qualifications had been nominated to participate. Officials were elected from the countries of the world. The American ones were Miss Adelaide Mary Nutting, emeritus professor in Columbia University, honorary president, Mrs Draper, American Red Cross Society, Miss Ann Goodrich, Yale University School of Nursing, and Miss Jean Gunn, superintendent of nurses, Toronto General Hospital, vice presidents.

#### Shortage of Water from Prolonged Drought

Prolonged shortage of rain has caused considerable concern as to water supplies. The minister of health has issued a circular to local authorities urging them to formulate plans immediately for meeting any serious shortage in their area. Health officers should make sure of the purity of any new sources and also of existing sources where the supply is low. Where necessary the water should be chlorinated or otherwise purified. Where water for domestic purposes is conveyed in carts, tanks or other vessels, care should be taken that they are clean. If sufficient rain does not fall before September, a serious shortage may be expected and detailed plans should be prepared at once.

#### Sir Frederick Hopkins Honored

Sir Frederick Gowland Hopkins, who has been the leader of biochemistry for a quarter of a century and is now president of the Royal Society, has been awarded the Albert medal of the Royal Society of Arts. He has been professor of biochemistry in the University of Cambridge since 1914. He received the Nobel prize in 1929, the royal medal of the Royal Society in 1918 and the Copley medal in 1926. His most important work has been done on vitamins. Previous Albert

medalists include such eminent men as Faraday, Kelvin, Joule, Helmholtz, Edison, Lister, Bunsen, Crookes, Rayleigh, Marconi, J. J. Thomson, Lodge and Lord Rutherford.

#### PARIS

(From Our Regular Correspondent)

June 27, 1934

#### A New Antistreptococcus Serum

Professor Vincent, who in 1929 announced an antistreptococcus serum, has not ceased working to perfect it and to increase its potency. He recently presented it before the Academy of Medicine in its new form, with which one is able to secure recoveries in such grave cases as septicemia and streptococcal suppurative meningitis. The bacteriologic diagnosis must be exact, for the serum has no action on infections caused by the enterococcus, *Streptococcus mucosus*, *Streptococcus putridus* or *Micrococcus foetidus*. In some hospitals the serum is injected prophylactically into suspected patients (fractures of the cranium, confinements and in otorhinolaryngologic cases). In the septicemias the serotherapy should be used as long as signs of infection persist. After defervescence (usually on the sixth to the ninth day), when the patient should be recovering, one injects 30 cc and then 20 cc for four or five days. It is useless to combine with the serum other vaccinal or chemical medication. In his statistics, Vincent has entered not only all the deaths observed in patients correctly treated but also the deaths occurring in patients who died from complications not dependent on the streptococcus, or who received an inadequate dose of serum or were treated in the last phase of the disease. Recoveries could be effected, particularly in puerperal septicemia, in patients treated on the fifteenth to the twentieth day, but recoveries are then much more infrequent than in cases treated early. The septicemias treated (all of cutaneous, buccal, nasopharyngeal, otitic, genital or pulmonary origin) numbered 136, the number of recoveries was 111 (81.62 per cent), and the number of deaths was 25 (18.38 per cent). A large proportion of the patients who recovered had serious complications: pneumonia, purulent pleurisy, suppurative arthritis, meningitis, meningomyelitis, cerebral abscess, phlegmon of the orbit, general peritonitis, hemorrhagic nephritis, and the like. In eight cases of septicemia complicated with endocarditis, recovery occurred in seven. In malignant endocarditis lenta the serum is ineffective. The number of cases of meningitis treated with a serum was eight, with seven recoveries. The interest in Vincent's research lies in the fact that, without pretending to be effective in all cases, his new serum has increased the number of types of streptococcal general infection amenable to serotherapy. The results are dependent on the promptness of treatment and on whether the doses of serum employed are adequate.

#### The Cancer Institute at the Faculté de Médecine

Eight years ago there was created at the Hôpital de Villejuif an anticancer center just outside the city of Paris. This soon became the most important center in France for the study of cancer, its creation having been promoted by Mr Paul Strauss, who was then minister of public health. The director of this center as Mr Gustave Roussy, who became later professor of pathologic anatomy and just recently dean of the Faculté de médecine de Paris. The Villejuif center has now become a school for the study of cancer. The latest development is the addition of a hospital to serve exclusively for the treatment of cancer patients. The hospital was recently opened by the president of the republic. The buildings of the hospital and the research institute erected on the grounds of the Hôpital de Villejuif occupy 15,000 square meters. The hospital is a three story building, with a hall 280 meters in length, which affords a survey of all the wards. The illumination is excellent,

and aeration is assured by filtered air from the basement. A cool or warm temperature, as may be desired, is maintained by machines, regulated by merely pressing a button. On the ground floor are the consultation rooms and the radioscopic, radiographic and radiotherapeutic rooms. There are four rooms for radiotherapeutics, under the direction of Dr. Belot, three of them being equipped with apparatus with a capacity of from 200,000 to 300,000 volts. A fourth apparatus is being constructed with a potential of 750,000 volts. The control chamber of the electric current is isolated from the treatment wards and is connected with these by a microphone for the reception of instructions from the physician and by an apparatus that registers automatically under the eyes of the physician the amount of voltage employed. The department of curietherapy, which occupies the second floor, is under the direction of Madame Laborde. The institute has 7 Gm. of radium, 2 Gm. of which is distributed in numerous tubes and needles. Five grams is enclosed in a bomb for intensive treatment. A mechanical device raises the container readily above the patient lying in bed. When not in use, the container and needles are enclosed in a large cylinder, which an elevator carries 35 meters underground. The radium room is lined with lead 12 mm. thick. The nursing personnel is subjected regularly to blood examinations and is changed every year. The third floor is occupied by the surgical department of Prof. Pierre Duval. The roentgenograms are illumined in a recess of the wall under the eye of the operator. The hospital contains 150 beds. There are rooms with twelve, eight and four beds, and individual rooms for patients who can afford the expense.

## BERLIN

(From Our Regular Correspondent)

June 25, 1934

### The Admission of Physicians to Panel Practice

The federal ministry of labor issued new regulations concerning the admission of physicians to practice in the *kranken-kassen*, which went into effect July 1. Any physician seeking admission to such practice must be enrolled in the federal medical register, and registration may be denied if the physician is not a German citizen in full standing. The medical registers kept in the various districts are combined in the federal medical register, which is kept by the *Kassenärztliche Vereinigung* of Germany and which furnishes information to the committees on admission, the ministries and the leagues of the *kranken-kassen*. The federal register is always open to inspection on demand. One physician is admitted for every 600 members of the *kranken-kassen*. The relation of the number of panel physicians to the number of insured members is established by the committee on admission at the beginning of a calendar quarter and is announced publicly. If in a given district the number of panel physicians exceeds 1,600, only one physician shall be admitted for every three retiring panel physicians until this proportion is reestablished. In districts in which the proportion of panel physicians to the total membership is especially high, the number of physicians newly admitted may be still further restricted or, if need be, all admissions may cease for a time. Exceptions to these rules may be made if the filling of the post of the retiring panel physician is necessary for the assurance of the medical treatment of the members previously attended by him. A panel physician is admitted to practice in one of the towns or in one of the town districts for which the physician made application. In towns in which the specialists among the panel physicians amount to more than 40 per cent of the total only practicing physicians may be admitted to panel practice. If in a town in which no panel physician has settled the admission is needed admissions for other towns of the same district may be refused until a physician is admitted for the town in which an emer-

gency exists. If furthermore the admission of a physician in a rural district would seriously affect the living of a previously admitted physician, it may be ordered that within certain limits no physician shall be admitted until further notice. The purpose of these regulations is to enforce in general a definite relation between the number of physicians and the number of insured.

A requirement for admission is at least two years of preparation for panel practice in the *kranken-kassen*. During this period the physician must serve three months as assistant or *locum tenens* of a panel physician with a general practice carried on chiefly in a rural district. On completion of the two years a candidate may submit for consideration his experience as an assistant in hospitals up to twenty-one months, practice in camps designated by the federal leader of the panel physicians up to twelve months, as assistant of panel physicians up to nine months, and practical medical experience in medico-scientific institutes up to six months. A recognized course of postgraduate study also receives consideration. Experience as an assistant or voluntary physician is not counted if the physician attended to his own practice at the same time. In the case of physicians gravely injured during the war or of physicians who during the struggles associated with national movements were severely injured, some leniency may be shown, although they must have had at least one year of practical medical experience.

Excluded from admission are physicians of non-Aryan origin and physicians whose spouse is of non-Aryan origin. If one grandparent of a physician is a non-Aryan, he may be rejected. In case of doubt, a special certificate of the official expert must be secured. Thus, in the future, no more non-Aryan physicians will be admitted as panel physicians. If non-Aryan physicians admitted before the enactment of this regulation make it evident that they are not always ready to support firmly the national-socialistic state, they may, following a specific condemnation by the federal leader (Dr. Wagner) of the *Kassenärztliche Vereinigung*, be permanently excluded.

Married women physicians will be excluded unless their participation in panel practice appears needed for the protection of the family. Physicians who as officials have a regular income of at least 400 marks (\$150) a month will not ordinarily be admitted to panel practice. In the case of married physicians, 500 marks (\$190) is the limit with 50 marks (\$19) added for each child in the physician's immediate family. In the matter of admissions, special preference will be shown physicians with grave war injuries, physicians who served in the war, exiled physicians and married physicians (with exact consideration of the number of children). Special training courses for newly admitted panel physicians are being organized.

These new regulations constitute the most important part of the laws pertaining to panel physicians.

### Tuberculosis in Children

Dr. Ulrich, director of a large sanatorium for lung patients, stated in a recent address before the Berlin Medical Society that mortality from tuberculosis in children has declined during the past ten years. He was, however, unable to state with certainty whether the morbidity had changed for the better. If any suspicion attaches to children, the tuberculin test must be applied. In children of school age the tuberculin test is not so reliable, in fact during the school age period the diagnosis is much more difficult because the clinical picture has fewer manifest symptoms. At this time certain slight symptoms should be heeded, even though they may seem unimportant—such as fatigue, loss of appetite or a strange psychic behavior. The school physician can perform valuable service in the early recognition of the disease. Children in the secondary stage of the disease are usually not asthenic but pasty. With reference to the relations between infantile tuberculosis

and tuberculosis of adults, Ulrici holds the view that most cases of tuberculosis in adults are closely connected with conditions in the children—it may be a question of an activation of the primary pulmonary focus, the early dissemination focus or of the late dissemination. Ulrici does not think that in early infiltrations of adults it is a question of primary tuberculosis.

#### Observations on Tuberculin Sensitivity in Children

On 410 tuberculous children who in part were under observation for from nine to fifteen years, examinations on the behavior of the tuberculin sensitivity were reported by Dr Viethen of the University Children's Clinic in Freiburg-im-Breisgau, 171 of these 410 children lived in the same environment with patients having open tuberculosis and were thus exposed to infection. During the long observation period, a reduction of the sensitivity to tuberculin was not demonstrable but rather an increase. Furthermore, no relation between sensitivity to tuberculin and the activity or form of the tuberculous processes could be ascertained. The possibility of superinfection had likewise no perceptible influence on the degree of sensitivity to tuberculin and the activity of the disease. Finally, the examinations showed that no prognostic conclusions could be based on the degree of the local reaction.

#### Purified Tuberculin

The constantly increasing cutaneous application of tuberculin for diagnostic purposes induced the government testing center for tuberculins to institute a series of tests on the cutaneous activity of tuberculins. Prof E Kuster has therefore worked out an exact testing method for the cutaneous action of tuberculins through intracutaneous inoculation into tuberculous guinea-pigs, in comparison with the standard tuberculin. It was found that the cutaneous value of whole tuberculins applied to guinea-pigs is not applicable to man, since man reacts cutaneously to the various substances combined with the whole tuberculin. Kuster therefore applied the Willstatter method to bring the tuberculins up to a high degree of purity. On applying the tuberculins intracutaneously and subcutaneously, it was found that in whole tuberculin two different substances, separable from each other, are present, one of which acts on the skin and the other on the tuberculous focus, the so called *toadstool*. By means of dialysis it proved possible to remove from the whole tuberculin all but 10 per cent of the *toadstool*. In this manner a tuberculin with a predominant amount of substance acting on the skin was obtained, the cutaneous employment of which on man avoids the danger of a general and focal action. By testing this substance on tuberculous and nontuberculous children the diagnostic value, compared with other tuberculins, for skin tests was demonstrated. This purified skin tuberculin appears suitable for the recently introduced serial examinations for the centripetal combating of tuberculosis.

### NETHERLANDS

(From Our Regular Correspondent)

June 19, 1934

#### Physician Allowed Compensation for Infection Contracted in Line of Duty

An assistant physician of St Joseph's Hospital in Heerlen developed measles during his service in the measles pavilion of that hospital. The Rijkssverzekeringsbank refused to intervene in spite of the law pertaining to industrial accidents, the management alleging that there was no question of sudden cause or of an event occurring in a comparatively short time. The central committee on workmen's compensation reversed the decision of the Roermond committee and that of the insurance management and conceded the physician's claim to an indemnity, basing its decision on the fact that the causative agent of the disease was introduced into the organism suddenly,

or within a short time, and that the infection was connected with his service. Physicians will hereafter be insured against the risks of infection to which they are exposed in the performance of their regular duties.

#### The First Netherlands Open-Air School

Netherlands' first open-air school was completed in July 1933. It consists of an examination room, refectory, restrooms and classrooms. It has accommodations for 100 pupils. Weak children are sent here on the recommendation of the consultation bureau for the combating of tuberculosis, in The Hague. Classroom work occupies the time from 9 10 a m to 12 15 p m. After the noon meal the children rest from 1 to 2 30 and then resume their studies until 4 10 p m. The late afternoons are devoted to physical exercise and manual training. In instruction, an endeavor is made to follow the standards of the regular primary school and at the same time to give more individual attention to the pupils.

#### Gout in Children of School Colonies

Dr Koopal's study of the gout problem in the Netherlands was begun in 1932. He examined 1,502 boys and 1,509 girls and found 23 per cent affected with gout, 16.5 per cent of the boys and 28.3 per cent of the girls. The percentage increases with the age, reaching the maximum at about age 12 for the boys and ages 8-12 for the girls. Dr Koopal mentions other regions besides those studied particularly, in which thyroid patients are encountered. His conclusion is to the effect that gout does not constitute an obstacle to the placing of children in school colonies.

#### The Institute of Criminology in Leyden

Prof Dr L Van Itale, Mr J M Van Bemmelen, Dr E Carp, L Hulst, Dr A J Steenhauer and Dr D Wiersma, who created the Institute of Criminology of Leyden, are planning to give next winter a series of lectures with demonstrations and tests. At each session two topics will be treated, and after the lectures the question will be thrown open for general discussion. Problems of poisoning and the psychological examination of criminals will be taken up first.

#### Reports on Weil's Disease

Two articles on Weil's disease appeared recently in the *Nederlandsch Tijdschrift voor Geneeskunde*. In the first, Kramer reports twenty-four observations on Weil's spirochetosis without icterus and describes the most marked symptoms for the diagnosis of these incomplete types, among which one may emphasize redness of the conjunctiva and the muscular signs. He divides the cases observed into four groups. In addition to forms of general infection without localized symptoms, he cites seven cases of nephritis and four in which the disease evolved exclusively in the form of an acute meningitis. Kramer refers to the recent monograph of Troisier and Boquien, whose indications—although secured of course in an entirely independent manner—agreed with his own. The occupation of the first patient examined by Troisier in 1926 (abattoir butcher) is in line with the discovery of several cases of Weil's disease in the abattoirs of Rotterdam (infested by many rats). One point to notice in the French cases is the normal (or even markedly increased) sugar content of the cerebrospinal fluid. Kramer is inclined to associate this with the fact that the pancreas also may be involved.

In the second article, Postmus recalls that the observations made by different authors do not agree with the results of the seroreaction in former patients with Weil's disease. Nineteen cases were studied at the Division of Tropical Hygiene in the Colonial Institute of Amsterdam. The studies extended to the seventeenth year after the infection. They revealed that in

the Netherlands the agglutinins and the lysins were preserved for many years in the blood of patients who had been affected with leptospirosis. This result is in accord with that of Pettit but is different from that secured by other authors. Possibly (as in other diseases) the immune bodies disappear more rapidly from the organism in the tropical region. Furthermore, the leptospiroses of Sumatra differ from the typical leptospirosis of Weil in Europe.

## ITALY

(From Our Regular Correspondent)

May 31, 1934

### The Health of the Italian Army

From the recently published annual report on the health of the Italian army for 1930, it appears that the morbidity per thousand among the noncommissioned officers and enlisted men dropped to 522, as against 546 for the previous year. The mortality was 27 per thousand of the average number enlisted. The average daily number of soldiers confined to their beds was twenty-two per thousand, which was an increase of two over the preceding year. The average duration of hospital care was eighteen days for persons admitted to the military hospitals, and five days for those under observation.

The highest morbidity was among the newly enlisted carabinieri, who are enrolled as volunteers at the age of 18 and are subjected to intensive drill and instruction. The morbidity increased in May and June, in which the greatest number of recruits are under arms, and reached the maximum in July.

From the standpoint of occupation of soldiers before being called to the colors, the morbidity from infectious diseases was less among the agricultural groups and more among the industrial and commercial groups.

The most frequent causes of death were tuberculosis (60.88 per hundred thousand of the average enlisted force, and covering 22.6 per cent of the deaths from all causes) and diseases of the respiratory apparatus. The lowest mortality was in the engineer corps and the highest was among the *granatieri*, chiefly because of accidents. The highest mortality was in the month of August (1.02 daily for each hundred thousand effectives), the lowest was in January (0.57). The number of soldiers eliminated as a result of medicolegal examinations was 24.54 per thousand effectives.

The most frequent diseases and sicknesses were the mild states of general malaise (227.4 per thousand patients). Of the disorders of the respiratory apparatus, pleuritis constituted 11.8 and pneumonia 9.5 per thousand. Of the infectious diseases, syphilis accounted for 52.2 per thousand, mumps for 25.2, malaria for 16.3, tuberculosis for 4.5, typhoid for 2.9, and diphtheria for 0.1 per thousand.

Only two soldiers were admitted to the hospital for acute alcoholism during the whole year.

The number of surgical operations performed in the military hospitals was 5,495 with an additional 3,361 minor interventions. The large number of operations was due to the radical treatment of inguinal and scrotal hernia (1,028), the next in order were appendectomy (320), phlebectomy (17) and mastoidotomy (130).

During the year, 1,616 patients were admitted to the military hot springs resorts.

### New Senators Among the Physicians

In addition to those mentioned in a previous letter, Profs. Luigi Devoto, Giuseppe Muscatello, Giulio Salvi and Giuseppe Orio were recently chosen as senators.

Professor Devoto is of the University of Milan, where he established and is the director of the chair of clinical aspects of occupational diseases. He has carried out important research on pellagra and ancylostomiasis, the results of his studies hav-

ing been published by special journals, such as *Il lavoro* and *Le malattie del lavoro*. Another important field of action of Professor Devoto has been the problems of Italian hydrologic and climatic resorts. Many of his pupils occupy today chairs in universities.

Professor Muscatello is director of the surgical clinic in Catania. He has been rector of the Università degli studi di Catania and dean of the faculty of medicine.

Prof. Giulio Salvi is occupant of the chair in human anatomy and rector of the University of Naples. Of his many publications, the best known are those on a new method of topography of the rolandic fissure and the fissure of Sylvius. He has published treatises on anatomy and a manual of dissection.

Professor Orio is director of the Clinica oculistica of the University of Rome, president of the Società oftalmologica italiana and of the Fondazione per gli studi oftalmologici e per la profilassi oculare.

### The Surgical Society of Pavia

At a recent meeting of the Società medico chirurgica di Pavia, Zavattari spoke on the frequency of schistosomiasis of the bladder in Fezzan. Examining many samples of water and many persons in that region of Africa in 1933, the speaker found that *Bullinus contortus* is widely diffused in Fezzan. The persons affected by the disease ranges around 50.6 per cent of the total population, reaching the maximum in the children, almost all of whom present ova of *Schistosoma haematobium* in the urine.

Trabattini reported the results of research on tubercle bacilli with the Lowenstein method on the blood and the spinal fluid of patients with disorders of the nervous system. Examining thirty-six samples of blood from patients with dementia praecox, multiple sclerosis and chorea minor, he secured constantly negative results. He also found negative eighteen samples of spinal fluid from psychopathic patients and five samples of spinal fluid from patients with pulmonary tuberculosis in an advanced state. The speaker concluded therefore that the statements of Lowenstein cannot be accepted, at least not in nervous diseases.

Monti gave the results of experiments at the Policlinico di Pavia on the contaminations of the air, fogs and snow. The fogs, so frequent in the plain of Lombardy, collect germs, dusts and extraneous gases in the air but to a varying extent, depending on the meteorological conditions. The winds, although they stir up dust and thus disseminate various germs and spores, disperse fumes, gases and fine dust and hence, on the whole, tend to purify the air.

In low-lying fogs without wind, all the impurities of the air remain near the earth, germs develop ten times more rapidly than in the presence of wind, and among these *Bacillus fusiformis* abounds. In addition to mineral dusts there are many coal particles, with various products of combustion, and the gases given out by industrial establishments. With sudden changes of temperature, if there is no wind, the smoke from chimneys and the industrial gases and vapors are thrown out into the lower strata of the atmosphere. If these gases and vapors attain a certain concentration, they may give rise to disasters such as were observed in December 1931 in the valley of the Meuse.

### Prophylaxis of Venereal Diseases

The public health service has recently sent to the prefects regulations for the prevention of venereal diseases, considered with special reference to heredity. The provisions concern chiefly aid to syphilitic women during pregnancy and to the new-born with congenital syphilis. Obstetricians should investigate with great care to discover the possible presence of syphilitic manifestations in pregnant women and serologic examinations should be made in all suspected cases. Pregnant syphilitic women should be admitted to a special department and not to the ordinary ward for syphilitic women.



Orphan asylums should provide special wards for syphilitic persons. The new-born should not be admitted until a serologic test for syphilis has been applied to both mother and child. The aid to syphilitic children admitted to orphan asylums should ordinarily be given within the institution, but after the nursing period is completed it may be continued in special institutions.

In the children's hospitals and the pediatric clinics, centers should be established for congenital syphilis and infantile syphilis, in which mothers will find facilities that will encourage them to take their children there.

The public health service took this opportunity to urge provincial physicians to determine the best method to collect data on cases of congenital syphilis.

## BELGIUM

(From Our Regular Correspondent)

June 19, 1934

### Vaccination with Anatoxin

Ramon, Timbal and Nelis communicated recently to the Royal Academy of Medicine of Belgium their observations on 14,000 children vaccinated with anatoxin. Vaccination with anatoxin has been found to be practically harmless. Anatoxin properly prepared and controlled cannot cause the slightest specific intoxication. The reactions are transitory and never dangerous. Vaccination never has any bad effects on the later development of the vaccinated child. The injection of anatoxin is not followed by a negative phase. It does not render the vaccinated subjects more sensitive to diphtheritic infection or to any other disease. If the anatoxin possesses the requisite number of flocculation units and is injected according to prescribed rules in the doses and with the observation of the intervals recommended, it produces immunity in a high proportion of persons vaccinated, and the immunity conferred endures for a long period. Applied in two injections (1 and 2 cc., with an interval of three weeks, and with anatoxin having at least 20 antigenic units), vaccination will develop an immunity that yields a negative Schick reaction in from 99 to 100 per cent of persons vaccinated. It is the preferred method for individual and collective prophylaxis of diphtheria.

### Thrombophlebitis of the Cavernous Sinus

At the annual meeting of the Groupement belge d'études oto-neuro-ophtalmologiques et neuro-chirurgicales, Dr. Moreau discussed thrombophlebitis of the cavernous sinus. The paths that infections follow are important to know. The cavernous and the contiguous sinuses form a venous crossway, which surrounds the hypophysis and constitutes from the venous point of view an equivalent of the circle of Willis.

Although every thrombosis has an infectious origin, the author holds that there are sufficient reasons to grant a certain independent existence to the two groups set up by older writers: marantic thrombosis and inflammatory thrombosis. The former is always due to a general disorder and has its seat usually in the unpaired sinuses. When it extends to the paired sinuses it does so symmetrically. Inflammatory thrombosis invades the paired sinuses and is commonly asymmetrical.

In the majority of cases, thrombosis of the cavernous sinus is a purely inflammatory thrombosis. As regards preventive treatment, when the inoculation lesion is facial, intervention should be as prompt as possible by means of wide electro-coagulation with the electric knife and extensive coagulation, which should go considerably beyond the infected area. With an electric loop the column of coagulated tissue is removed, which leaves a pit effecting the drainage of the thrombosed veins of the adjacent area.

In cases of tonsillar, sphenoidal, auricular or maxillary origin, the fundamental indications are early and thorough treatment,

whenever possible, of the original lesion. In spite of early drainage, it is sometimes difficult to check the progress of infection. From the standpoint of treatment of thrombophlebitis of the cavernous sinus, the author pointed out that the various technics proposed were all too radical to be applied to patients so gravely intoxicated.

Surgery is not always contraindicated, but careful selection of cases is needed. The time of the appearance of the cavernous sinus and the rapidity of the evolution are the principal criteria as to the attitude to be observed.

No intervention should be attempted in the cases with rapid evolution or in those that have evolved too far. With regard to the operative technic, the author sides with the views of Wells P. Eagleton. He pointed out that ligation of the internal carotid artery, which relieves the strain on the thrombosed sinus, is the first distinct advance made in the treatment of thrombophlebitis of the cavernous sinus.

### Malaria in Tropical Africa

Dr. Rodhain, of the Institut royal colonial belge, recently lectured on malaria in tropical Africa, which is the most important factor opposing the settlement of Europeans in the tropics. He emphasized the great difference between the malarial regions of the temperate zone, where the malaria season lasts only a few months, and the tropical regions with endemic malaria, in which the anopheles are less numerous during the dry season but do not disappear.

The crusade against the mosquito cannot of itself break the cycle of propagation. Chemotherapy—quinine, on the one hand, and plasmochin, on the other hand—gives positive results in the carrier of parasites. But, as a product that will protect man against the sporozoites transferred from the mosquito is not available, he concluded that in the regions where malaria is endemic the curative and gametocidal action will not give permanent results unless the crusade against the mosquito is carried on effectively. Is the sterilization of the native, who constitutes the great reservoir of virus, possible? The chemotherapeutic products are expensive. The vast undertakings to eradicate malaria give variable results, depending on the peculiar topographic and climatic conditions. There is justification for expecting a chemical product that is truly prophylactic. The extension of the cultivation of cinchona trees may furnish a powerful aid.

### Leprosy in the Belgian Congo

In a population of 443,700 in the region of Nepoko, Belgian Congo, 4,600 leprosy subjects have been detected. The Red Cross Society assumed the task of ferreting out these cases and of rendering the necessary aid. It has concentrated 700 leprosy subjects in three villages and is planning to establish further villages. It does not appear likely that these leprosy colonies will be self supporting.

## Marriages

WILLIAM ANDREW HORSLEY GANTT to Miss Mary Gould Richardson, both of Baltimore, June 23.

JOHN WILLIAM CAMP, Cambridge, Ohio, to Miss Emma Marie Gordon at Somerset, June 17.

NICHOLAS PADIS, Boston, to Miss Kively Evangelides of New Brunswick, N. J., April 29.

MORGAN CUTTS, Bridgeport, Conn., to Miss Katharine B. Knox of Baltimore, June 30.

T. MAURICE AHLQUIST to Mrs. Wilbur N. Joyner, both of Spokane, Wash., June 4.

WILLIAM E. BUEHLER to Alice F. Willson, both of Chicago, July 26.

## Deaths

**Edward Grant Seibert** \* Washington, D C, Columbian University Medical Department, Washington, 1893, counselor of the Medical Society of the District of Columbia, formerly clinical professor of laryngology, rhinology and otology at his alma mater served during the World War, fellow of the American College of Surgeons, aged 68, died, June 30, of paratyphoid fever, diverticulitis and perforation of the urinary bladder

**George Walter Holden** \* Denver, University of Vermont College of Medicine, Burlington, 1895, fellow of the American College of Physicians and member of the American Climatological and Clinical Association formerly medical director of the Agnes Memorial Sanatorium, aged 67, died, July 12, of coronary thrombosis and arteriosclerosis

**Frederick William Mulligan**, Petrolia, Ont, Canada, Trinity Medical College, Toronto, 1893, L R C S, Edinburgh, 1894, L R C P, London, and M R C S, England, 1895, formerly member of the board of education, county coroner, on the staff of the Charlotte Eleanor Englehart Hospital, aged 61, died, May 14, of pneumonia

**David A Hutchinson**, Nashville, Ark, College of Physicians and Surgeons, Baltimore, 1880, member of the Arkansas Medical Society, past president and secretary of the Howard County Medical Society, past president of the county board of health, formerly mayor of Nashville, aged 85, died, May 27, of senility

**Thomas Henry Mays**, Freeland, Pa, University of Pennsylvania School of Medicine, Philadelphia, 1910, member of the Medical Society of the State of Pennsylvania, member of the school board aged 49, died suddenly, July 1, at his summer home in Ocean City, N J, of coronary disease

**Orlando Fenton Lowry**, Cambridge, Ohio, Starling Medical College, Columbus, 1889, formerly a pharmacist, at one time member of the board of education, aged 78, died, April 12, in the Wells Hospital, of partial intestinal obstruction caused by inflammation of the gallbladder

**Samuel L Lingle**, Paoli, Ind, University of Louisville (Ky) School of Medicine, 1891, member of the Indiana State Medical Association, served during the World War, aged 66, died, June 15, in St Edward's Hospital, New Albany, following an operation for appendicitis

**Ralph Taylor Shipley** \* Canton, Ohio, Western Reserve University Medical Department, Cleveland, 1910, served during the World War, fellow of the American College of Surgeons, aged 50, on the staff of the Aultman Hospital, where he died, July 7, of acute leukemia

**J Wildy Ladouceur**, Lewiston, Maine School of Medicine and Surgery of Montreal, Que, 1910, member of the Maine Medical Association, served during the World War, on the staff of St Mary's Hospital, aged 46, died suddenly, June 25, of heart disease

**Walter Abner Scott** \* St Johns, Mich, University of Michigan Medical School, Ann Arbor, 1904, past president of the Clinton County Medical Society, on the staff of the Clinton Memorial Hospital, aged 59, died, June 9, of coronary occlusion

**William Henry Leith**, Lancaster, N H University of Vermont College of Medicine, Burlington 1883 member of the New Hampshire Medical Society on the staff of the Lancaster Hospital, aged 75, died, April 3, of pernicious anemia

**Albert S J Stovall** \* Elberton Ga, University of Georgia Medical Department Augusta, 1886 past president of the Elbert County Medical Society, formerly state senator, aged 72, died June 21 in the Elberton County Hospital, of nephritis

**Charles William Hutchinson** \* Concord, Mass Harvard University Medical School Boston 1917, on the staff of the Concord Hospital aged 49, died June 26 in the Baker Memorial Hospital, Boston, of subacute bacterial endocarditis

**Russell Andrew Patrick**, Marshalltown Iowa State University of Iowa College of Medicine, Iowa City 1932 member of the Iowa State Medical Society aged 32, died, June 22, in the Evangelical Deaconess Hospital of nephritis

**Robert Benjamin Ginn**, Frankfort, Ky Kentucky School of Medicine Louisville 1893, member of the Kentucky State Medical Association for eight years coroner, aged 62 died, June 28 of hypernephroma of the right kidney

**George W Burnett**, Whitesburg Ga, Southern Medical College, Atlanta, 1878, member of the Medical Association of

Georgia, formerly member of the state legislature and county board of education, aged 80, died, June 19

**Homer Clifton Oatman Jr**, San Diego, Calif, McGill University Faculty of Medicine, Montreal, Que, Canada, 1931, member of the California Medical Association, aged 29, died, June 16, of subacute bacterial endocarditis

**Medwin Leale** \* New York, Columbia University College of Physicians and Surgeons, New York, 1896, veteran of the Spanish-American War, aged 60, died, June 30, in St Luke's Hospital, of myelogenous leukemia

**James Theodore Sedgwick**, Litchfield, Conn University of the City of New York Medical Department, 1885, member of the Connecticut State Medical Society, aged 71, died suddenly, July 15, of angina pectoris

**Murdock Angus MacKay**, Tisdale, Sask, Canada, Queen's University Faculty of Medicine, Kingston, Ont, 1911, for many years member and chairman of the school board, aged 54, died, April 1, in Victoria, B C

**Walter Russell Sanders**, Derry Village, N H, Bennett College of Eclectic Medicine and Surgery, Chicago 1884, member of the New Hampshire Medical Society, aged 71, died, June 29, of heart disease

**Alexander Holland Conrad**, Perris, Calif, University of Michigan Medical School, Ann Arbor, 1932, member of the California Medical Association, aged 33, died, May 10, of a self inflicted bullet wound

**Leander Young Ketcham**, San Diego, Calif, University of Vermont College of Medicine, Burlington, 1880, aged 83, died, May 14, of bronchopneumonia, carcinoma of the prostate and arteriosclerosis

**Andrew W Goodwin**, Oil City, Pa, Cleveland Medical College, 1893, member of the Medical Society of the State of Pennsylvania, on the staff of the Oil City Hospital, aged 64, died, June 18

**Walter Hibbard Lewis**, Pendleton, Ind, University of Pennsylvania School of Medicine, Philadelphia, 1873, aged 85, died, May 31, of hypostatic pneumonia following fracture of the hip bone

**Wilfred Otto Louis Lellmann** \* New York, Columbia University College of Physicians and Surgeons, New York, 1914, aged 68, died, June 8, in the Lenox Hill Hospital, of heart disease

**Henry Lyman** \* Canton, Mass, Harvard University Medical School, Boston 1912, served during the World War, aged 54, died, June 15, of thrombophlebitis and pulmonary embolism

**Roscoe E Schindel** \* Omaha, Baltimore Medical College, 1897, formerly professor of diseases of the stomach, John A Creighton Medical College, aged 63, died, June 15, of angina pectoris

**Max Adolph Wechsler**, Edgemere, N Y, University of the City of New York Medical Department, 1893, member of the Medical Society of the State of New York, aged 61, died, June 6

**Michael M Rankin**, Ridgway, Pa, Medical College of Ohio, Cincinnati, 1876, member of the Medical Society of the State of Pennsylvania, aged 82, died, April 12, of gangrene

**Arthur David Morgan**, Alberni, B C, Canada, McGill University Faculty of Medicine, Montreal, Que, 1901, served with the Canadian Army during the World War, died recently

**James Joseph Rock**, Ryan, Iowa, State University of Iowa College of Medicine, Iowa City, 1916, served during the World War, aged 46, died, June 16, in a hospital at Cedar Rapids

**William J Esch**, Cleveland, University of Wooster Medical Department, Cleveland, 1881, aged 73, died, June 12, of empyema of the gallbladder and congestive heart failure

**John W Williams**, Harvest Ala, Memphis (Tenn) Hospital Medical College, 1895, veteran of the Spanish-American War, aged 76, died, May 12 of hypostatic pneumonia

**William Ferguson Torbitt**, Bennet, Neb, University of Maryland School of Medicine Baltimore, 1903, also a druggist, aged 80, died, May 13, in a hospital at Lincoln

**Roy Wesley Klaus**, Chicago, Hahnemann Medical College and Hospital Chicago 1912 aged 47 died July 11, in St Francis Hospital, Evanston, of acute appendicitis

**William T McKay** \* Long Beach, Calif, Rush Medical College Chicago 1881, a fellow of the American College of Surgeons, aged 73, died, June 12 of angina pectoris

**Joseph Douglas Malcolm** \* New York, Columbia University College of Physicians and Surgeons, New York, 1904, aged 60, died, June 20, of carcinoma of the rectum.

**St Clair Streett**, Kansas City, Mo., University of Maryland School of Medicine, Baltimore, 1880, aged 75, died, June 27, of arteriosclerosis and cerebral hemorrhage

**Mark Hugh Hudgings**, Caruthersville, Mo., Missouri Medical College, St. Louis, 1887, member of the Missouri State Medical Association, aged 69, died, May 13

**Gordon Russell MacKay**, Hagersville, Ont., Canada, University of Western Ontario Medical School, London, 1927, aged 31, died, June 4, in an automobile accident

**Florence B. MacRae** ☉ Chicago, Eclectic Medical College, Cincinnati, 1926, on the staff of the Woodlawn Hospital, aged 44, died, July 9, of carcinoma of the liver

**Samuel Kuner**, Long Island City, N. Y., University of Illinois College of Medicine, Chicago, 1926, aged 39, died, June 28, of leukemia and exophthalmic goiter

**Clarence Augustus Cobleigh**, Chattanooga, Tenn., Chattanooga Medical College, 1897, member of the Tennessee State Medical Association, aged 62, died, June 15

**George William Finley** ☉ Brazil, Ind., Medical College of Indiana, Indianapolis, 1890, aged 79, died, June 18, in the Clay County Hospital, of chronic meningitis

**Patrick Joseph William Conran**, San Francisco, Cooper Medical College, San Francisco, 1894, aged 65, died, May 15, of cerebral hemorrhage and arteriosclerosis

**Chambers D. Calhoun**, Elburn, Ill., Jefferson Medical College of Philadelphia, 1884, aged 75, died, July 11, in the Community Hospital, Geneva, of heart disease

**Theodore L. Carriere** ☉ St. Louis, Homeopathic Medical College of Missouri, St. Louis, 1895, formerly deputy coroner, aged 62, died, June 21, of heart disease

**Chester John Montgomery**, Los Angeles, Marion-Sims Beaumont Medical College, St. Louis, 1903, aged 54, died, May 12, of hemiplegia and hypertension

**John Francis Harte**, Athens, Ont., Canada, Queen's University Faculty of Medicine, Kingston, 1887, formerly coroner for Leeds and Greenville, died, May 14

**George Cramer Connett**, Morristown, N. J., Hahnemann Medical College and Hospital, Chicago, 1891, also a lawyer, aged 69, died, July 5, of heart disease

**Arthur Hart Remington**, Los Angeles, University of Pennsylvania School of Medicine, Philadelphia, 1898, aged 57, died, April 17, of cirrhosis of the liver

**Rolland Tyson Winstead**, Rocky Mount, N. C., Meharry Medical College, Nashville, Tenn., 1923, served during the World War, aged 44, died, May 28

**William Joseph Winters**, Philadelphia, Jefferson Medical College of Philadelphia, 1905, aged 53, died, June 22, of coronary thrombosis and myocarditis

**William Ethelbert Hall**, Los Angeles, College of Physicians and Surgeons, Los Angeles, 1912, aged 47, was found dead, June 25, of cyanide poisoning

**William Starick Ruch**, Carlisle, Pa., Jefferson Medical College of Philadelphia, 1888, formerly county coroner, aged 71, died, June 28, of heart disease

**William A. Lockett**, McEwen, Tenn., University of Louisville (Ky.) School of Medicine, 1865, Civil War veteran, aged 96, died, June 11, of senility

**Willet H. Loughlin**, Bloomington, Mich., College of Physicians and Surgeons of Chicago, 1886, aged 76, died, June 21, of carcinoma of the liver

**Lawrence A. Hoffmier**, Superior, Wis. (licensed in Wisconsin in 1924), aged 70, died, June 8, of Hodgkin's disease, arthritis deformans and prostatitis

**John Joseph Sheridan**, New York, Fordham University School of Medicine, New York, 1912, on the staff of the Seton Hospital, aged 55, died, June 24

**Harry Wood** ☉ Batchtown, Ill., St. Louis University School of Medicine, 1905, served during the World War, aged 55, died, July 4, of endocarditis

**Robert Hunter Robinson**, Toronto, Ont., Canada, University of Toronto Faculty of Medicine, 1873, aged 87, died, June 15, in a local hospital

**Charles Haight Conover**, Philadelphia, Hahnemann Medical College of Philadelphia, 1879, aged 75, died, July 2, of a self-inflicted bullet wound

**Claude J. Harley**, Bronson, Mich., Chicago College of Medicine and Surgery, 1913, aged 47, died, July 11, of chronic nephritis and myocarditis

**Armstrong M. Spence**, Lucknow, Ont., Canada, Trinity Medical College, Toronto, 1889, died, June 2, in the Oshawa (Ont.) General Hospital

**Louis M. Crow**, Des Arc, Ark., University of Nashville (Tenn.) Medical Department, 1907, aged 53, died, June 10, of cerebral hemorrhage

**John Henry Young Grant**, Niagara Falls, Ont., Canada, McGill University Faculty of Medicine, Montreal, Que., 1886, aged 74, died, June 25

**Henry Ward Parker**, New Bedford, Mass., Harvard University Medical School, Boston, 1890, aged 85, died, May 24, of chronic myocarditis

**William H. Horr**, Cleveland, Homeopathic Hospital College, Cleveland, 1880, aged 75, died, July 4, of an accidental overdose of morphine

**Frederick W. Belknap**, Chicago, Northwestern University Medical School, Chicago, 1894, aged 66, died, July 16, of cerebral hemorrhage

**Walter C. Lambert**, Wyandotte, Mich., Detroit College of Medicine, 1886, formerly mayor, aged 70, died, June 8, of cerebral hemorrhage

**Samuel F. Love**, Morgan City, Miss., University of Tennessee Medical Department, Nashville, 1881, aged 76, died, May 16, in Oklahoma City

**William Roscoe Jacobs**, Stockton, Calif., Cooper Medical College, San Francisco, 1910, aged 46, died, May 20, of poison, self administered

**Stanley Edward Somers** ☉ East Tawas, Mich., Detroit College of Medicine and Surgery, 1930, aged 33, was shot and killed, July 1

**Francis Leo Daly Scanlan** ☉ Syracuse, N. Y., Syracuse University College of Medicine, 1908, aged 46, died, June 28, of acute nephritis

**George Phillips Waller Sr.**, Los Angeles, Jefferson Medical College of Philadelphia, 1877, aged 80, died, May 18, of acute myocarditis

**August H. Niemiller**, Browns, Ill., Medical College of Ohio, Cincinnati, 1875, aged 81, died, June 14, in the Olney (Ill.) Sanitarium

**John Huston Johnson** ☉ Glenmoore, Pa., Jefferson Medical College of Philadelphia, 1907, aged 57, died, April 17, of angina pectoris

**Frank Wickham**, Corona, N. Y., Bellevue Hospital Medical College, New York, 1876, Civil War veteran, aged 86, died, May 18

**David Henry Worthington**, Aurora, Ill., Rush Medical College, Chicago, 1879, aged 83, died, June 2, of chronic myocarditis

**Wallace Nathaniel Price** ☉ Gardiner, Maine, Medical School of Maine, Portland, 1894, aged 63, died, June 16, of endocarditis

**Frank Leslie Riegel**, Springfield, Ohio, Columbus Medical College, 1891, aged 74, died, June 28, in the Springfield City Hospital

**Philip Reide Kaiser**, Tottenham, Ont., Canada, Queen's University Faculty of Medicine, Kingston, 1926, aged 32, died, June 3

**Albert Irvin Moore**, Fayetteville, Ark., University of Michigan Medical School, Ann Arbor, 1884, aged 71, died, May 9

**John Robert Dales**, Dunbarton, Ont., Canada, Victoria University Medical Department, Coburg, 1885, aged 78, died, May 5

**Winfred W. Nuss**, Elkland, Pa., Hahnemann Medical College and Hospital of Philadelphia, 1892, aged 67, died, May 1

**George McDuffie Lackey**, Staples, Texas, Memphis (Tenn.) Hospital Medical College, 1896, aged 66, died, June 14

**Andrew Grant**, Beaverton, Ont., Canada, University of Toronto Faculty of Medicine, 1877, aged 80, died, May 23

**Nicholas M. Spranger**, Detroit, Detroit College of Medicine, 1892, aged 73, died, June 26, of cerebral hemorrhage

**Jacob Glahn**, Owensboro, Ky., University of Louisville (Ky.) School of Medicine, 1885, aged 74, died, April 28

**James O. Robinson**, Spokane, Wash., Hospital College of Medicine, Louisville, Ky., 1885, aged 72, died, March 22

**Archie Cole** ☉ Pampa, Texas, St. Louis University School of Medicine, 1909, aged 50, died, June 21, of uremia

**George W. Kirk Jr.**, Curtice, Ohio, Toledo Medical College, 1888, aged 83, died, May 29

**John Edward Reeve**, Toronto, Ont., Canada (licensed in Ontario in 1877), died, May 10

## Correspondence

### "CHOLESTEROLEMIA AND THYROID DISORDER"

To the Editor—I have read with interest your editorial of July 14 on cholesterolemia and thyroid disorder

The reader who has not followed the evolution of the subject would doubtless conclude, from what you have written, that the discovery of the relationship between thyroid activity and the cholesterol content of the blood is a very recent one. For this reason it might be of interest to mention that Lande and I pointed out in 1922 (*Studies on Blood Lipoids, Arch Int Med* 30 563 [Nov] 1922) and supported by extensive protocols the existence of an inverse relationship between thyroid activity and cholesterolemia. In subsequent publications (*Thyroid Therapy and Thyroid Tolerance in Chronic Nephrosis, THE JOURNAL*, Sept 18, 1926, p 913, *Ueber Diabetes albuminuricus, die sogenannte chronische Nephrose, Arch f Verdauungsstr* 44 31 [Aug] 1928) I have repeatedly discussed this subject and have utilized the principles involved as an index for thyroid therapy in nephrotic states—a form of treatment that is widely used.

Dr Hurvthal's work from the Lahey Clinic, on which your editorial is based, constitutes a welcome confirmation and amplification of our investigations.

ALBERT A EPSTEIN, M D, New York

### LYMPHATICS OF THE SKIN

To the Editor—My attention has been called to your editorial "Lymphatics of the Skin," which appeared in *THE JOURNAL*, May 19. In this article you say "While this superficial lymphatic plexus has been described before by anatomists, it was supposed to represent local areas, each acting independently. With the technic mentioned, the wide connections of these anastomosing plexuses were observed for the first time" (italics mine). This statement, I regret to say, does not agree with recorded facts. Prof H Rouviere in his work "Anatomie des lymphatiques de l'homme" states (p 4) that it was Mascagni (*Vasorum lymphaticorum corporis humani* p 75 and pl IV) who first established the connection between the superficial and deep lymphatics. In Rouviere's description of the lymphatics one also reads (p 1 line 22) "Quand une resseau est tres riche, les vaisseau qui le forment peuvent etre disposes sur plusieurs plans. Dans ce cas, les vaisseaux superficiels sont les plus petits et les profonds les plus gros. Lorsque cette disposition se presente, on dit parfois qu'il existe deux reseaux. L'un superficiel, l'autre profond, bien qu'il ne s'agisse la que d'un meme resseau" (Wherever a network is abundant, the capillaries that form it may be arranged in several layers, in which case the superficial capillaries are the smaller and the deeper of larger size. When this arrangement is encountered, we speak of two systems of networks, a superficial and a deep, although they function jointly as one network). On page 3, line 18. Aussitot apres leur origine dans le resseau dermique, une partie des vaisseaux superficiels chemine superficiellement dans le pannicule adipeux—les autres traversent ce pannicule et la fascia superficialis et se placent dans la couche de tissu cellulaire souscutane. (Immediately after their origin in the lymph networks of the skin, a portion of the superficial lymph vessels run superficially in the superficial fascia, while the others traverse the superficial fascia and come to lie in the subcutaneous cellular tissue.) And on page 3 line 22 "Les anastomoses entre vaisseaux lymphatiques voisins sont frequentes. Elles diminuent de nombre a mesure qu'on s'eloigne du resseau d'origine—Il existe aussi des anastomoses qui

etablissent, a travers la ligne mediane, une liaison entre les lymphatiques des deux moities du corps. Cette liaison est assuree, suivant les regions soit par des anastomoses qui unissent entre eux les collecteurs voisins, soit a la fois par les reseaux et par des canaux anastomotiques" (Anastomoses between neighboring lymph vessels are frequent, these, however, diminish in number as the lymph vessels recede from their networks of origin. There also exist anastomoses which establish connections across the median line between both halves of the body. Such connections are assured according to the region either by anastomoses which unite neighboring lymph collecting vessels, or by means of lymph-capillary networks and anastomotic channels at one and the same time). Finally, throughout his work, H Rouviere shows clearly (for instance, figs 60 63) the continuation of the superficial with the deep lymphatics.

M J TOBIAS, M D, New York

### OVERDOSAGE OF SPINAL ANESTHETIC

To the Editor—The following case is of interest to the profession because of the large dose of spinal anesthetic administered with a subsequent almost fatal outcome. A white woman, aged 40, weighing 160 pounds (72.6 Kg), with a systolic blood pressure of 140 and a diastolic blood pressure of 80, was given a spinal anesthetic for a cholecystectomy for hydrops of the gallbladder. Novocain crystals (a brand of procaine hydrochloride) dissolved in the patient's spinal fluid were injected into the third lumbar space. While the gallbladder contents were being emptied the patient became pulseless and stopped breathing. Cardiac and respiratory action was restored by means of subdiaphragmatic cardiac massage, epinephrine by vein and artificial respiration. The operation was terminated at this point by a cholecystostomy. The postoperative course was uneventful. As I had given and seen given many similar spinal anesthetics with the same drug with no untoward reactions, I could not explain this reaction until I noticed that the glass ampule used did not contain the usual 120 mg but contained 500 mg. This ampule was not meant for spinal use but was used by mistake.

ALEXANDER ZABIN, M D, Malvern, L I

NOTE—There seems to be no good reason for marketing 500 mg ampules of novocain. These have not been accepted by the Council on Pharmacy and Chemistry. The largest dosage form accepted (Procaine-Abbott) is 200 mg.—Ed

### PHYSICOTHERAPY—PHYSICAL MEDICINE

To the Editor—Medical practitioners strongly resented the ultimately successful scheme of a few lay cultists, aided by politicians, to force the "physiotherapist" clause into the new (1926) medical practice act of New York State. The officials of the American Medical Association accordingly dropped the terms physiotherapy and physiotherapist, as applicable to medical graduates, properly substituting those of physical therapy and physical therapist. It is to be regretted that some ill advised medical practitioners and institutions still adhere to the objectionable nonmedical terms.

Otto Veraguth, M D, professor of physical medicine at the University of Zurich, in his presidential address at the annual meeting (at that institution, Jan 29, 1934) of the International Society of Medical Hydrology, spoke "In Defense of a Name" and as reported in the *Archives of Medical Hydrology*, May, 1934, pages 241-242, said in part "I take as my point of departure my criticism of two titles often used for physical treatment, or physical medicine, namely, physiotherapy and 'nature medicine' (naturheilkunde). Both these terms are based on an unscientific mysticism because the description is too ill defined. For we do not treat our patients now-

days only by climate, waters or baths, but by many technically differentiated forms of such natural forces. No one would deny that behind all these processes the *vis medicatrix naturae* is at work as a driving force. What the *medicus curans* provides to the *natura sanans* is intelligent removal of obstacles, rapid preparation of the way, provision of supplementary forces working in the same direction and a strengthening of their striking force. The description physiotherapy (or the English term physical medicine) is in direct and definite contrast to the inadequate, illogical and presumptuous terms physiotherapy and nature treatment. The adjective physical refers to the most exact of the natural sciences, physics. Physical treatment is therefore, properly speaking, that kind of treatment of disease the therapeutic agents of which are to be defined by the science of physics."

A B HIRSH, M D, New York

### MESENTERIC VASCULAR OCCLUSION WITH RECOVERY

*To the Editor*—The article by J R Green and C H Allen on mesenteric vascular occlusion with recovery (THE JOURNAL, July 7) is concise, frank and instructive. The case report seems to me, however, after a close study, to be one of volvulus of the small intestine secondary possibly to adhesions from the previous appendectomy. The two conditions give the same pathologic end result—gangrene from occluded blood supply—but as their etiology is so vastly different, as is also their prognosis, I thought it would be no mere quibbling to call this to your attention. The authors themselves mention the importance of looking for an etiologic factor in a vascular mesenteric thrombosis, but in their pathologic description they have pointed out none. Furthermore, the age of the patient, 24, would make a primary mesenteric thrombosis extremely rare, whereas it is entirely compatible with the usual age incidence of volvulus. I happened to be interested in this case because I performed a necropsy in a similar one several months ago at the Philadelphia General Hospital. The symptoms and pathologic observations were practically the same, except that the volvulus was due to adhesions around a large uterine fibromyoma.

NATHAN RALPH, M D, Eagleville, Pa

[NOTE—This suggestion was forwarded to Dr J R Green, who replies.]

*To the Editor*—The criticism is pertinent. We have no positive proof of the etiology in this case. Reference to the description of the gangrenous bowel that it was a straightened out piece of bowel lying parallel to the mesentery on the left side of the spinal column, with no kinking of the mesentery and no adhesions of the gangrenous bowel or any adjacent bowel or other viscera, makes it improbable that volvulus could have caused the interruption of the blood supply. The patient had no symptoms referable to the gastro-intestinal tract during the eight months interval between the appendectomy and the onset of the gangrenous bowel.

Two weeks before the onset of this disease the patient and three other persons took an automobile tour of several hundred miles. One other member of the party had acute appendicitis soon after returning home. He was operated on and a moderately acute catarrhal appendicitis was found with considerable free peritoneal fluid. Severe cramping pain followed at intervals for one month after this. He eventually recovered completely. The fact that two members of the party were attacked by a severe bowel malady is suggestive of food or bacterial poisoning with localized lesions of the bowel wall. Ulceration is known as one of the conditions leading to thrombosis of the mesenteric blood vessels. In the absence of bacteriologic confirmation we did not include this in the report of the case.

JOHN R GREEN, M D, Independence, Mo

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### DIABETES IN YOUNG BOYS

*To the Editor*—A boy aged 13, 48 inches (122 cm) tall weighing 60 pounds (27 Kg), has had diabetes mellitus for eleven years. His liver is enlarged extending almost to the navel. He looks like a patient with congenital hypopituitarism as evidenced by the height, the facies of an old man and absence of pubic hair. The diabetes has been difficult to control with a maintenance diet and from 10 to 20 units of insulin twice daily. The nonprotein nitrogen of the blood is 50 mg per hundred cubic centimeters. What relationship is there between the pituitary disturbance and the diabetes? Could marked benefit be expected from pituitary medication? If so what would be the dosage and which type of preparation should be given?

T A TAYLOR M D, Lufkin, Texas

*ANSWER*—Fortunately the boy is alive, although 5 inches below height for his age and 17 pounds overweight for his height. He is only paying a temporary penalty for a lack of diet during the first years following the discovery of insulin. It must be taken for granted that he like all other similar patients will get fat before he gets tall and unless he breaks the rule his greatest acceleration in height will not occur until between the ages of 15 and 19 years.

It is unnecessary to use pituitary preparations, but he should have at least 175 Gm of carbohydrate, 90 Gm of protein and 100 Gm of fat with insulin in sufficient amounts to keep him sugar free or nearly so and probably given in four doses. Whole thyroid gland, from 1 to 3 grams (0.065 Gm to 0.2 Gm) daily for months possibly would help. He would be a good subject for a boys' summer camp.

The high nonprotein nitrogen may not be significant, but it can be repeated and a two hour renal test performed. It would

### Record of Diet, Insulin and Growth of a Diabetic Child Whose Growth was Stunted by the Undernutrition Treatment of the Preinsulin and Early Insulin Era

Date	Height inches	Weight in pounds	Carbo- hydrate Gm	Pro- tein Gm	Fat Gm	Calories	Units of Insulin	Age Years
1919	42	35	32	29	25	477	0	5
1922	44½	32	59	25	35	615	0	8
1922	48	51	46	68	108	1,428	20	12
1927	48¾	58	79	67	112	1,592	20	13
1928	51¾	68	101	73	118	1,758	21	14
1929	52¼	72	115	81	133	1,981	21	15
1930	53¾	80	129	83	139	2,063	33	16
1931	55½	88	172	90	144	2,344	51	17
1932	58¾	100	169	87	126	2,158	62	18
1933	63¾	126	169	87	126	2,158	64	19
1934	63¾	122	169	87	126	2,158	75	20

also be of interest to secure an examination of the eyes and a roentgen examination of the arteries of the legs.

Two examples of similar cases are given for encouragement. The onset of diabetes in one of these boys occurred in August 1919, at the age of 5½ years. His weight was 35 pounds (16 Kg) and his height 3 feet 6 inches (107 cm). From 1919 to 1922 he was treated with undernutrition, 30 calories per kilogram, and grew 2¼ inches (5.5 cm) but lost 3 pounds (1.4 Kg). From 1923 to 1926 a moderate state of undernutrition was continued and he grew 3¼ inches (9.5 cm) and gained 19 pounds (8.6 Kg). From 1927 on he received a higher caloric diet with from 80 to 172 Gm of carbohydrate, from 70 to 90 Gm of protein and from 116 to 144 Gm of fat. In 1934 at the age of 20 he is short but physically mature, taller than his mother and only just a trifle shorter than his father. His greatest acceleration of growth occurred between the ages of 16 and 19.

Another boy, in whom diabetes developed in 1920 at the age of 4 years, weighed 81 pounds (37 Kg) dressed and was 55½ inches (140 cm) in height in October 1932, when he was 16 years old. The treatment was changed and in February 1934 his weight was 97 pounds (44 Kg) dressed and his height was 4 feet 11 inches (150 cm). Thus in sixteen months he gained 16 pounds (7.3 Kg) and grew 3½ inches (9 cm), while his diet was increased from 101 Gm of carbohydrate, 51 Gm of protein, 74 Gm of fat and 25 units of insulin to 160 Gm of carbohydrate, 100 Gm of protein, 100 Gm of fat and 39 units of insulin. Greater acceleration of growth is expected in the next two years.

## PRURITUS BALNEA

To the Editor—Please advise the treatment of pruritus balnea. I have a case in which a man aged 65 for half an hour following a bath has most terrible itching which nothing has relieved. Soda and starch baths have been used without success. The skin shows no lesions what ever. Please omit name. M D California

ANSWER—The patient's skin may be older than the rest of his organs, beginning atrophy with lessening circulation and failing production of oil rendering it hypersensitive. A careful examination for liver dysfunction, abdominal tumors, enlarged prostate and diabetes is in order, if not already made. Too frequent bathing in hot water with too much soap is a common cause of pruritus, drying the skin and sensitizing it. Baths should be tepid, of short duration and infrequent. Soap should be used only on the feet and hands and the folds of the body. Oatmeal or bran water, made by boiling the cereal in a gauze bag for five minutes, allowing the water to cool, then squeezing the bag, or using it as a wash cloth should suffice for the rest of the body. Three cupfuls of oatmeal are sufficient for a full bath. After the bath the skin should be dabbed partly dry and an oil or ointment applied at once. Liquid petrolatum or ointment of rose water may be used, or calamine liniment, consisting of calamine powder and zinc oxide, six parts of each, with olive oil and lime water, forty-five parts of each, may be used. One per cent of menthol or 2 per cent camphormenthol may be added, if agreeable. Phenol had best be avoided in application to the whole body.

If these measures do not afford relief, the patient must be satisfied with water baths only for the face, hands, feet and body folds, using oil on the rest of the body.

## TREATMENT OF MYOPIA

To the Editor—Is there any approved medicinal treatment for progressive myopia? L B BUSHMAN M D Omaha

ANSWER—Six or eight years ago Meyer Wiener of St. Louis proposed the use of epinephrine hydrochloride 1:1,000 solution, instilled into the eye three times daily to arrest the progress of myopia in younger persons. The idea was on a purely empirical basis, but there have been several reports indicating that at least partial success attends the use of this drug.

More recently, Bothman has suggested that progressive myopia is due to hypothyroidism and advocated the use of thyroid extract for the purpose of arresting the progress of myopia. The reports from various clinics indicate that the theory is entirely unsound and that the myopia is entirely unaffected by the administration of thyroid extract.

There is no other medicinal treatment of myopia now in use.

## MEDICAL TREATMENT OF GALLBLADDER CONDITIONS

To the Editor—During these times of financial distress a large number of my patients with chronic gallbladder disease are refusing operation and demanding medical treatment. Of course surgery is not advisable in many cases. What kind of a medical regimen will make these patients more comfortable and reduce the frequency of exacerbations of the condition? Are methenamine and sodium succinate considered of value? What are their indications? Please omit name.

M D Illinois

ANSWER—Many patients suffering from gallbladder conditions do not require surgical treatment. This applies particularly to those who have no calculi and in whom cholecystographic examination reveals either a poorly concentrating gallbladder or one that concentrates fairly well but shows some delay in emptying after the fat meal.

If calculi are present it may not make any difference what diet the patients are following, because they may feel perfectly well between attacks of colic irrespective of what they eat. If, however, they have discomfort, the diet will be the same as for those with simple cholecystitis. The food should be nonirritating and of the kind that can pass through the pylorus readily. Therefore it should be either fairly well comminuted or thoroughly masticated. All raw vegetables and raw fruits and cooked vegetables like cabbage and celery should be avoided. Likewise spices, condiments dressings with mustard gravies, the hot sauces so frequently in use, smoked and spiced meats and fish, bran and whole wheat bread, clear bouillons and strong alcoholic beverages should be eliminated from the diet. The food need not, however, be entirely tasteless. For a while it was customary to keep the fats in the diet low. This is not necessary. Many patients are able to ingest fats with impunity because they stimulate the gallbladder to contract, and unless there is a high grade spasm this effect is desired. Most of the fruit juices, such as orange, grape or pineapple are generally well tolerated. It is advisable that

the patients avoid large meals. If there is much discomfort the meals should be as much as possible of equal size, preferably small in amount and supplemented by some food at 10 a. m. and about 3:30 p. m. Attention might be called to the fact that in the days before the x-rays were in common use for diagnosis many patients with gallbladder disease, wrongly diagnosed as having peptic ulcer, fared well on a milk and cream diet. This is an example of what repeated small meals will effect. Tincture of belladonna in 1 cc doses before or after meals is frequently of value and rhubarb and soda mixture, 75 cc after meals will relieve postprandial distress in most cases. It is not necessary at this time to prescribe any ordered diets, because the observance of the precautions mentioned will suffice. There are no particular indications for the use of the drugs mentioned in the question.

## HYPERSECRETION OF SEBACEOUS GLANDS

To the Editor—Can you outline a course of treatment for a young man a college student who complains of a hypersecretion of the sebaceous glands of the nose and forehead? Astringents and ultra violet radiation have but a temporary corrective effect. This condition is quite embarrassing to him as it is very noticeable. Please omit name.

M D Pennsylvania

ANSWER—Hypersecretion of the sebaceous glands is a more or less normal condition during the age of adolescence. The majority of local applications have only a temporary effect. In selected cases the cautious use of x-rays, one-eighth skin unit, unfiltered, once a week, may be of considerable service. The skin should be inspected carefully every week for evidence of dryness or wrinkling and as soon as improvement sets in the treatment should be discontinued. From eight to twelve exposures should constitute a maximum, as the sebaceous glands vary in their susceptibility to x-rays. In lieu of x-rays the frequent use of soap and water should be insisted on and at night a half strength lotio alba may be applied. The following formula has recently been suggested:

Solution of sulphurated lime (N F) filtered	30 cc
Saturated (1½%) solution of zinc sulphate in rose water (filtered)	20 cc
Glycerin	5 cc

The diet should be low in fats and carbohydrates.

## VARICELLA PUSTULOSA

To the Editor—An infant, aged 10 months has been sick about two weeks. Illness began with chickenpox following contact with children who had the condition in a home where the infant was staying. Following the attack of chickenpox a cold and pneumonia developed. A greasy cloth containing turpentine and lard was applied over the chest, following which application the ulcers developed. The places where the eruption first appeared developed into ulcers all over the chest and abdomen, also some developed on the back and in the groin. The ulcers are rounded, are very deep and exude a mucopurulent substance with a very offensive odor. The entire scalp is a solid mass of small ulcers over which had been spread an ointment the composition of which I do not know. There are a number of tiny ulcers and spots where the original eruption began. I first examined the child April 6, 1934 at about 11:30 p. m. The pulse was 162, respiration 54 and temperature in the axilla 103 F. The lungs and bronchial tubes on auscultation showed moist rales, and a percussion area of dullness over the bronchial tubes and lungs. The child was well nourished up to the attack well developed and with no lack of bony development. The parietal and occipital fontanels are closed. The symptoms mentioned together with ulcers covering the head, chest, abdomen and back were the principal ones. My diagnosis was bronchial pneumonia. The condition that is puzzling is the ulcers. The mother's and father's blood Wassermann and Kahn reactions are negative. Tests are negative for tularemia and undulant fever. Evidently the ulcers are not caused by the application to the chest as they are over the head and back. Any information or opinion will be appreciated.

W F BODDIE M D, Forsyth, Ga

ANSWER—In the literature one will find cases recorded in which most of the chickenpox eruptions become furuncles or solitary abscesses. This condition is spoken of as varicella pustulosa. These multiple purulent lesions occur mostly in poorly nourished children or in those whose resistance has been lowered by previous illness, or sometimes in patients in whom the skin has been irritated. One author cites a case in which varicella pustulosa occurred after an irritating mustard bath. Urine and feces may irritate the eruptions, which occur in the gluteal and inguinal regions and transform the varicella eruptions into solitary abscesses. Cases of general pustulation often suggest smallpox particularly when the condition occurs in adults. Varicella pustulosa must be differentiated from the gangrenous type of the disease, which closely resembles it. In the gangrenous type the ulceration takes place not only beneath the scab but also peripherally, with the formation of a grayish or black slough. The lesions may become confluent and form ulcers of considerable size. Rolleston points out that in the



worst cases the disease involves the whole thickness of the skin and even the muscle. In some of the gangrenous cases it is reported that virulent diphtheria bacilli have been found in the lesions, although the administration of antitoxin did not avert a fatal issue.

In cases in which the varicella lesions undergo suppuration, numerous complications may occur. The most severe is a general septic infection, usually with high fever and associated with a severe and fatal course, or bronchopneumonia may occur, with a similar result.

The treatment of varicella pustulosa should consist of aseptic care of the individual lesions, and frequent cleansing with boric acid solutions or some mild antiseptic, or the patient may be immersed in a warm bath. The addition of potassium permanganate to the bath water has been recommended. The child should be bathed in such a solution once or twice daily and should be allowed to remain in the bath ten or fifteen minutes, or at least as long as he remains comfortable in it.

On account of the exhausting and debilitating effects of this diffuse suppurative process, every attention should be given to the nourishment and general hygiene of the child and to such supporting measures as may be indicated.

#### DOWELL TEST OF PREGNANCY

*To the Editor*—In an abstract of an article written by Donald M. Dowell in the *Journal of the Missouri State Medical Association* (July 1933 p 275), there was mentioned a new test for pregnancy. This test consisted of the intradermal injection of anterior pituitary extract. Is this test accurate? If so, can any anterior pituitary extract be used? Please omit name.

M D, Pennsylvania

**ANSWER**—Dowell attempted to detect pregnancy by injecting an "extract of anterior pituitary gland" intradermally into the flexor surface of the arm of pregnant women, but no reactions were observed. However, when he injected a few minims intradermally into the flexor surface of the arms of nonpregnant women he obtained a marked degree of erythema about the wheal at the injected site. Dowell believes that this may be a new phase of allergy. He reasons that possibly a patient who is elaborating a principle identical with that in the extract employed may have developed a tolerance for this particular substance. A patient who is not doing this would show a reaction when this substance is injected intradermally. It is not clear from Dowell's report whether the test substance is actually an extract of the hypophysis itself or whether, as appears more likely, it consists of the "anterior pituitary-like" gonadotropic factor from the urine of pregnancy. No data are given as to how soon after injection the erythema may be expected to occur or how early in pregnancy the reaction fails to appear. Recent work by Collip and his associates indicates that it is possible to develop in animals an "antihormone" against the hypophyseal-like gonadotropic factor of the urine of pregnant women.

Dowell does not give any statistics but simply says "This test has been accurate in the author's hands and in others. It is simple, safe and quite inexpensive."

It is to be hoped that Dowell will state his method more accurately so that others will be enabled to try out the test to see whether it is dependable.

#### IODIDES IN SYPHILIS

*To the Editor*—Quoting from your reply of January 5 as to the treatment of Wassermann fast syphilis: "The iodides should not be omitted." What is considered a course of iodides in syphilis? I am giving lipiodine (Ciba) for arteriosclerosis one tablet daily. How long should I continue it? Could I use the latter product in Wassermann fast syphilis?

J H Boyd MD, Trenton Mich

**ANSWER**—An iodide does not exert antiseptic action against *Spirochaeta pallida* or increase specific cellular resistance, it is merely an adjunct to treatment chiefly for the purpose of assisting in the resolution of granulomatous tissue. One therefore can hardly speak of a definite course of iodides. They are generally given in doses of from 1 to several grams three times daily until the desired effect has been obtained, as evidenced by the relief of symptoms, such as pains, and then continued in smaller dosage for months or even years with the hope that this may prevent the formation of granulomas. No form of iodide has any definite influence on the Wassermann reaction itself. Its use in Wassermann-fast syphilis is merely desirable for the reasons stated. In the treatment of arteriosclerosis, the use as well as the value of iodide is entirely a matter of opinion and no rule can be formulated regarding the length of the course.

#### STAMMERING

*To the Editor*—A boy aged 9 years whose birth was normal at term and who has always been well and healthy except for measles, chickenpox and whooping cough is a little mentally slow but not to an abnormal degree. He is normal in his reactions. He attends a private school where he is in the fourth grade. His work is up to the average and his intelligence quotient is normal. His father is of somewhat nervous temperament and was afflicted with stammering as a young man and still has some impediment in his speech at times. All other history is negative. The boy was a little slow in beginning to talk and even at the present time retains to a certain extent baby talk. He stammers intermittently; that is, there has always been a slight defect, though at considerable intervals it almost entirely disappears and then for no reason reappears. At present he is in one of these occurrences and has a great deal of difficulty in speaking l and r. This is not so much a repetition of the letter as it is a difficulty in getting it out and a tendency to repeat the whole word. Of course, this condition is much worse when he is excited or angry. He does not seem to show any evidence of the so-called nervous disposition, he eats well, he sleeps well and he has all the desires and activities of a normal boy. He has been circumcized. I will appreciate any advice you can give me as to the best method of procedure as to the correction of this type of trouble. Please omit name.

M D Wisconsin

**ANSWER**—Three or four things can be done to cure this case:

1 The parents of the child should see a neurologist trained to specialize in speech disorders.

2 Some of the many books on the treatment of stammering should be consulted.

3 The child should be placed in a good speech class in the public schools.

4 A case of stammering needs constant attention. Treatment has to be changed according to the way the patient responds. These ways vary from case to case and cannot be foretold. The best method is one that builds up concentration and after that the control areas of speech.

#### ANEMIA OF PREGNANCY

*To the Editor*—I have a patient who is about two and a half months pregnant. She complains of excessive gastric secretion which comes up into her mouth as a thick slimy mucus. This is annoying in the extreme because she either vomits or regurgitates nearly all her food or oral medicine which is diluted with this material. Urinary examination is negative for albumin, casts, sugar, indican and acetone. The specific gravity of the urine is 1.028. No ammonia or urea nitrogen tests have been made. The systolic blood pressure is 120 diastolic 90. The Wassermann reaction is negative. Blood smears show juveniles, 3 segmented forms, 4, eosinophils 5, large lymphocytes 7, small lymphocytes 41 per cent. The red cells are normal in size and shape and there is no pathologic condition of the white cells other than with the eosinophils. There is a slight achromia. The red blood cell count is 2,500,000. I take it that she is suffering from the chlorotic anemia of pregnancy. Am I correct in this presumption? Since the patient cannot tolerate medicine on her stomach, what is the most effective method of administering iron? By injection? What products do you recommend in this respect? Is liver extract concentrate of any value in this case? Will this condition spontaneously cease after the three months' reflex period is over and her stomach condition clears up enough for oral administering of iron then, or is it necessary to get the red cells to normal before this condition will cease? If the condition seriously interferes with the patient's nutrition after the three months, would you consider terminating pregnancy?

M A Thomas MD, Alto Ga

**ANSWER**—There are essentially two types of anemia, the secondary or hypochromic form and the pernicious or hyperchromic form. In the latter the blood changes are characterized by diminution in the red count, a high color index, variation in shape and size of the red cells, often regeneration signs, polychromatic red cells and basophilic stippling, moderate leukopenia with a relative increase in the lymphocytes, and a diminished number of blood platelets. Gastric anacidity is the rule. In chlorotic and secondary anemia there is a low color index but the cells are essentially normal. About half of the women who have a secondary anemia during pregnancy have a pronounced hypochlorhydria, which returns to normal after delivery. In most instances there is a progressive increase in the anemia during pregnancy. According to Strauss and Castle (*Am J M Sc* 185:539 [April] 1933) the hypochromic anemia of pregnancy is due either to a direct dietary insufficiency or to a deficiency conditioned by gastric anacidity, hypoacidity or associated defects in the presence of the fetal demand for blood-building material. This type of anemia may be completely relieved either during or after gestation by the administration of iron in large doses. R D Mussey (*Journal-Lancet* 52:643 [Nov 1] 1932) is convinced that the use of ferric citrate or ferric ammonium citrate together with a balanced diet high in vitamins and the addition of vitamin D in the form of concentrated viosterol is of distinct value in treating the secondary

anemia of pregnancy There is rarely any need of interrupting the gestation except in the cases of pernicious anemia In practically all cases of secondary anemia, in which the red blood cell count and the hemoglobin decrease markedly, single or repeated blood transfusions are nearly always curative and will avoid the necessity of terminating pregnancy Liver extract is not as helpful in the cases of secondary anemia as in the cases of pernicious anemia In the case cited the gastric distress will most likely soon abate, so that iron preparations and a proper diet can be administered to the patient If not, a blood transfusion should be given, especially if the red blood cells decrease in number

The patient should be advised to be outdoors in the fresh air and sunlight (if available) as much as possible The diet should contain abundant animal food, beef, mutton and chicken, and the meals should be small and often repeated When iron is prescribed, the inorganic is as useful as the organic form Among the inorganic forms are the tincture of ferric chloride, the reduced iron in tablet or capsule form the pills of ferrous carbonate and saccharated ferric oxide Preparations of iron that may be administered hypodermically are iron cacodylate, iron arsenite, and iron citrate In many cases arsenic is of great help This may be administered by mouth in the form of solution of potassium arsenite or intramuscularly as sodium cacodylate

#### SYPHILIS IN PREGNANCY

To the Editor—An untreated secondary syphilis is discovered in a primipara during the first two months of pregnancy Is a therapeutic abortion justifiable from the medical standpoint? If a therapeutic abortion is not done what are the chances of the child contracting syphilis assuming that the mother has the best attainable treatment during pregnancy? Please omit name

M D Illinois

ANSWER—In view of satisfactory results achieved with modern treatment, therapeutic abortion need not be considered in cases of acute secondary syphilis of the mother in early pregnancy Treatment should begin as early in pregnancy as possible, must be energetic and systematic, and should be continued until term The chances of the fetus contracting syphilis in spite of thorough and persistent treatment are few, but careful observation of the infant and periodic serologic tests are advised

For a comprehensive description of syphilis in relation to pregnancy, the correspondent is referred to Gellhorn's chapter on "Syphilis in Women" in the second volume of Curtis's *Obstetrics and Gynecology* (Philadelphia, W B Saunders Company, 1933)

#### FILTRATE TREATMENT OF TRICHOMONAS VAGINALIS

To the Editor—Please let me have some information concerning the filtrate treatment of trichomonas vaginalis as referred to in an article by W A Thomas and E R McCarthy in *THE JOURNAL* March 10 page 766 Please omit name

M D Virginia

ANSWER—Trichomonas is practically always found in association with a streptococcus in cases in which symptoms are severe On disappearance of the streptococcus, Trichomonas either disappears or ceases to cause symptoms The streptococcus is isolated from the vaginal material, usually on brain broth, and then transplanted to blood agar plates, and flasks of dextrose broth are inoculated from these Theoretically this broth should be filtered through a fairly fine Berkefeld filter after forty-eight hours, reinoculated, and this process repeated until no further growth takes place, that is, until the culture medium is "exhausted"—not from utilization of the content, but because of the production of a toxin or antiviral

Results about as good are obtained by allowing the broth to stand, with occasional shaking until it clears, that is, until the upper portion becomes perfectly clear and the sediment has settled to the bottom No further reinoculation will produce growth This is filtered through a Berkefeld filter and is sterile The chief difficulty in clinical use is to prevent contamination with yeast and the like It is well to divide the filtrate into small flasks, perhaps 50 cc in each which is enough for individual treatments The filtrates are preferably autogenous, though good results are reported with pooled or foreign preparations

In treatment, the vagina is thoroughly cleansed, particular care being taken to remove mucus from the folds, and packs or tampons saturated with filtrate are inserted to remain from eight to sixteen hours Relief may be almost immediate Failure may be attributed to impure culture since *B coli* rapidly outgrows the streptococcus and suppresses its specific growth product, or to failure to obtain the particular strepto-

coccus However, results are not perfect, and poor results are sometimes seen when the greatest care has been taken in preparation of the filtrate Treatment may be repeated daily or twice weekly, up to a total of twelve or fifteen times if necessary Besredka, in his monograph *Specific Immunity by Wet Dressings*, explains in detail the theoretical mechanism of filtrates

#### TECHNIC OF UREA CLEARANCE TEST

To the Editor—Is the urea clearance test the same as described on page 328 volume 2 of *Tice's Practice of Medicine*? The patient is given 30 grams urea dissolved in 4 to 6 ounces of water, and the urine examined for urea by any of the reliable quantitative methods Please omit name

M D Ohio

ANSWER—The technic of the blood urea clearance test is the following The test is preferably performed during the morning hours The previous meal should be a moderate one without tea or coffee The patient is given a glass of water at the beginning of the test and remains quiet while the urine is collected for two periods of one hour each, and the volume of each specimen is measured Blood for a blood urea determination is drawn a few minutes before the end of the first hour period The following determinations are made

U = urea concentration in urine (milligrams of urea nitrogen per hundred cubic centimeters)

V = urine volume (cubic centimeters per minute)

B = urea concentration in blood (milligrams of urea nitrogen per hundred cubic centimeters)

Cm = volume of blood freed from urea per minute, being for a normal adult of average size about 75 cc. of blood per minute

The calculation is  $Cm = \frac{UV}{B}$

When the urine volume is less than 2 cc per minute, the volume of blood averages about 54 cc of blood per minute

Then  $Cm = \frac{UV}{B}$

Results are expressed in terms of cubic centimeters of blood cleared of urea per minute or in terms of percentage of average normal clearance

This test is one of the most sensitive methods for determining renal insufficiency For complete details consult "Urine and Urinalysis" by Gershenfeld, Philadelphia, Lea & Febiger, 1933, pages 237 to 240

Urea is given by mouth in urea concentration tests, not in the clearance tests In the urea concentration test the amount of urea in the blood or urine or both is afterward determined For these tests see the work of Bowen in the *American Journal of the Medical Sciences* (174 769 [Dec] 1927)

#### FRAUDULENT FEVERS

To the Editor—Frequently I have to determine the question of active or inactive pulmonary tuberculosis Occasionally a patient will have a low grade fever of 99.2 or up to 99.6 and even 100, in whom all the other signs, physical and x-ray indicate an inactive or arrested state Usually on certification of the temperature by the nurse the temperature will prove to be normal However, once in a while I find one in whom even certification does not show a normal temperature Perhaps, then, if the temperature is taken at irregular intervals the result will be a normal reading Naturally, the suspicion is that the claimant is some way or other producing a fraudulent temperature I am unable to detect the means that this fraudulent fever is produced Therefore I am writing to inquire what the various methods are that malingerers might use to bring about these false readings

M D, Arizona

ANSWER—Perhaps the most common method used to produce fraudulent temperature readings is taking cold or hot water by mouth In sanatoriums there is the occasional patient who desires to be discharged but whose temperature is sufficiently elevated to cause the medical director to refuse to recommend any exercise If the nurses take temperature readings and such patients know about the time the readings are to be recorded, they either go to the washroom or have a glass of cold water brought by another patient They not only drink some of this but also retain some in the mouth until just before the thermometer is introduced Other patients who desire to have a false elevated temperature recorded use hot water Holding the thermometer on a hot water bottle has been used by some malingerers to produce false temperature readings Rectal temperature readings will usually overcome the possibility of such malingerers There are drugs, such as cocaine, that will produce elevation of temperature, but the dosage required is so large that other symptoms which the drugs produce would be easily

detected. Good evidence has accrued to show that the red cell sedimentation test and the differential neutrophil count are delicate indicators of the activity of a tuberculous process. These examinations are especially valuable in the group of questionable cases.

#### WELDER'S CONJUNCTIVITIS

*To the Editor*—In my industrial work I have had several cases of welder's conjunctivitis to deal with in men using acetylene and electric torches. The color of the glasses used in this welding has included brown light amber, blue green, olive green and blue. What I should like to know is whether there is any color of the lens best suited to protect the eyes in acetylene and electric welding. Besides the density and opacity of the lens, does the color have any particular significance in this work?

A J HERTZOG, MD New Orleans

*ANSWER*—In procuring protection of the eyes of welders it is necessary to utilize types of glass that serve as barriers to ultraviolet, infra-red and luminous light rays. Glass may be procured with little or no color which absorbs a high percentage of ultraviolet and infra-red rays. Such glass is ordinarily unsuited for welding because of excessive amounts of luminous rays that may be transmitted. Color is therefore desirable for the lowering of the visible light transmitted, but in addition color itself contributes to the barring of the ultraviolet and infra-red rays. At the present time various shades of olive green are accepted as representing the best color for welding work. Dark calobar glass is of such color and chemical construction as to transmit 35 per cent of the luminous rays but to bar 92 per cent of the infra-red and 100 per cent of the ultraviolet rays. Possible variations in color density meet every requirement of the several forms of welding work.

#### SERUM IN UNDULANT FEVER

*To the Editor*—I should like to ask your opinion concerning Dr O'Neil's immune serum for use in undulant fever cases. This was mentioned in an article on the subject by Beattie and Rice (*THE JOURNAL*, May 19 p 1670). I would appreciate information as to where it may be obtained how best it is employed and whether it would be worth trying in a mild case of nine months duration in which only symptomatic treatment has been given. I do not have access to the *Ohio State Medical Journal* to which the footnote referred. Please omit name.

MD Sperryville, Va

*ANSWER*—The antiabortus serum developed by A E O'Neil may be obtained without charge for clinical trial by addressing him at the Department of Bacteriology, Cincinnati General Hospital, Cincinnati. The best results have been obtained by administering a total of 60 cc of the goat antiserum in three consecutive daily doses of 20 cc each, intravenously. Experience thus far has shown that but few patients receive much benefit from serum therapy after the fifth month of illness. It is doubtful whether serum would induce any appreciable improvement in a patient who has been ill for nine months, even if the infection is mild. The optimal time for serum therapy is before the end of the fourth month of illness.

#### MUSCLE CRAMPS DURING SLEEP

*To the Editor*—Please inform me as to what may be the probable causes of tonic spasms in one or more toes occurring only during sleep in an otherwise apparently healthy young adult woman. The patient is subject to cramps in her feet while swimming in cold water. She also grinds her teeth during sleep. Please omit name.

MD New York

*ANSWER*—Muscle cramps such as are described by the correspondent are common and ordinarily do not indicate disease of the neuromuscular or vascular systems. Hunter (*Internat Clin* 4 109-110 [Dec] 1932) gives an excellent description. "Half awake in the morning, one lazily stretches out and is suddenly seized in one calf with a very painful cramp which lasts about a minute, during which the tendo achillis is powerfully contracted drawing the fore part of the foot downward." The mechanism of these cramps has been presented by Marx (*California & West Med* 38 96-97 [Feb] 1933). "Muscle cramps are usually brought on by sudden exaggerated or wrongly directed impulses when a muscle action does not meet the anticipated amount of resistance or is not checked by the controlling antagonistic muscles, as is normally the case. After producing a maximum contraction the superfluous amount of muscle energy liberated by the disproportionate impulse is converted into a muscular spasm."

Muscle cramps occurring during sleep appear to arise in the same manner as do those which follow stretching except that the primary muscle contraction is an involuntary or sleep move-

ment in the former instance and voluntary in the latter instance. In swimming, the inhibiting effect of the cold on the peripheral circulation contributes to the disposition to cramps, probably by interference with the normal metabolism of muscle.

The treatment during the episode is the forced manual extension of the muscle involved by the cramp. If, for example, the muscles of the calf are involved, the foot should be forcibly dorsiflexed. Prevention of the episodes is usually simple avoidance of unopposed muscular contraction as during stretching and of swimming in cold water by those having a predisposition to cramps. Individuals who suffer during the sleeping hours should be fitted with a special shoe or boot to prevent involuntary muscle contraction. If the aforementioned plan of treatment is unsuccessful, the administration of some of the acid forming salts, as ammonium nitrate, at bedtime may be helpful. The assumption is that the salt prevents the tendency to alkalosis, to which the neuromuscular mechanism is unduly sensitive.

#### DYSMENORRHEA

*To the Editor*—Can you send me advice as to how to treat a case of severe dysmenorrhea? The patient has been suffering since puberty going to bed the first day of each period because of agonizing cramp-like pain. The pain is usually confined to the first few hours before the flow is established. Medication required has always been strong nothing giving relief except narcotics which have been used sparingly to avoid habit formation. When the flow does start she states that there are always many clots and pain subsides. Examination confirmed by an eminent gynecologist reveals no abnormality. About two years ago another physician performed a dilation and curettage but the symptoms were unchanged. The patient is now 26 she has been married seven years and has no children. No contraceptive methods were ever used. The sex act is apparently normal. The spermatozoa of the husband are of normal motility even several hours after ejaculation. I do not know the cause of the sterility. The patient's general health is fine and her past history negative. The menses are regular (from twenty-eight to thirty days) and last four or five days and the number of napkins used is normal. There are often flushes and breast pains preceding the periods but these are not severely discomforting. While the patient has no other complaints I believe that she has a slight tendency to hyperthyroidism and there is a mild pituitary type of girdle obesity. This was not noticed by previous physicians and was dismissed by the gynecologist as inconsequential so I may be exaggerating. Could a glandular derangement account for all the disturbances? Could such severe pain be due to endocrines? What causes the clots each month? Could it be abortions? My problem consists of the dysmenorrhea, sterility, mild endocrine disturbance of the thyroid and possibly pituitary. I am most anxious for your advice as to treatment. Please omit name.

MD New York

*ANSWER*—Dysmenorrhea is one of the most baffling problems with which physicians have to deal in gynecology. Based on physiologic investigations by Reynolds, Emil Novak (*Am J Obst & Gynec* 24 319 [Sept] 1932) comes to the conclusion that the immediate cause of dysmenorrhea is an exaggerated contractibility of the uterus manifested by pain if the pain threshold is lowered or if there is an actual imbalance between the two hormones that appear to regulate this. These two hormones are the follicular factor, the normal stimulant of uterine excitability, and progesterin, the normal inhibitor. Hence in cases of dysmenorrhea it is advisable to administer biologic uterine antispasmodics and the one recommended by Novak is the luteinizing principle obtained from the urine of pregnant women. This substance, by stimulating the production of progesterin, tends to inhibit the rhythmic contractility of the uterine musculature. In some cases atropine sulphate administered for twenty-four hours before the flow of blood begins is helpful. Of course, rest, hot applications and analgesics should also be prescribed during the attack of pain. In extreme cases, and only when everything else has been tried, it may be advisable to perform the operation known as pelvic sympathectomy described by Greenhill and Schmitz (*THE JOURNAL*, July 1, 1933, p 26). The clots in this case do not indicate abortions although, to be absolutely certain, the tissue passed should be carefully studied and any pieces that look like ovular products should be subjected to microscopic examination. The clots in this case are almost certainly brought about by coagulation of the blood due most likely to a deficiency in the ferments that normally prevent clotting of blood in the uterine cavity.

Sterility is another problem that frequently baffles gynecologists especially when the examination of both husband and wife fails to reveal any abnormalities. Since there is a question of hyperthyroidism, it is well to have a basal metabolism test made. Empirically, small doses of thyroid may be given because occasionally it yields good results. No mention is made of a Rubin tubal patency test or of a Huhner test. These should be made. Pregnancy not infrequently follows the performance of a Rubin test.

APPARATUS FOR DETERMINATION OF BASAL  
METABOLISM

To the Editor—I am interested in purchasing a basal metabolism machine and should like to know whether you consider a machine with the motor blower forced circulation of oxygen more desirable than a machine with the natural circulation of oxygen. Any information you can give me on this subject will be greatly appreciated.

M D, Fla

ANSWER—The Benedict type of metabolism apparatus (closed circuit) originally required some means of impelling the air through a series of absorbers and their numerous connections. The apparatus of this type as now constructed and in general use lends itself admirably to the adaptation of valves and the discard of any mechanical air impelling device. The use of valves together with a properly balanced spirometer bell, in a properly conditioned apparatus, allows easy and normal breathing and insures basal results.

The positive or negative pressure maintained throughout the circuit invites leaks, especially in the region of the mouth and the nose.

The use of the impeller rather tends to encourage neglect in the proper care of the apparatus by promoting a false feeling of security in the mind of the operator, while it is of doubtful assistance to the respiration of the subject. In fact, too fine too much or impacted soda lime, too much resistance due to too long tubings, an improperly balanced spirometer bell and kinks or obstructions by accumulation of moisture may all be responsible for a partial or even a complete obstruction somewhere in the ventilation circuit. All this may take place during the test without any immediate apparent sign of trouble, though the motor keeps humming along as usual while the spirometer bell is rising and falling without interference and air continues to be available through the mouthpiece. In the absence of the valves, the air in the entire system can move in one direction or the other even with a complete obstruction, in which case the subject is merely rebreathing part or all of his expired air.

## GAG REFLEX IN TONSILLECTOMY

To the Editor—Can you tell me the best way to control the gag reflex in doing tonsillectomies? I have used weak solutions of cocaine or butyn to paint the pillars, palate and uvula with fair results. A dentist said he had heard of some tablet which the patient swallowed to control the gagging. Please omit name.

M D, Minnesota

ANSWER—Tablets containing a small amount of orthoform or ethylammonobenzoate placed on and allowed to dissolve on the base of the tongue will at times lessen the pharyngeal reflex. If the patient is instructed to gargle with ice cold water several times a day for several days prior to the operation, and if in the operating room pieces of ice are held on the posterior third of the tongue and allowed to melt, the reflex also will be considerably diminished. With many individuals, if these procedures have been carried out, and the patient instructed to breathe very deeply with the mouth wide open, and with special emphasis on the deep inspirations, the gagging will usually be greatly lessened. Preoperative medication with from 0.2 to 0.4 Gm of one of the barbituric acid derivatives is of considerable value.

While it is true that the pharyngeal reflex varies in activity within a rather wide normal range, the psychologic attitude of the patient and the proper instructions of the surgeon will usually lessen the excessive excitability of some pharynxes sufficiently to enable tonsillectomy to be performed with comfort under local anesthesia.

## IRON IN ANEMIA

To the Editor—In the Year Book of General Medicine 1933 Drs. Minot and Castle's editorial note on page 364 is: A simple 50 per cent aqueous solution of iron ammonium citrate judiciously used in oral doses of from 2 to 6 grams daily. Could you please express the thought which Drs. Minot and Castle wish to convey with the judicious use of iron? 1. What are the contraindications to the use of iron therapy? 2. Is there any harmful effect of the preparation on the teeth? 3. What is the dose for children from 2 to 4 years old of this preparation? 4. How well do both adults and children tolerate these large doses of iron ammonium citrate? Please omit name.

M D, New York

ANSWER—Undoubtedly the thought which Drs. Minot and Castle wish to convey by the use of the word judicious is that iron and ammonium citrate in 50 per cent aqueous solution should be used first for patients who may be expected to benefit from it and secondly administered in such a manner as not to cause undesirable symptoms.

1. There are no contraindications to the use of oral iron therapy except in patients who will not be benefited, and in

patients with irritative lesions of the intestinal tract when distinct discomfort ensues on careful trial.

2. Iron and ammonium citrate has little, if any, harmful effect on the teeth.

3. The dose of iron and ammonium citrate for children from 2 to 4 years of age is in the vicinity of 1 to 2 Gm daily.

4. Adults and children usually tolerate well these appropriate doses of iron and ammonium citrate, provided the medicine is administered at first in small doses and the maximum dosage attained in a period of from three to four days.

The administration of the material after meals is also desirable, in order to avoid gastric irritation. The most common undesirable symptoms are discomfort referable to the intestine or diarrhea, which can be obviated in most cases by the precautions just described. Rarely, individuals are found who cannot tolerate large doses of iron and ammonium citrate because of diarrhea. In such patients it is worth while to try other preparations of iron. The dosage should be chosen to yield a similar content of atomic iron.

On the other hand in many patients little effect is obtained by using small doses of iron, in contrast to the beneficial effects of the so-called large dosage now commonly employed.

## POSTMORTEM INJECTION OF LYMPHATICS

To the Editor—I am anxious to obtain some data on the method of injecting the lymphatics of the terminal ileum and cecum post mortem. Any information or reference to the subject will be appreciated. Please omit name and address.

M D, New Jersey

ANSWER—The best method for injection post mortem of the lymphatics of the cecum and ileum is still that of Gerota (*Anatomischer Anzeiger* 12 216, 1896).

Select if possible a young cadaver (fetus or infant) with the cecum empty. Note from textbooks the position of the lymph plexuses spread out like mats of ivy vines in three layers: (1) subserous, (2) submucous, (3) mucous. Inject with glass cannulas drawn out in a flame to fine tubular points, from 1 to 1.5 cm long. Use a 10 cc syringe. Insert the glass needle along the plane of the plexus of lymph capillaries, thus cutting through some of the capillaries. Then withdraw the needle a little so as to allow the fluid to run into the open ends of the cut capillaries. Inject very slowly, with but little pressure. The whole apparatus must be absolutely clean.

For injection fluid use prussian blue (oil color in tubes, obtainable at art shops), 2 parts, pure turpentine, 3 parts. Rub up thoroughly in a porcelain mortar. Add sulphuric ether, 15 parts, and triturate in a mortar till the consistency is uniform. Filter through a double layer of fine linen. Preserve in a glass stoppered bottle.

This suspension works much better when fresh, so it is advised to make up only a little for immediate use.

## BONE GRAFT AFTER INJURY TO ULNA

To the Editor—A white youth aged 18 American supposedly fractured both bones of the right forearm three years ago at the junction of the lower and upper two thirds. One and one-half years following the accident he first noticed some weakness of his right hand while milking cows. The weakness has gradually increased and is quite noticeable at the present time. Examination reveals a definite shortening of the ulna—about three fourths inch—with increased mobility of the hand to that side. The bones are straight. The roentgenogram reveals a definite shortening of the ulna—atrophy of the distal end with no evidence of infection. Will you please outline the treatment of this case for me? If a bone graft is indicated, when should it be done? Please omit name.

M D, Wyoming

ANSWER—The treatment that holds out the greatest promise is removal of the atrophied distal end of the ulna and substitution of an autogenous graft of bone. Since the ulna is small, one difficulty confronting the surgeon is to find a satisfactory method of uniting a graft with the ulna. A number of methods have been used by different men: chiseling one end of the graft to a point and inserting the pointed end into the medullary cavity overlapping the end of the ulna with the graft and surrounding the overlapped ends with a layer of periosteum obtained at the same time that the graft is obtained, and leaving a cuff of periosteum attached to that end of the graft which is to be placed next to the ulna, laying the graft end to end with the freshened distal surface of the ulna, and suturing the periosteal cuff to the periosteum of the ulna. Although metal wire, screws and metal plates have been utilized to fix the graft to the living bone these methods are gradually being discarded and some one of the methods described, which does not involve the implantation of a foreign substance or material, is greatly to be preferred.

INTERSTITIAL EMPHYSEMA AFTER FRACTURE  
OF RIB

*To the Editor*—Will you please describe the physics or mechanism of interstitial emphysema following rib fracture—this to settle a seemingly never to end argument at our hospital staff meeting. An old man after a crushing injury of the right side of the thorax, in which several ribs were fractured, developed emphysema, which became general over the whole body. He died in four days of pneumonia of the left lung. What we want to know is: How does the air get from the small (in this case) hole in the visceral pleura through the fairly large hole in the thoracic wall? There was no pneumothorax evident in a roentgenogram taken eighteen hours after the injury, when the emphysema had become very extensive.

HUGH WILKINSON, M D, Kansas City, Kan

**ANSWER**—The air constituting an emphysema of the chest wall, in the absence of an opening wound through it, comes from the lung. If the pleurae are adherent, as in the case of an old pleuritis, and the lung is injured from a broken rib, the air passes directly from the lung into the tissue of the chest wall. If the lung is not adherent in the region of the injury, and there is a sufficient distance around it so that the lung can collapse somewhat, the air will leak into the pleural space and may pass into the soft tissue of the chest wall when intrapleural pressure is increased during coughing or straining. Several hundred cubic centimeters of air in the pleural cavity may not be discernible in a roentgenogram. This is often observed following the first injection of air in therapeutic pneumothorax.

## NECROSIS OF DISTAL PHALANX OF THUMB

*To the Editor*—I have an unusual case: necrosis of the distal phalanx of the thumb in a young woman. The only factor is a possible cause that I can figure out being that she has been working rather extensively for the past year using phosphoric acid. I performed an amputation. There was no bleeding and the bone was denuded and necrosed. All the information I can get on the subject is that phosphoric acid does not have any of the attributes of phosphorus. I would be pleased to have you advise me if you have any information on the subject.

C L BEST, M D, Freeport Ill

**ANSWER**—It is impossible to explain the necrosis mentioned on the basis of the facts given. If phosphoric acid was taken into the body it would be promptly changed into a neutral phosphate by becoming combined with the alkalis normally present in the blood serum.

The query does not say anything about the condition of the soft parts surrounding the bone. Death of the distal phalanx of the thumb can result from acute, fulminating infection, vascular disease, Raynaud's disease, nerve injury followed by trauma of the soft parts, perhaps unrecognized because of the loss of sensation, and a number of other conditions.

BAROMETRIC PRESSURE IN METABOLISM  
EXPERIMENTS

*To the Editor*—Kindly let me have a statement as to the exact significance of barometric pressures in metabolism experiments particularly rate determinations. Kindly omit name.

M D, Maryland

**ANSWER**—According to Boyle's law, the volume of a given mass of gas kept at constant temperature is inversely proportional to the pressure on the gas. Since the methods of determining the metabolic rate depend on the measurement of the volume of oxygen consumed by the patient, it is obvious that, if the patient was to consume exactly the same amount or weight of oxygen on two different days, the volume of this amount of oxygen would vary with the atmospheric (barometric) pressures on those days. In order to avoid this variation, all volumes are corrected to standard pressure (760 mm of mercury) as well as temperature (0 C).

## BACTERIOPHAGE IN PELVIC SEPSIS

*To the Editor*—Kindly inform me at your earliest convenience regarding the proper treatment of staphylococcal septicemia proved by repeated blood cultures probably arising from a septic phlebitis of the broad ligament from puerperal sepsis. I would appreciate your opinion regarding the merits of treatment by bacteriophage intravenously. What value does treatment have by transfusions from a donor immunized with vaccine injections prepared from this specific staphylococcus? If available, kindly give the prognosis and the percentage of cures as reported in these cases.

W BAIRD STUART M D Carlisle Pa

**ANSWER**—Despite enthusiastic reports, the evidence thus far accumulated does not warrant optimism over the value of the bacteriophage or serum treatment of staphylococcal septicemia of pelvic origin. Blood transfusions are of much value in most of these cases even if there is not a profound anemia. Immunization of the donor would be of doubtful value.

Reliable data on the prognosis in such cases are not available, the outlook is usually serious, but these infections vary enormously in severity.

Pelvic examinations should be avoided, unless required to rule out the possibility of a pointing abscess.

The patient should be allowed to change her position as often as she desires, but she should not be allowed to get out of bed, and movements should be made slowly and cautiously. Avoidance of abdominal distention and limitation of enemas are important factors in the treatment.

## FROZEN PELVIS

*To the Editor*—Paul de Kruif has done it again, with 'Young Doctor Heat' in the April *Ladies Home Journal*. Page 88 thereof discourses on 'That dreadful condition called frozen pelvis.' Please tell me just what and why is a frozen pelvis. I can't find it in Graves-Crossen-Williams-DeLee or my dictionaries. Sometimes a pelvis is seen whose southern regions are a bit frigid but just how much more do they have to be cooled off before they're frozen? Please omit name.

M D Missouri

**ANSWER**—"Frozen pelvis" is a comical phrase for the condition in which a solid mass of induration fills the true pelvis. Some describe this hardened pelvis as one apparently filled with plaster of Paris. No pelvic organ can be defined by palpation with the exception of the cervix of the uterus, which is firmly fixed.

This condition with ordinary treatment of rest, and similar measures, usually hospitalizes the patient for a period of four or five months. With heat, as administered by the Elliott method, the most desperate cases show rapid improvement. The indurated mass becomes rapidly softened and absorbed. The uterus becomes freely movable and the fallopian tubes and ovaries are easily defined. This result is usually obtained in from three and a half to six weeks.

## GLAND TUBERCULOSIS

*To the Editor*—I have a patient with a chronic draining cervical sinus. She is 18 years of age. Three years ago she developed swollen cervical glands. About two years ago they were incised and since that time have been constantly draining. She refuses surgical treatment. Will you please inform me as to the best way to handle this case medically? Please omit name and address.

M D, Texas

**ANSWER**—The most probable cause is tuberculosis of the glands. All the specific chronic infections or granulomas should be considered in the differential diagnosis. A number of tests, smears, cultures and perhaps the tuberculin test should be performed in an effort to establish the diagnosis.

Tuberculosis of the lymph glands frequently responds to roentgen treatments under competent hands.

General treatment is most important. It should consist of rest, fresh air, nourishing food, cod liver oil medication as indicated and exposure of the entire body to the sun or a sun lamp.

The prognosis for healing is good.

## CONVULSIONS IN CATS

*To the Editor*—What is the probable etiology and therapy for the so-called running fits in cats? Please omit name and address.

M D Ohio

**ANSWER**—So-called running fits in cats are not recognized as such in veterinary literature. It is true that convulsions in cats, particularly young cats, are common. The paroxysm is usually sudden and the cat becomes greatly excited, the hair on the back and tail is fluffed, and the animal may run about swiftly and cry loudly. If in a room it may climb up the drapery or hide under the furniture. The excitement is continuous until the convulsion subsides.

The cause of such convulsions is the result of improper diet, intestinal parasites or ear mites.

The therapy should be directed toward the removal of the cause. To do this a veterinarian should be consulted.

## TONSILLECTOMY IN ASTHMA

*To the Editor*—Is there any undue risk in doing a tonsillectomy in a girl aged 13 who has and is frequently having attacks of asthma? She is a quite nervous child so I would prefer to use a general anesthetic. With the exception of this general asthmatic condition and tonsil disturbance she is quite normal.

R J STEIN M D Pierz Minn

**ANSWER**—As long as the operation is not performed at the time an asthmatic attack is present, no undue risk is involved. It is often advisable to give the patient a mild sedative before the operation.

## Council on Medical Education and Hospitals

### COMING EXAMINATIONS

**ALASKA** Juneau Sept 4 Sec Dr W W Council Juneau  
**AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY** Written (Group B candidates) The examination will be held in various centers throughout the country Oct 1 Oral (Group A and Group B candidates) San Antonio Texas Nov 13 16 Sec Dr C Guy Lane 416 Marlborough St Boston  
**AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY** Written (Group B candidates) The examination will be held in various cities of the United States and Canada Nov 3 Sec, Dr Paul Titus 1015 Highland Bldg Pittsburgh  
**AMERICAN BOARD OF OPHTHALMOLOGY** Chicago Sept 8 Sec Dr William H Wilder 122 S Michigan Blvd Chicago  
**AMERICAN BOARD OF OTOLARYNGOLOGY** Chicago Sept 8 and San Antonio Texas Nov 16 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha  
**IDaho** Boise Oct 2 Commissioner of Law Enforcement Hon Emmett Pfost 205 State House Boise  
**MINNESOTA** Basic Science Minneapolis Oct 23 Sec Dr J Charnley McKinley 126 Millard Hall University of Minnesota Minneapolis Medical Minneapolis Oct 16 18 Sec Dr E J Engberg 350 St Peter St St Paul  
**MONTANA** Helena Oct 2 Sec Dr S A Cooney, 7 W 6th Ave Helena  
**NATIONAL BOARD OF MEDICAL EXAMINERS** The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Sept 12 14 Ex Sec Mr Everett S Plwood 225 S 15th St Philadelphia  
**NEBRASKA** Basic Science Omaha Oct 23 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln  
**NEW HAMPSHIRE** Concord Sept 13 14 Sec Board of Registration in Medicine Dr Charles Duncan State House Concord  
**NEW YORK** Albany Buffalo Syracuse and New York Sept 24 27 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany  
**OKLAHOMA** Oklahoma City Sept 11 12 Sec Dr J M Byrum Mammoth Building Shawnee  
**PUERTO RICO** San Juan Sept 4 Sec, Dr O Costa Mandry, Box 536 San Juan  
**WISCONSIN** Medical Reciprocity Green Bay Sept 11 Sec Dr Robert E Flynn 401 Main St La Crosse Basic Science Madison, Sept 22 Sec Prof Robert N Bauer 3414 W Wisconsin Ave, Milwaukee  
**WYOMING** Cheyenne Oct 1 Sec. Dr W H Hassed Capitol Bldg, Cheyenne

### California Reciprocity and Endorsement Report

Dr Charles B Pinkham, secretary, California State Board of Medical Examiners, reports 13 physicians licensed by reciprocity and 4 physicians licensed by endorsement from March 29 to June 7, 1934. The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Howard University College of Medicine (1929) Virginia		(1928)	Dist Colum
College of Physicians and Surgeons of Chicago		(1906)	Illinois
Rush Medical College (1905) (1927)		(1931)	Illinois
Indiana University School of Medicine		(1930)	Indiana
Harvard University Medical School		(1931)	New York
Detroit College of Medicine		(1911)	Michigan
Detroit College of Medicine and Surgery		(1928)	Michigan
Washington University School of Medicine		(1932)	Missouri
Western Reserve University School of Medicine		(1931)	Ohio
University of Vermont College of Medicine		(1924)	Connecticut

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Rush Medical College		(1932)	N B M Ex
Washington University School of Medicine		(1927)	N B M Ex
Starling Medical College		(1894)	U S Army
University of Tennessee College of Medicine		(1929)	U S P H S

### New Mexico Endorsement Report

Dr P G Cornish Jr secretary New Mexico Board of Medical Examiners, reports 11 physicians licensed by endorsement at the meeting held in Santa Fe, April 9, 1934. The following schools were represented

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
College of Physicians and Surgeons Arkansas		(1908)	Arkansas
University of Colorado School of Medicine		(1932)	Colorado
Georgetown University School of Medicine		(1930)	R Island
Chicago Medical School		(1930)	Illinois
Rush Medical College		(1933 2)	Illinois
Harvard University Medical School		(1919)	Mass
University of Pennsylvania School of Medicine		(1930)	Illinois
University of Tennessee College of Medicine		(1927)	N B M Ex
Manitoba Medical College		(1912)	Manitoba
University of Toronto Faculty of Medicine		(1928)	Michigan

### Illinois April Examination

Mr Eugene R Schwartz, superintendent of registration, Department of Registration and Education, reports the written and practical examination held in Chicago, April 10-12, 1934. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Forty-three candidates were examined, 41 of whom passed and 2 failed. The following schools were represented

School	PASSED	Year Grad	Per Cent
Chicago Medical School		(1932)	82
Loyola University School of Medicine		(1933)	76
Northwestern University Medical School		(1933)	82
(1934) 79 80 80 * 81 81, 82 82 82 * 83 84 85		(1932)	83
Rush Medical College		(1934) 78 * 79 79 80 * 81 81 81, 81 * 82 *	
86 (1934) 78 * 79 79 80 * 81 81 81, 81 * 82 *			
School of Medicine of the Division of the Biological Sciences		(1932) 86 *	(1933) 82 * 86
University of Illinois College of Medicine		(1933)	80
81 81 83 89 (1934) 83			
Cornell University Medical College		(1924)	75
Jefferson Medical College of Philadelphia		(1931)	86
School	FAILED	Year Grad	
Friedrich Wilhelms Universität Medizinische Fakultät Berlin			(1924)
Universitatea Regele Ferdinand I din Cluj Facultatea de Medicină și Farmacie			(1927)
* License has not been issued			

### Kentucky Reciprocity and Endorsement Report

Dr A T McCormack, secretary, State Board of Health, reports 15 physicians licensed by reciprocity and 1 physician licensed by endorsement from Jan 31 to June 29, 1934. The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Arkansas School of Medicine		(1931)	Arkansas
Chicago College of Medicine and Surgery		(1917)	W Virginia
Indiana University School of Medicine		(1927)	Indiana
University of Louisville School of Medicine		(1931)	Mississippi
College of Physicians and Surgeons of Baltimore		(1903)	W Virginia
University of Michigan Medical School		(1930)	Michigan
Ohio State University College of Medicine		(1928)	Ohio
University of Tennessee College of Medicine		(1931)	Tennessee
(1932) (1933 2)			
Vanderbilt University School of Medicine		(1929)	N Carolina,
(1933) Tennessee			
Medical College of Virginia		(1929)	Virginia
University of Virginia Department of Medicine		(1929)	Virginia
School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Columbia Univ College of Phys and Surgs		(1931)	N B M Ex

### Minnesota April Report

Dr E J Engberg, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held in Minneapolis, April 17-19, 1934. The examination covered 12 subjects and included 60 written questions. An average of 75 per cent was required to pass. Thirty-nine candidates were examined, all of whom passed. Three physicians were licensed by reciprocity and 1 physician was licensed by endorsement. The following schools were represented

School	PASSED	Year Grad	Per Cent
Northwestern University Medical School		(1927)	89 4
(1933) 87 4 87 5 92 2			
School of Med of the Div of the Biolog Sciences		(1933)	90 5
University of Illinois College of Medicine		(1932)	90 1
Tulane University of Louisiana School of Medicine		(1932)	91 3
Harvard University Medical School		(1929) 88 4	(1931) 89 5
University of Minnesota Medical School		(1933) 81 * 85 1 * 85 5 * 86 5 * 87 8 2	(1932) 82 3 * 91 5
87 3 * 88 2 88 4 * 88 6 * 89 * 89 3 * 89 3 * 89 3 *			
89 5 * 89 6 * 90 3 * 91 2 * 92 1 * (1934) 89 5			
St Louis University School of Medicine		(1933)	87 4
Ohio State University College of Medicine		(1932)	84
University of Pennsylvania School of Medicine		(1931)	92 4
University of Pittsburgh School of Medicine		(1931)	90 5
McGill University Faculty of Medicine		(1931)	89 6
Universität Heidelberg Medizinische Fakultät		(1930)	84 3
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Creighton University School of Medicine		(1933)	Nebraska
University of Nebraska College of Medicine		(1932)	Nebraska
University of Pennsylvania School of Medicine		(1931)	Penna
School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Minnesota Medical School		(1933)	N B M Ex
* This applicant has received his M B degree and will receive his M D degree on completion of internship			



## Book Notices

**The Chemistry of the Hormones** By Benjamin Harrow Ph D, Associate Professor of Chemistry The City College College of the City of New York and Carl P. Sherwin D Sc M D Dr P H on the Staff of St Vincent's Hospital and French Hospital New York City Cloth Price \$2.50 Pp 227 Baltimore Williams & Wilkins Company 1934

This volume is largely a compilation from the published literature of methods of preparing extracts having physiologic or pharmacologic effects, from various tissues, body fluids and plants. The authors state in their preface that they have attempted to "put together a practical book—a book of use to the laboratory worker who wishes to prepare active hormone fractions or to isolate a chemically pure hormone, and of use to the student who wants a connected account dealing with the chemical characteristics of the hormones, in so far as they are known at present." Were this book a complete and critical summary of the literature in question, laboratory workers might find it a useful work of reference, unfortunately, it falls far short of the authors' aim in this respect. Consultation of original publications remains indispensable. It is a matter of grave concern for the present state of knowledge that the chemical characteristics of the hormones, "so far as they are known at present," can be encompassed in a mere 227 pages of text, of which a considerable portion is devoted to notes on biologic effects.

No doubt many investigators write things that they do not "know", such material presumably would have no place in such a volume as this. Unfortunately there is little evidence that the present authors examined critically the material they chose to include.

The first chapter, on the thyroid, is perhaps the least subject to criticism, no doubt because the chemistry of thyroxine is by now amply understood. The succeeding chapters leave much to be desired. In a discussion of the parathyroid Hanson's contribution is dismissed as "suggestive work" and is even subordinated in sequence to that of Berman, whose publication appeared a year after Hanson's original two communications in 1923 which were followed by three more the next year. Curiously, none of these five references are listed in the bibliography. Is it coincidence that the same peculiar sequence and omission occur in a recent review on this subject? There is now apparently no doubt that Hanson prepared highly active extracts of the parathyroid several years before Collip's comprehensive work in this field.

One is startled to find a section on the synthetic fat intarvin included in the chapter on insulin and to read that "Intarvin has the advantage of being active [sic] when given by mouth." Are the authors under the delusion that this fat is a hormone?

In the chapter on the pituitary hormones, the preliminary summary on the anterior lobe has apparently been copied verbatim (with omission of one or two brief statements) from a recent report of the Council on Pharmacy and Chemistry, yet not only is the section in question not included between quotation marks but reference to the Council's report is not even to be found in the bibliography following this section, though it is included as an anonymous publication following the section on the "female hormones." In the description of the method of Van Dyke and Wallen-Lawrence for preparing a growth-promoting extract of the pituitary, the statement in the original publication, "Y cc of crude stock are

reprecipitated by using 20 grams of anhydrous sodium sulphate per 100 cc of solution," becomes, in the book under review, "Y cc of the crude stock is reprecipitated with 20 grams anhydrous sodium sulfate in 100 cc of water." Whereas the former statement is quantitative with respect to relative amounts of crude extract and precipitating agent, the sentence in the book under review defies comprehension.

In the section on the suprarenal hormones, "stimulation of the vagus center causing slowing of the heart" is given as a clinical application of epinephrine. This is hardly a proper therapeutic use for epinephrine but an undesirable side effect of large dosage that one would try to avoid in patients.

It is in the section on the suprarenal cortex that the authors best exhibit the deficiencies in critical judgment and in knowl-

edge of pertinent literature that characterize the book as a whole. In a footnote the impression is conveyed that the discovery dates back only to 1932 that survival of animals after double suprarenalectomy is due to the presence of accessory tissue. The authors are apparently unacquainted with the fact that this was recognized at least twenty years before that. The average survival period of suprarenalectomized cats as reported by Rogoff and Stewart is stated to be eleven days for male cats and ten days (the actual figure in the original paper is ten and three-fourths days) for nonpregnant female cats. The authors do not mention that one eighth of the animals survived twenty days or longer, of which one lived twenty-nine and three-fourths days and another thirty one and one-half. Yet reports by other workers in which the survival periods did not equal, much less exceed, the maximum period reported by Rogoff are accepted as indicating the use of potent products.

Hartman's salt precipitation method is presented presumably as providing a potent extract, it is not mentioned that Rogoff demonstrated that this method is worthless and that for this reason Hartman himself gave it up.

The authors, who should know better, give full credence to the spectacular accounts presented, not only in scientific journals but also in the lay press, of the remarkable recoveries of patients suffering from Addison's disease, after treatment with the allegedly potent cortical extracts of Hartman and of Swingle and Pfiffner, while they consider unconvincing the conservative and eminently reasonable claims of Rogoff. They report a case of Addison's syndrome in which the patient was "in a state of complete collapse", within thirty-six hours after administration of the Swingle-Pfiffner preparation "a marked effect on appetite and strength was apparent. The patient, who had been so nauseated as to retain water with difficulty, now asked for wieners and sauerkraut and in lieu of the latter ate a double order of beefsteak with relish." While this patient was reported as doing nicely in the first publication on Nov 7, 1930, and this was repeated as late as the end of December 1930 (the case was again mentioned in another paper the following month), a subsequent report in November 1931 showed that the patient was already dead on Nov 11, 1930. The authors appear to be unacquainted with the fact that patients with Addison's disease often have spontaneous remissions, sometimes of a spectacular nature.

It is mentioned that Eagle found considerable amounts of choline in extracts prepared by the Swingle-Pfiffner method, a footnote indicates that this is denied by the latter investigators. It is not stated that Cleghorn reported the presence of histamine in such extracts a year before Eagle's paper appeared, nor do the authors appear to be aware of the fact that Hunt noted the presence of choline in suprarenal extracts thirty five years ago.

Space is not available for a more complete analysis of this book, it represents a class of literature in endocrinology that unfortunately is rapidly increasing in volume.

**La syphilis expérimentale. Étude critique et nouvelles recherches** Par G. Gastinel professeur agrégé à la Faculté de médecine de Paris, et R. Pulvenis chef de laboratoire à la Faculté de médecine de Paris. Monographie du laboratoire de bactériologie de la Faculté de médecine de Paris. Paper. Price 45 francs. Pp 244 with 23 illustrations. Paris: Masson & Cie 1934.

This monograph deals with a critical study of what has been accomplished in experimental syphilis in the relatively short space of thirty years and with some of the authors' recent investigations, particularly on the Meicke reaction. The major portion of the book is devoted to experimental syphilis of the rabbit and the mouse and to a discussion of various phases of syphilitic immunity. The importance of a biologic point of view in the evaluation of experimental results is properly emphasized, particularly with respect to the application of such results to problems of human syphilis. An essential requirement toward the achievement of the necessary biologic point of view would seem, however, to include a comprehensive and critical first-hand experience with the experimental infection in all its various aspects. For this reason it is to be regretted that the authors did not observe in their experimental material the rich variety and diversity of generalized lesions, which are a characteristic feature of

the infection in the rabbit. Such an experience is an invaluable aid to a better understanding of the many factors that should be taken into account in either a general or a particular consideration of the disease. The comparatively large space allotted to syphilitic infection of the mouse reflects the extent of contemporary interest in the subject. Until further work has demonstrated that the condition has other than what one may term an "animal test tube" significance, it would seem advisable to suspend judgment on its importance with respect to both experimental and human syphilis. The large number of references to the literature is impressive and should be of value to the laboratory worker and to the clinician interested in various phases of experimental syphilis. The authors have achieved an enviable record in their summaries of the essential points of the papers under discussion.

**Histopathology of the Teeth and Their Surrounding Structures.** By Rudolf Kronfeld M.D. Professor of Special Histopathology Director of Department of Research Chicago College of Dental Surgery. Cloth Price \$7. Pp 479 with 385 illustrations. Philadelphia: Lea & Febiger 1933.

This is by far the most satisfactory textbook on this subject in English and is comparable only with the books in German by Euler and Meyer and by Sigmund and Weber covering approximately the same ground. The excellent illustrations, for the most part original, are chiefly photomicrographs of sectioned human material and in a great many instances include teeth, soft tissues and bone in the same specimen. The subject matter is well organized, clearly presented and not rigidly limited to the presentation of the histologic picture of oral diseases. For example, in the chapter on dental caries six pages is devoted to a discussion of the clinical characteristics of the disease and experimental research. As stated in the introduction, comparatively little emphasis is placed on processes that have been presented adequately in earlier publications and textbooks and that others relatively new or unknown to the profession are considered more in detail. Except for dentigerous and median maxillary cysts, the subject of tumors and cysts is not included in the book. Each chapter is followed by an extensive bibliography. There is an adequate index. This book is heartily recommended to both dental students and others interested in oral microscopic changes.

**Features in the Architecture of Physiological Function.** By Joseph Barcroft CBE MA FRS. Cloth Price \$5.50. Pp 368 with 106 illustrations. New York: The Macmillan Company. Cambridge England: University Press 1934.

This book is a philosophical discussion of the mechanisms of the body whereby the internal conditions of existence are maintained at that nicety of adjustment necessary for man's intellectual supremacy. The experimental evidence for the supporting current biochemical and physiologic concepts are stressed constantly and the bibliography is conveniently given at the end of each chapter. There is a broad consideration of such details of the 'fixité du milieu intérieur' as hydrogen ion concentration, temperature, oxygen supply and blood sugar, with the conclusion that variations in the factors are conditioned largely by the nervous system which in turn proves to be the chief beneficiary of the resulting stable state. There are three chapters on storage materials, including glycogen, lipids, oxygen, iron, copper and blood. The high spot of interest in this fascinating book is the section which supports the view that every adaptation is an integration. As an example the author discusses fetal respiration, pointing out the part played by the maternal organism as well as by the fetus, anoxia, drawing on his own extensive experience as a physiologist, and the adjustment to muscular exercise, correlating in lucid style the considerable pertinent information currently available and indicating other, as yet unknown possibilities. As contributory considerations on the vital equilibria the all or none' relation the principles of antagonism and of maximal activity, as well as the duplication of mechanism, are discussed. In making use of both the classic and the more recent experimental observations, the author combines a discriminating open-mindedness with a benign conservatism. Doubtless there will be readers who object to certain apparent inaccuracies of statement and to the teleological flavor of certain portions, but when the author states that not till the machinery for the

exact regulation of the properties of the blood had been perfected up to a certain point did—I would say could—the magnificent development of man's intellectual powers take place," he effectively discriminates between the purposeful and the logical. Basing his conclusion on the developments in physiologic chemistry, the author chooses to 'regard a phenomenon (structural or functional) as more likely to have a significance than not.' The field has been viewed at once with close attention to detail and with magnificent detachment, the treatment is informal, at times personal, at others even whimsical, but always authoritative.

**Aids to Pathological Technique.** By David H. Baler M.B. B.S. Pathologist. Infants Hospital London S.W. 1. Cloth Price \$1.50. Pp 187 with 18 illustrations. Baltimore: William Wood & Company 1933.

This booklet, another of the "Students Aids Series," contains a brief description of the laboratory procedures most frequently employed in bacteriology, hematology, cytology, parasitology and biochemistry. The writer has presented one example of each method, which he has found to work best in actual practice. For medical students reviewing for examinations, and also for those doing laboratory work, this booklet contains concise and accurate instructions for the various examinations. There are also tables for recognition of *Endamoeba histolytica*, malarial parasites, normal hematologic appearances, and blood chemistry. A brief description of the preparation of culture mediums is added.

**La gangosa et les rhino-pharyngites mutilantes des tropiques.** Par le Dr Georges Gallnier de la Faculté de médecine de Paris. Paper Pp 87. Paris: Jouve & Cie 1934.

This brochure discusses in considerable detail the subject of gangosa. As the author states in his historical notes, the name "gangosa" is Spanish and means "nasal voice." This nomenclature is derived from the fact that the ulceration and destruction, partial or otherwise, of the palate produces the peculiar nasal twang. The first chapter dwells considerably on the geographic distribution of the disease (it is encountered mostly in Oceania) and also discusses the classification of the condition. Attention is called to the fact that in some phases it resembles yaws, syphilis, leprosy and sometimes tuberculosis in its involvement of the nose, mouth and pharynx. It is interesting to know it was members of the United States naval medical forces who were among the first to describe this disease in Guam. Then follow chapters on clinical forms and symptomatology. In speaking of the pathology, attention is called to the fact that the lesion is that of a granuloma. The Bordet-Wassermann reaction is often positive in these cases, just as it is in syphilis and in yaws. The differential diagnosis is often difficult and the author devotes considerable space to this phase of the subject. Several case histories are given at the end of the monograph and a rather complete bibliography is appended.

**The Clinical Management of Horseshoe Kidney. A Study of Horseshoe Kidney Disease Its Etiology Pathology Symptomatology Diagnosis and Treatment.** By Robert Gutierrez A.B. M.D. F.A.C.S. Chief of Clinic of the Department of Urology James Buchanan Brady Foundation of the New York Hospital. With a foreword by Dr. Edmond Papin. Cloth Price \$3. Pp 143 with 52 illustrations. New York: Paul B. Hoeber Inc 1934.

The author has made a thorough study of a subject that is of great interest not alone to urologists but to all clinicians interested in differential abdominal diagnosis. Renal fusion has not been recognized frequently on clinical examination and is usually first discovered on abdominal exploration or postmortem examination. The author believes that the symptoms caused by renal fusion are so distinct that they can be regarded as a separate clinical entity, to which he gives the name of horseshoe kidney syndrome. Although it is true that various symptoms such as the author describes are noted in some cases of renal fusion, it is open to question whether they are definite enough to be regarded as a diagnostic entity. All forms of anomaly in the urinary tract are subject to secondary pathologic complications, which are the usual cause of symptoms rather than the anatomic condition itself. It must also be remembered that various intra abdominal lesions may be present which can cause symptoms such as he describes and, unless clinically recognized, they may be easily overlooked. That

the anomalous position of the horseshoe kidney exerts pressure on the adjacent nerves or blood vessels sufficient to cause pain has been previously inferred by other observers but no definite evidence has been offered to prove this point. It is well known that renal fusion as well as other anomalies of renal position, such as renal dystopia and incomplete rotation, are frequently discovered in the course of routine urography, which cause no clinical symptoms.

The author believes that horseshoe kidney may be the cause of constipation and gastro-intestinal disorders. He does not, however, make it clear why renal fusion should cause such disturbance. In common with other observers, he refers to the so-called Rovsing sign as valuable in the recognition of horseshoe kidney. Other observers, however, have frequently failed to find this sign and have noted that similar reaction may be observed when no anomaly is present.

The author has made a careful study of the urographic data observed with horseshoe kidney and has added some interesting observations to those previously described. Included in the latter is a description of a urographic triangle with a minimum lower angle, which he has repeatedly observed with horseshoe kidney. The volume is profusely and graphically illustrated, and careful perusal of the various roentgenographic data which he has described should lead to more frequent recognition of this anomaly, particularly if excretory urography is employed in a routine way in doubtful abdominal conditions. The chapter on treatment is brief but contains considerable data of value.

**Ultra Violet Therapy in Eye Disease with a Review of the Action of Other Forms of Radiant Energy.** By Frank W. Jaw, M.A., M.D., B.Chir., Assistant Surgeon, Central London Ophthalmic Hospital. Foreword by Sir Stewart Duke Elder, M.A., D.Sc., M.D., Boards. Price 5/- Pp. 78. Published for the Middlesex Hospital Press, London, 1934.

The author reviews briefly the existing knowledge of light rays and discusses those of beneficial or therapeutic value. He reviews the use of ultraviolet radiation in its action on the eye, gives the technic for its application, and cites a number of case reports with his results in many eye conditions. His statement that ultraviolet therapy is of most value in "symptomatic" diseases of the eye and that in general local radiation it is of more value in its own sphere than in general application summarizes his view of the matter. He concludes "General phototherapy has less value in ophthalmology than previous writings suggest, it is nevertheless a very useful adjunct in treatment, especially in such cases as phlyctenular disease, blepharitis and some forms of iridocyclitis. Local phototherapy is of the utmost value in the treatment of all kinds of superficial lesions of the eye, in deeper lesions action is less certain." He devotes little space to radium therapy and combines the work on radium and x-rays because of their similar action. About radium he concludes "The claims made for the therapeutic value of radium in ophthalmic conditions, especially in America, are too diverse and too enthusiastic. Radium is of proved value in the treatment of epibulbar and orbital neoplasms, especially of the malignant or vascular benign variety. The encouraging results obtained by its action on intraocular malignant growths justify its further use in this field." Infra-red rays play no part as a therapeutic agent in ophthalmology and are given little space. The book is brief and contains the essentials of technic for the use of these therapeutic agents but adds little to the existing knowledge of the agent. It is chiefly a summary of the author's results at the Middlesex Hospital.

**Recent Advances in Medicine. Clinical Laboratory Therapeutic.** By G. E. Beaumont, M.A., D.M., F.R.C.P., Physician with charge of Outpatients, Middlesex Hospital, and E. C. Dodds, D.Sc., Ph.D., M.D., Courtauld Professor of Biochemistry in the University of London. Seventh edition. Cloth. Price \$4. 1p. 485 with 58 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc. 1934.

This edition is evidence of deserved popularity. There are many additions to the text and illustrations. The chapter on hormones and vitamins is entirely new and gives a timely review of present knowledge. The sections on the blood and the heart and kidney are thoroughly revised and include all recent contributions. The text is concise and should be useful not only to the student but also to the general practitioner.

**Traité de médecine des enfants.** Publié sous la direction de P. Nobécourt et L. Babonneix. Secrétaires de la rédaction: J. Cathala et J. Hutinel. Tome I [Maladies de la nutrition de la croissance et la pathologie des glandes endocrines] BoARDS. Price 170 francs, 700 francs per set of 5 volumes. Pp. 989 with illustrations. Tome II [Les infections Maladies du sang Affections des organes hématopoïétiques] BoARDS. Price 170 francs. Pp. 960 with illustrations. Tome III [Les affections de l'appareil circulatoire celles de l'appareil respiratoire, le début des affections de l'appareil digestif] BoARDS. Price 170 francs. Pp. 1086 with illustrations. Tome IV [Les affections des voies digestives (fin), celles de l'appareil génito-urinaire les intoxications les affections des os la dermatologie l'ophtalmologie la psychiatrie] BoARDS. Price 170 francs. Pp. 956 with illustrations. Tome V [La neurologie la thérapeutique et la table alphabétique générale des matières des cinq volumes] BoARDS. Pp. 876 with illustrations. Paris: Masson & Cie 1934.

This system of pediatrics, appearing in French in five beautifully bound volumes, represents the writings of the best minds in French pediatrics today. These volumes supersede the three older French treatises on pediatrics and contain freshly written and modern material. The editors-in-chief, Pierre Nobécourt, professor at the University of Paris and director of the Hôpital des enfants malades, and Leon Babonneix, are men of international reputations. They were aided by Jean Cathala and Jean Hutinel, who unfortunately died shortly before the volumes were completed.

The material in the five volumes is divided as follows. Volume I contains the general table of contents and introduction, and the chapter on normal growth and development, diseases of nutrition and pathologic endocrine disturbances. Volume II deals with the acute infectious diseases and diseases of the blood and blood-forming organs. Volume III contains the chapters on the circulation, respiration and digestive tract. Volume IV deals with disorders of the genito-urinary tract, the mouth, the skin and the eyes. Psychiatric disturbances and accidental poisoning are included in this volume. Volume V, the concluding volume, deals with neurology and materia medica, and therapeutics, and contains the general alphabetical index to the five volumes of the system.

As in all systems to which numerous authors have contributed, the style, handling of material and value of the various chapters vary. Among those which stand out for their excellence in volume I are the chapters on growth and development by Nobécourt and his assistants, and the chapter on prematurity by Paul Rohmer of Strasbourg. In volume II there is an excellent chapter on diphtheria by Grenet, with references. The chapter on typhoid could have dealt more specifically with the peculiarities of this disease in infants and young children. The chapter on scarlet fever, by Gautier, is excellent in character. His analysis of the etiology and serum therapy of this disease is well balanced. The chapter on congenital syphilis by Pehu is monographic. It consists of more than 150 pages of excellent material and is written by an authority on this subject. A complete list of references is given at the end of each topic discussed. The chapters on blood are unfortunately weak. The colored plates are far below standard. Descriptions of fourth, fifth and sixth diseases may be found in volume II and are described in four pages for the elucidation of the uninitiated.

Volume III contains the chapters on the heart and circulation and on respiratory and gastro-intestinal disorders. The treatment of the cardiovascular system is hardly adequate, while the diseases of the upper respiratory tract and the pneumonias are better handled. The chapter on bronchiectasis is full and excellent and the subject of pulmonary tuberculosis is well handled. R. A. Marguezy has done well with diseases of the mediastinum, tracheobronchial adenopathy being remarkably well illustrated and discussed as are the tumors of the mediastinum. In the chapter on foreign bodies in the esophagus it seems odd to see an illustration of the technic for removing a plate or bridge of false teeth in a treatise on pediatrics. Lereboullet has written an excellent article on vomiting in infants and children, including an excellent description of hypertrophic pyloric stenosis. The chapters on the nutritional diseases, dyspepsias and alimentary intoxication by Cathala are interesting in that they give the French point of view. Rohmer has done well with the chapters on megacolon and celiac disease.

In volume IV the best chapters are again those by Pehu on the bone changes in congenital syphilis. The chapter on diseases of the skin is well illustrated, while the chapter on

# Medicolegal

**Contract to Testify as Expert Witness Valid** — The plaintiff, a physician, had professionally observed the condition of the defendant's wife, but whether with a view to treatment or with a view to giving evidence the reported decision does not make clear. Subsequently the defendant desired the plaintiff's evidence in a suit to which the defendant and his wife were parties, as to blows or bruises on the wife's body or anything in her condition that might lead the plaintiff to believe that she had been subjected to violence or physical mistreatment. The plaintiff expressed his unwillingness to testify, and a subpoena was served on him. After the service of the subpoena the defendant promised the physician to pay him for testifying the amount that he would receive for a gallbladder or appendicitis operation. The plaintiff then attended the trial, gave expert testimony and sent the defendant his bill. When the defendant refused to pay, the plaintiff brought action against him. Judgment was given for the plaintiff and affirmed by the supreme court. The defendant appealed to the Court of Errors and Appeals of New Jersey.

It is quite obvious, said the Court of Errors and Appeals, that the plaintiff testified as an expert. He not only stated the facts observed by him but also expressed his professional judgment as to the condition he found and its cause. The question was squarely presented, therefore, whether a contract such as the plaintiff made was void as against public policy. It is quite clear, said the court, that all knowledge which a witness has of the actual facts of litigation, whether the witness be a professional man or a layman, is available and that a witness is amenable to subpoena and compellable to give evidence of such facts. But the experience, training and skill of a professional man, acquired by years of study and practice in a given profession or calling, are not the property of the litigants. They belong to the professional man in his chosen occupation. Neither justice nor public policy, in the opinion of the court, forbids that the expert shall retain such knowledge and skill free from disclosure otherwise than by his voluntary act. This is true whether disclosure be sought for compensation for the exercise of his skill, or in the expression of his professional judgment privately, or as a witness in a court of justice. The right to compensation for services so rendered, the court thought, was generally recognized by the bar of New Jersey and compensation paid accordingly. The testimony of experts often involves long and tedious preparation for testifying, as well as the giving of results of training and experience to the appointed judicial investigators. It would be unjust and without legal justification to withhold payment therefore.

"Our conclusion," said the Court of Errors and Appeals, "is that an expert witness cannot as such be compelled to give testimony in response to subpoena, and, if such expert testimony is called for and given, it is the right of such person to contract for and receive proper and adequate compensation therefor."—*Stanton v Rushmore* (N J), 169 A 721

**Evidence Presumption that Woman is Capable of Childbearing Not Absolute** — The testator, after making certain bequests, devised the residue of his estate to a trust company, in trust to pay an income to his daughter during her life and on her death to her lawful issue. If she died without issue, the residuary estate was to be distributed among certain charitable institutions and societies. At the time of the testator's death, the daughter was 50 years old. Seven years before that time she had had her uterus fallopian tubes and both ovaries removed. Unless under such conditions she was capable of bearing children, the residuary estate would inevitably pass on her death to the charitable institutions named in the will, and the residuary estate, less the value of the daughter's life interest in it, was a charitable bequest, to be deducted from the gross estate before computation of the estate tax.

The commissioner of internal revenue contended that the age of the daughter and the sterilizing operation to which she had been subjected were immaterial, that the law conclusively presumed that she was capable of bearing children as long as she lived, and that the legal presumption controlled even though

the organs of reproduction had been completely removed. He fixed the value of the gross estate accordingly and demanded payment of the federal estate tax on that basis. The administrator of the testator's estate paid the tax and then filed a claim for a refund. He contended that the commissioner of internal revenue erred, that in computing the value of the estate the commissioner should have deducted the value of the residuary estate, less the daughter's life interest in it, since it was certain to go to charitable institutions and societies on her death, as she was incapable of bearing offspring. He brought suit against the United States in the United States court of claims to recover the amount of the excess tax paid. The court entered judgment in the administrator's favor,<sup>1</sup> and the United States, by writ of certiorari, carried the case to the United States Supreme Court.

Where only the element of age is involved, said the Supreme Court, the presumption that a woman is capable of childbearing has been held to be conclusive, but the conclusiveness of the presumption even in such cases has not been universally upheld. The English courts have given the presumption a considerable degree of flexibility and in a large number of cases have refused to give it a conclusive effect. American courts have adhered to a more rigid view. Few cases have arisen in which elements other than age were present, and the conclusive character of the presumption in such cases is by no means established. The presumption of a woman's continuing capacity for childbearing originated when medical knowledge was meager, centuries before the discovery of anesthetics and before surgical operations were undertaken such as that to which the testator's daughter was subjected. Not until a comparatively recent period was the effect of such an operation determinable and the fact incontrovertibly established that a woman so operated on is permanently incapable of bearing children. The Supreme Court could see no ground of expediency or policy that called for a hard and fast application of this presumption of incapacity to bear children, when facts put beyond the range of doubt the absence of such capacity. The birth of a child to the daughter of the testator after his death was so plainly impossible that as a practical matter hazard disappears from the problem, if her interest had been offered for sale in the open market during her lifetime, a suggestion of the possibility of issue would have been ignored by every intelligent bidder as utterly destitute of reason. The judgment of the court of claims in favor of the administrator was affirmed.—*United States v Provident Trust Co*, 54 Sup Ct 389.

**Workmen's Compensation Acts Paralysis Agitans Following Trauma**—On Nov. 19, 1928, the hair of the decedent, an able-bodied woman about 45 years old, caught on a revolving shaft in the cannery in which she was employed. A strip of her hair was pulled out, about an 1½ to 2 inches wide and extending from the base of the skull almost to the forehead. She continued to work for a short period after the accident and then was taken home, where she remained for eight days. When she returned to work she was so nervous that she wept at the sight of the cannery and had to be assigned to other duties in a part of the building other than that in which the accident had occurred. She worked until December 7, when the cannery closed. She did not go back to work but did perform her household duties. Gradually she lost strength and her general health failed. About two years after the injury, numbness was discovered in her right hand and she was unable to hold a sewing needle. Late in 1931 tremors of the hand and arm became apparent. These conditions extended to other parts of the body, with a certain degree of rigidity of the members affected, so that she became totally disabled and died.

During her lifetime she filed a claim for compensation with the industrial accident board, which the board denied. An appeal was taken to the district court, Kootenai county. The claimant having died, her son was appointed administrator of her estate and substituted as a party plaintiff. From an order of the district court affirming the order of the industrial accident board denying compensation, the administrator appealed to the Supreme Court of Idaho.

Four physicians testified before the industrial accident board on behalf of the claimant and one on behalf of the canning

company. All five agreed that the claimant was suffering from paralysis agitans and that the exact cause of the disease is unknown. Shock, fright, trauma, injuries, infections and syphilis, it was testified, precipitate or aggravate the disease or are its exciting causes. The four physicians who testified for the claimant testified that the injury received was the exciting cause of the claimant's paralysis agitans. The physician who testified on behalf of her employer, the canning company, was positive that her injury in no way contributed to or caused her illness. If the injury had been the exciting cause, he testified, the tremors, paralysis and rigidity would have appeared shortly after the injury, at least within a few weeks and under no conditions beyond one year. The deceased, this witness contended, did not receive a severe brain injury, she was not thrown against the revolving shaft, nor did she fall. Hair grew where hair had been pulled out, showing that there was no severe scalp injury. The deceased, in his opinion, suffered from encephalitis and phlebitis, and encephalitis is one of the principal causes of paralysis agitans. The encephalitis and phlebitis, he believed, were probably the exciting causes of the claimant's paralysis agitans.

There is in this case, said the Supreme Court, a substantial and direct conflict in the evidence as to what was the exciting cause of the paralysis with which the deceased was afflicted. All the medical testimony for the claimant was to the effect that the exciting cause was the injury she had sustained, the medical testimony on behalf of the canning company was to the contrary. There was ample evidence to support the findings, conclusion and award made by the industrial accident board and affirmed by the district court, to the effect that the injury was not the exciting cause of the paralysis agitans with which the deceased was afflicted. The Supreme Court, therefore, affirmed the judgment of the district court denying compensation.—*Larson v Callahan Canning Co of Coeur d'Alene (Ida)*, 27 P (2d) 967.

## Society Proceedings

### COMING MEETINGS

- American Academy of Ophthalmology and Otolaryngology Chicago Sept. 9-14 Dr William P Wherry 107 South 17th Street Omaha Executive Secretary
- American Association of Railway Surgeons Chicago August 20-22 Dr Louis J Mitchell 21 East Van Buren Street Chicago Secretary
- American Congress of Physical Therapy Philadelphia Sept 10-13 Dr Nathan H Palmer 921 Canal Street New Orleans Secretary
- American Hospital Association Philadelphia Sept 24-28 Dr Bert W Caldwell 18 East Division Street Chicago Executive Secretary
- American Public Health Association Pasadena Calif Sept 3-6 Dr Kendall Emerson 50 West 50th Street New York Executive Secretary
- Colorado State Medical Society Colorado Springs Sept 19-22 Mr Harvey T Sethman 537 Republic Bldg Denver Executive Secretary
- Delaware Medical Society of Dover Oct 9-10 Dr William H Speer 917 Washington Street Wilmington, Secretary
- Idaho State Medical Association Lewiston Sept 7-8 Dr Harold W Stone 105 North Eighth Street Boise Secretary
- Indiana State Medical Association Indianapolis Oct 9-11 Mr T A Hendricks 23 East Ohio Street Indianapolis Executive Secretary
- Kansas City Southwest Clinical Society Kansas City Mo Oct 1-4 Dr Hugh Wilkinson 750 Minnesota Avenue Kansas City Kan Secretary
- Kentucky State Medical Association Harlan Oct 1-4 Dr A T McCormack 532 West Main Street Louisville Secretary
- Michigan State Medical Society Battle Creek Sept 12-14 Dr F C Warnshuis 148 Monroe Avenue Grand Rapids Secretary
- Nevada State Medical Association Reno Sept 21-22 Dr Horace J Brown 120 North Virginia Street Reno Secretary
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- Ohio State Medical Association Columbus Oct 4-6 Mr Don K Martin 1005 Hartman Theatre Building Columbus Secretary
- Oregon State Medical Society Corvallis Sept 27-29 Dr L Howard Smith Medical Arts Building Portland Secretary
- Pacific Northwest Orthopedic Association Seattle Sept 1 Dr J C Brugman 1215 Fourth Avenue Seattle Secretary
- Pennsylvania Medical Society of the State of Wilkes-Barre Oct 1-4 Dr Walter F Donaldson 500 Penn Avenue Pittsburgh Secretary
- Virginia Medical Society of Alexandria Oct 9-11 Miss Agnes V Edwards 1200 East Clay Street Richmond Secretary
- Washington State Medical Association Spokane Sept 10-13 Dr Curtis H Thomson 1305 Fourth Avenue Seattle Secretary
- Western Branch of American Public Health Association Pasadena Calif Sept 3-6 Dr W P Shepard 600 Stockton Street San Francisco Secretary
- Wisconsin State Medical Society of Green Bay Sept 12-14 Mr J G Crownhart 119 East Washington Avenue Madison Secretary

<sup>1</sup> *Provident Trust Co v United States* 2 Fed Supp 472 J A M A 101 1508 (Nov 4) 1933

## Current Medical Literature

### AMERICAN

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Titles marked with an asterisk (\*) are abstracted below.

### American Journal of Cancer, New York

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- Hodgkin's Disease of the Lung S E Moolten New York —p 253  
Experimental Investigation Concerning the Nature of Contagious Lymphosarcoma of Dogs W A DeMonbreun and E W Goodpasture Nashville Tenn —p 295  
\*Carcinoma of the Rectum in Youth Report of Three Cases L I Ross Cleveland —p 322  
Hormones in Cancer VIII Influence of the Hypophysis F Bischoff I C Maxwell and H J Ullmann histologic report by R D Evans Santa Barbara Calif —p 329  
Effect of Anterior Pituitary Hormones on the Growth of Mouse Sarcoma O F Krehbiel C D Haagensen and Herma Plantenga New York —p 346  
\*Primary Carcinoma of the Liver with Extensive Metastasis to the Right Heart and Tumor Thrombosis of the Inferior Vena Cava A L Culpepper and E von Haam New Orleans —p 355  
Giant Cell Tumor of the Spine H Milch New York —p 363  
Cancer Associated with Leukemia B F Schreiner and W H Wehr, Buffalo —p 368  
Plastic Induration of the Penis A Soiland and L Lindberg Los Angeles —p 372  
Attempts to Produce Immunity to Transplantable Rat Tumors with Chicken Blood C D Haagensen New York —p 376  
Interpretation of Dosage in Roentgens M C Reinhard and H L Goltz Buffalo —p 380  
Cancer Education Note H C Saltzstein Detroit —p 384

**Carcinoma of the Rectum in Youth**—Ross shows that carcinoma of the rectum is not limited to the declining decades of life by presenting three cases in patients 21 years of age and younger. The relative rarity of cancer prior to the so-called cancer age appears still to be a definite factor in preventing the early correct diagnosis of such lesions. This reluctance to make a diagnosis of cancer because of the youth of the patient was responsible in the first of the three cases for the rectal symptoms being attributed to tuberculous stenosis and in the third case it led to an initial diagnosis of ulcerative colitis. A review of the literature furnishes adequate evidence that cancer, while uncommon, is by no means a rare disease of youth. Persons less than 30 years of age appear to comprise from 1 to 3 per cent of those afflicted with carcinoma. Rectal cancer accounts for a proportion of these youthful victims of cancer. From 2 to 4 per cent of all rectal carcinomas occur in persons less than 30 years of age. The occurrence of rectal carcinoma in patients less than 20 years of age is sufficiently uncommon to warrant more than passing notice. One of the author's cases is the sixtieth thus far reported. Rankin and Comfort found little variation in the symptomatology of rectal cancer with the age of the patient. The principal symptoms in all cases were a change of intestinal habit (constipation or diarrhea) and rectal bleeding. It was found, however, that carcinomas arising in the early decades of life are apparently more malignant as indicated by the shorter duration of symptoms, the greater number of inoperable cases, and the decreased percentage of cures lasting three and five years. Each of the growths was readily palpable on simple digital rectal examination. No special laboratory procedure was needed to establish a firm clinical suspicion of the nature of the malady.

**Primary Carcinoma of Liver**—Culpepper and von Haam report a case of primary carcinoma of the liver in which no symptoms were observed referable to the liver which was the site of the primary lesion. Histologically the liver showed the beginning of a cirrhotic process with a slight increase of the periportal fibrous tissue and some signs of liver cell regeneration. The two complications that led to the death of the patient and dominated so exclusively the clinical picture were

tumor thrombosis of the inferior vena cava and metastasis of the tumor to the right auricle of the heart. Invasion into the blood vessels is one of the characteristic features of primary cancer of the liver. Statistics show that the portal branches of the liver vessels are far more frequently and earlier invaded than the hepatic veins or the branches of the liver artery. This peculiar fact explains the rapid spread of the tumor in the liver itself and the later and rare appearance of extra-hepatic metastasis. If the tumor has penetrated into the large branches of the hepatic veins, it may or may not spread into the inferior vena cava and lead to complete or partial obstruction of this vessel. Complete obliteration of the inferior vena cava by a tumor thrombus is rare. The tumor thrombus extended about 1 cm into the vena cava in the direction of the blood stream. The thrombus below the opening of the hepatic veins into the vena cava was only a secondary blood thrombus. The tumor node in the right auricle of the heart was completely separated from the thrombotic process in the vena cava and represented a metastasis of the tumor to the heart. The tumor mass in the right auricle was larger and firmer than the tumor thrombus in the inferior vena cava. It was attached to the endocardium of the auricle and reached like a ball valve into the atrium of the heart. Macroscopically, the tumor in the right auricle had the appearance of being an older growth than the friable and more loose tumor thrombus in the vena cava, an opinion that is supported by clinical data. The complaints of the patient were mainly shortness of breath and swelling of the ankles, which was symmetrical and responded favorably to therapy for some time. The kidney function could also be greatly increased in the beginning but not in the later stages of the disease. The classic diagnostic criterion for thrombi of the inferior vena cava, namely, collateral circulation, was not observed. The patient came to the hospital with beginning heart failure caused by the tumor in the right auricle, later, the tumor thrombus of the inferior vena cava developed and hastened death. A ball valve action of the huge tumor mass in the right auricle might have caused the sudden death of the patient. The tumor metastasis to the heart was apparently the cause of the cardiovascular symptoms, which were the only complaints of the patient. For this reason, the case represents a pathologic and clinical rarity.

### American J Digestive Diseases and Nutrition, Chicago

1 221 288 (June) 1934

- Results of Treatment Medical and Surgical in Gallbladder Disease from a Clinician's Point of View T R Brown Baltimore —p 221  
Late Manifestations of Amebiasis R W Mendelson Albuquerque N M —p 228  
\*Complement Fixation Test for Amebiasis Preliminary Report E Weiss and L Arnold Chicago —p 231  
Lambliasis Simulating Cholelithiasis Report of Two Instances with Review of Pertinent Facts Relative to the Clinical and Pathologic Significance of Lambliasis in Biliary Tract and in the Bowel M Golob New York —p 233  
\*Brilliant Blue FCF New Dye for Diagnostic Gastro Intestinal Studies Preliminary Report A C Taylor Madison, Wis —p 239  
Occurrence of a Pernicious Anemia Syndrome in the Presence of Normal Gastric Acidity Report of Instance A L Levin New Orleans —p 240  
Influence of Pylorus on Regulation of Acidity of Gastric Secretion W W Lermann and L M Nelson Jr, Pittsburgh —p 245  
Study of Obesity in Outpatient Clinic E C Beck and R S Hubbard Buffalo —p 250  
Incidence and Significance of Disease of Gallbladder and Liver in Pernicious Anemia F H Bethell Ann Arbor Mich and B D Harrington Indianapolis —p 256  
Factors of Error in Roentgenologic Distinction Between Normal and Diseased Stomach and Duodenum B R Kirklin Rochester, Minn —p 260  
Conservative Surgical Treatment of Ulcer of Stomach and Duodenum E S Judd and G W Waldron Rochester Minn —p 262  
Analysis of Results of Biliary Tract Surgery J T Howard Baltimore —p 270

**Complement Fixation Test for Amebiasis**—Weiss and Arnold employed this test in eight cases of acute and nineteen cases of chronic amebiasis, as well as in sixty-one carriers. Blood samples were obtained and the results were later compared with the feces observations and the type and duration of treatment. The results of treatment show that the stool becomes negative before the complement fixing antibodies disappear from the serums. The discrepancies between the feces examinations for parasites and the serologic blood tests are found in the weakly positive group of patients who have been treated and whose feces are becoming negative.



**New Dye for Diagnostic Gastro-Intestinal Studies**—Taylor administered orally or by enema brilliant blue FCF to twenty or more patients presenting a variety of disease conditions. In no case was there any gastro-intestinal or general toxic reaction, although the dose of dye ranged from 300 to 500 mg. If much larger doses were given, a slight diarrhea resulted. When the dye appeared in the formed stool, the line of demarcation was sharp and the disappearance from the stool also was definite though not quite so sharp. With this range of dosage there was no pigmentation of the urine by the dye, thus indicating absence of systemic absorption. The rate of travel through the intestinal tract varied with the patient or the disease, with a normal appearance in the stool in about twenty-four to thirty-six hours and a disappearance in about forty-eight to seventy-two hours. Fecal fistulas from various sites along the gastro-intestinal tract showed the passage of the dye. At the cecum, the dye appeared in from two to five hours, while in the descending colon it appeared in from six to nine hours.

## American J Obstetrics and Gynecology, St Louis

27 793 950 (June) 1934

- Importance of Proper Nomenclature in Puerperal Sepsis A T Lash and E J DeCosta Chicago—p 793
- Calcium Deficiency in Pregnancy and Lactation Clinical Investigation A M Mendenhall and J C Drake Indianapolis—p 800
- Interpretation of Weight Changes During Pregnancy H H Cummings Ann Arbor Mich—p 808
- Mild Symptoms from Rupture of Follicle Cyst or Corpus Luteum J P Pratt, Detroit—p 816
- Krukenberg Tumors of the Ovary J C Mysson Rochester Minn—p 825
- Constitutional Origin of Cerebral Disease in the New Born W R Shannon St Paul—p 830
- Posterior Vaginal Hernia Report of Case W T Black Memphis Tenn—p 837
- Hemoperitoneum Resulting from Hepatic Birth Traumatism G Rogers Chicago—p 841
- \*Parasacral Anesthesia in Obstetrics Beatrice E Tucker and H B W Benaron, Chicago—p 850
- Experimental Studies of Puerperal Infection I Susceptibility of Pregnant Mice to Intraperitoneal Inoculations of Hemolytic Streptococci II Study of Survival of Hemolytic Streptococci in the Vagina of Rabbits During Pregnancy C C Torrance Albany, N Y—p 863
- Id III Effect of Pregnancy on Reserves of Vitamin A in the Liver of Rabbits C C Torrance, Albany, N Y—p 868
- Anatomy and Histology of Placental Circulation P J Kearns, Montreal—p 870
- \*Evaluation of Maternal Nitrogen and Mineral Needs During Embryonic and Infant Development Icie G Macy and Helen A Hunscher, Detroit—p 878
- Observations on One Hundred and One Cases of Placenta Praevia Delivered by Abdominal Cesarean Section I A Siegel Baltimore—p 889
- Neoskiodan in Amniography E L Cornell and J T Case, Chicago—p 894
- Rhabdomyoma of the Hymen Report of Case in a Child A C Edwards, Sheboygan, Wis., and A L Richardson Detroit—p 896
- Röntgenographic Diagnosis of Anencephalus Report of Five Cases T B Weinberg, New York—p 901
- Krukenberg Tumor of the Ovary M V Armstrong and S A Wolfe Brooklyn—p 906
- Prolapsed Uteri Near Term W B Serbin, Chicago—p 910
- Accidental Injection of Utero Ovarian Venous System During Lipiodol Uterosalpniography W A Coventry Duluth Minn—p 912
- Rupture of Uterus Through a Cesarean Scar After Two Normal Deliveries Following a Classic Cesarean Section H W Yates and H J Rezanka, Detroit—p 914
- \*Copper Ionization for the Treatment of Leukorrhea in Virgins D W Tovey New York—p 916
- Sarcoma Arising in an Ovarian Fibroma C G Johnson and S H Wills New Orleans—p 918
- Vaginal Stethoscope for Use in Locating a Placenta in the Lower Uterine Segment C M Turnian Philadelphia—p 919

**Parasacral Anesthesia in Obstetrics**—Tucker and Benaron present the following results obtained with parasacral anesthesia in fifty operative obstetric cases. 1 Parasacral anesthesia is practical for major operative obstetric cases. Relaxation of the uterus occurs for from fifteen to twenty minutes following the injection and in some cases is sufficient for version and extraction, for manual rotation of a posterior head and for the Pinard maneuver in bringing down a foot in single breech. It is of value in breech deliveries, giving marked relaxation of the entire pelvic floor, thus facilitating all the maneuvers for the extraction of the aftercoming arms and head. Episiotomy and perineorrhaphy, Dührssen's incisions and trachelorrhaphy may be painlessly done. Traction pain is abolished, and a difficult application of forceps can be

painlessly performed, with the added advantage of utilizing the mother's auxiliary powers. 2 The engaged head offers no obstacle to the induction of this type of anesthesia. 3 There is no appreciable alteration of blood pressure or pulse rate, and the procedure is unattended by any signs of shock or collapse. 4 The loss of blood in six cases was above normal. 5 The puerperium was in no way affected by the procedure. 6 In two cases there was complete failure of anesthesia, and ether was resorted to. 7 In seven cases it was necessary to complement parasacral anesthesia with local infiltration in order to perform episiotomy and repair painlessly. The authors point out that in a teaching clinic, in which the duration of an operation is prolonged of necessity, this type of anesthesia is more satisfactory than inhalation methods. It is a valuable adjunct to the armamentarium of the obstetrician, especially when an inhalation anesthetic is contraindicated. This type of local anesthesia produces a minimum of shock to the patient and its particular sphere lies in the class of cases requiring a difficult, time consuming operative procedure.

## Evaluation of Maternal Nitrogen and Mineral Needs

—Macy and Hunscher state that evidence from an analysis of various types of quantitative chemical and physiologic data on the nutritive demands of fetal and maternal metabolism indicates that a specific scientific dietary dictum may be advantageous during reproduction in endowing the child with nutritional stability, protecting the maternal tissues from metabolic loss, and providing for a storage to meet all needs of maternity. From an evaluation of maternal nitrogen and mineral needs during embryonic and infant development, it seems advantageous to provide a daily supply of from 70 to 100 Gm of protein, and a minimum of 1.6 Gm of calcium, 2 Gm of phosphorus, 0.3 Gm of magnesium and 20 mg of iron. From available scientific evidence, human lactation requires a greater amount of all food nutrients than does pregnancy. The necessity of fortifying the maternal diet with sufficient amounts of vitamins is indicated.

## Copper Ionization for Treatment of Leukorrhea—

Tovey outlines a method of copper ionization for the treatment of leukorrhea in virgins in which a special speculum is used which consists of a cystoscopic tube with a handle large enough for the patient to hold. A small copper intracervical electrode is inserted up to the internal os. A large indifferent electrode is placed under the back, and from 4 to 10 milliamperes of current is given with the positive pole. After twenty minutes the current is turned off and the negative current is used to release the copper electrode. In case of a pinhole os the tip of the copper electrode is pressed against the external os and the negative current is turned on until the os dilates, after which the current is reversed and copper ionization is given for twenty minutes. In one case of pinhole os with an enlarged dilated cervix, half a drachm of foul, colon-smelling secretion was freed when the os was dilated. The author has treated twenty-five virgins, from 15 to 25 years of age. He considers copper ionization an extremely satisfactory method of treatment. From four to eight treatments are necessary to cure the cervicitis. Treatment is painless.

## American Journal of Physiology, Baltimore

109 1 192 (July 1) 1934

- Tobacco Smoking in Relation to Blood Sugar, Blood Lactic Acid and Metabolism D B Dill, H T Edwards and W H Forbes Boston—p 118
- Production of the Silent Period by the Synchronization of Discharge of Motor Neurons H E Hoff, E C Hoff, P C Bucy and J P Suñer New Haven Conn—p 123
- Mechanism of Gastric Motor Inhibition from Ingested Carbohydrates J P Quigley and K R Phelps Cleveland—p 133
- Economy of Water in Renal Function Referable to Urea J L Camble C F McKhann, A M Butler and E Tutthill Boston—p 139
- Influence of the Pancreas and the Liver on the Dextrose Tolerance Curve S Soskin, M D Allweiss and D J Cohn Chicago—p 155
- Hydrostatic Factor in Venous Pressure Measurements Janet H Clark, D R Hooker and L H Weed Baltimore—p 166
- Corticofugal Pathways Mediating the 'Berührungsreflexe' of Munk and Contact Placing Reactions of Rademal C Marshall New Haven Conn—p 178
- Inhibition as an Accompaniment of the Knee Jerk D B Lindsay Boston—p 181

American Journal of Public Health, New York

24 571 676 (June) 1934

- Organization of Adult Groups for Health Education Mary P Connolly Detroit—p 571  
Transmission Sequence of Syphilis W A Brumfield Jr and D C Smith Charlottesville Va—p 576  
Arsenic Poisoning by Pies C H La Wall and J W E Harrison, Philadelphia—p 581  
\*Immunization of Humans with Alum Precipitated Tetanus Toxoid D H Bergey and S Etris Philadelphia—p 582  
Houston Adopts a Cross Connection Idea Worthy of Note H N Old New Orleans—p 586  
Diphtheria Prevention in Charleston W Va H B Robins, Charleston, W Va—p 588  
Modern Trends in Public Health Administration E L Bishop Nashville Tenn—p 591  
Pathogenicity of Certain Species of Monilia W D Stovall and S B Pessin Madison Wis—p 594  
Vitamin G Deficiency P L Day Little Rock Ark—p 603  
Child's Sleep Effect of Certain Foods and Beverages on Sleep Motility G Giddings Atlanta Ga—p 609  
Relative Values in Tuberculosis Case Finding Work H E Klein Schmidt New York—p 615  
A Plan to Increase Understanding of the Value of Scientific Medicine T J Edmonds Des Moines Iowa—p 619  
Rabies Vaccine Protection Tests J Reichel and J E Schneider Glenolden Pa—p 625  
Early Diagnosis of Primary Syphilis Practical Darkfield Examination by Mail H E Elmer Konigsberg Germany—p 629  
Fever of Typhoid Group in Members of the Civilian Conservation Corps During 1933 G F Lull Washington D C—p 631  
Semiautomatic Delivery Pipet F E Daniels Harrisburg Pa—p 633  
\*Scarlet Fever Toxin Successful Immunizing Agent O B Nesbit and Sue Thompson, Gary Ind—p 634  
High Lights of the Biennial Nurses Convention, Washington D C, April 22 27 1934 Eva F MacDougall, Indianapolis—p 638

Immunization with Alum Precipitated Tetanus Toxoid

—The toxoid that Bergey and Etris employed was prepared from a toxin containing 10,000 minimal lethal doses per cubic centimeter. The toxin was detoxified with 0.4 per cent formaldehyde. The toxoid was precipitated with 2 per cent of potash alum, washed twice with and resuspended in physiologic solution of sodium chloride. Merthiolate was added to make a 1:10,000 dilution. The addition of potash alum to toxoid is believed to retard the rate of absorption and thereby appears to increase the antigenic action, so that it might be used in doses of 1 cc. The study of the antigenic effect of a single dose of alum precipitated tetanus toxoid was started on thirty-three adults and on a boy 10 years of age. None of the specimens of normal blood showed the presence of measurable amounts of antitoxin. Immediately after withdrawal of the blood each person received an injection of 1 cc of the alum precipitated tetanus toxoid by deep subcutaneous injection. The serums of eight of the thirty-four persons that had received the alum precipitated tetanus toxoid from twenty-five to forty-two days earlier were tested for antitoxic content, and four, who were within the age group of from 20 to 30 years showed from  $\frac{1}{4}$  000 to  $\frac{1}{4}$  000 unit of antitoxin per cubic centimeter. The other four showed only traces of antitoxin. The four that showed measurable amounts of antitoxin had received the dose of antitoxin only twenty-five days prior to the tests. The serums of two individuals, who were more than 50 years of age, when tested sixty-eight days after treatment with tetanus toxoid showed only a trace of antitoxin. The authors state that since guinea-pigs receiving a dose of 1 cc of the alum precipitated tetanus toxoid developed as much as one half unit of antitoxin in 1 cc of serum in eight weeks, it is believed that human beings after an injection of a dose of 1 cc will show at least  $\frac{1}{2}$  000 unit of antitoxin in from six to eight months. The development of tetanus antitoxin in the blood of persons is slow and requires several months before appreciable amounts of antitoxin can be detected. Tetanus toxoid should not be used for therapeutic purposes. It should not be injected into a nonimmune person at the time of receiving an injury. Persons actively immunized with tetanus toxoid when injured should receive another dose of tetanus toxoid while persons who are not actively immunized should receive a dose of tetanus antitoxin. In such an individual active immunization may be carried out by giving a dose of tetanus toxoid about two weeks after the receipt of a dose of tetanus antitoxin following an injury. The points of special importance in the use of alum precipitated tetanus toxoid are the induction of an active immunity in from three to six months, the absence of either local or general reaction from

the dose of alum toxoid except slight local reaction in occasional persons who are highly sensitive to the proteins contained in culture mediums, and the absence of danger of sensitizing the individual to horse serum proteins such as may occur from repeated prophylactic doses of tetanus antitoxin when used for prophylaxis following injuries.

**Scarlet Fever Toxin Successful Immunizing Agent** — After giving 49,165 doses of scarlet fever toxin, 20,278 primary Dick tests and 12,713 Dick retests in the Gary schools, Nesbit and Thompson found that scarlet fever immunization as recommended for use by the scarlet fever committee is a safe procedure and that it is a valuable asset to a community as a prophylactic measure. During the eight years preceding 1925, when the school census varied from 9,811 to 18,438, there were twenty six deaths from scarlet fever among 1,241 cases reported. In the following eight years, up to the present time, since immunization has been carried on, the school census has varied from 20,472 to 28,032, and there have been 1,147 cases with thirteen deaths. In giving Dick tests it is important that exactly 0.1 cc of test material is injected intradermally, that the potency of the material is checked and that the tests are read from twenty-two to twenty-four hours later in clear daylight. If there is a question as to whether the test is negative or positive, it should be considered positive. Some severe but no serious reactions have resulted from the 49,165 doses of scarlet fever toxin. Of 114 who began doses, 107 finished, indicating the infrequency of severe reactions to doses. During the past year 2,055 primary Dick tests were given of which 762, or 35 per cent, were negative. Of 368 who were given the usual five doses and given a Dick retest two weeks later, 788 or 91 per cent, were negative. During the past year 171 persons were retested who had had the usual five doses five or more years previously and 139, or 81 per cent, remained negative. Of the 18,980, the total number of primary Dick tests read during nine years, 46 per cent have been negative. Among a group estimated at 10,000 who have completed scarlet fever toxin doses, there have been only nine persons who had a negative retest who have later been reported with scarlet fever.

American Review of Tuberculosis, New York

30 1 122 (July) 1934

- Incidence of Tuberculous Infection Among Children in New York City Survey of Fourteen Thousand Six Hundred and Ninety Nine Children Tuberculin Tested in Hospitals or Attending Clinics Three Year Period 1930 1932 G J Drolet New York—p 1  
Lymphatic Reaction in Tuberculosis B K Wiseman and C A Doan Columbus Ohio—p 33  
\*Role of Atelectasis in Pulmonary Tuberculosis B P Stivelman New York—p 60  
Abdominal Conditions Influencing the Lungs and Pleural Pressure in Pulmonary Tuberculosis B Gordon White Haven Pa—p 72  
Ambulatory Artificial Pneumothorax in the Treatment of Tuberculosis in the Negro J W Cutler, W H Rodgers and I B Cipps Philadelphia—p 80  
Air Embolism Complicating Artificial Pneumothorax Case with Autopsy T McCurdy Omaha—p 88  
\*Tuberculous Bacilluria Experimental Study with Acid Fast Bacteria of Low Pathogenicity L G Montgomery and R B Allen Rochester, Minn—p 92  
Frequency of Tubercle Bacillema by Loewenstein's Method W I Petersen and I H Lederman, Chicago—p 103  
Study of Incidence of Pulmonary Tuberculosis H H Fellows New York—p 109

**Atelectasis in Pulmonary Tuberculosis** — Stivelman states that acute massive atelectasis is rarely observed in pulmonary tuberculosis but that it may occur when a large bronchus is plugged as a result of hemoptysis. Chronic massive atelectasis in phthisis is frequently confused with extensive unilateral pleuropulmonary fibrosis. Cases may run a benign course, but, when dyspnea develops as a result of extensive mediastinal deflection may be effectively treated with artificial pneumothorax. Confluent lobular atelectasis occurs frequently and early in the course of phthisis. It encourages local fibrosis by producing a local tissue respiratory deficiency. Tubercle bacilli, being strict aerobes are markedly attenuated when they are deprived of an adequate amount of oxygen. Lobular atelectasis by impairing the local circulation materially diminishes the available oxygen supply in the area involved, and so adversely affects the growth of the tubercle bacilli. All forms of atelectasis are to be seen in lungs treated with artificial pneumothorax. This accounts for the rapid fibrosis of lesions

under collapse therapy. The collapse of cavities in negative-pressure pneumothoraces is brought about by the absorption of the air they contain following the kinking of their draining bronchi. The high negative pressure thus created within them forces an approximation of their walls. When this is accomplished, healing of the cavity may continue uninterruptedly if further collapse is judiciously maintained.

**Experimental Tuberculous Bacilluria**—Montgomery and Allen performed a series of experiments for the purpose of demonstrating whether it was possible to bring about passage of acid-fast bacteria through the normal kidney. Guinea-pigs were given intravenous injections of a heavy suspension of *Mycobacterium avium*, and rabbits were similarly given injections of a heavy suspension of *Mycobacterium phlei*. The urine of these animals was collected by catheterization and examined microscopically, and cultures were taken by appropriate means for the demonstration of acid-fast bacteria. Cultures of organisms similar to those injected were obtained from the urine of guinea-pigs and one rabbit. Two similar experiments were performed, except that the number of bacteria was doubled in an attempt to obtain more striking results. The results were negative in the case of the rabbits, but 82 per cent of the cultures made from the urine of the guinea-pigs were productive of bacterial growth. A fifth experiment was carried out on guinea-pigs in which the urine was collected by aspiration of the bladder at necropsy. A further change was made by introducing a group of guinea-pigs in which *Mycobacterium phlei* was used in place of *Mycobacterium avium*. Positive cultures were not obtained in this experiment. Consequently the positive results of the first experiments were due to contamination of the urine by blood elements that had been liberated through abrasions caused by the introduction of the catheter. The authors conclude that the normal kidney of the rabbit and the guinea-pig is not permeable to the acid-fast organisms used in this investigation, even in the presence of marked and continued bacilluria.

### Archives of Internal Medicine, Chicago

54 1160 (July) 1934

- Medical Social Aspects in Practice G R Minot Boston—p 1  
 Etiology of Hodgkin's Disease II Skin Reaction to Avian and Human Tuberculin Proteins in Hodgkin's Disease P E Steiner Chicago—p 11  
 Chronic Suprarenal Insufficiency M Packard and H F Wechsler, New York—p 18  
 \*Chronic Arthritis Serologic and Clinical Studies Katharine E Cox and D F Hill Tucson Ariz—p 27  
 Action of Diuretic Drugs I Action of Diuretics in Normal Persons H L Blumgart Dorothy Rourke Gilligan R C Levy, M G Brown and Marie C Volk Boston—p 40  
 Jerusalem Artichoke in Treatment of Diabetes L K Campbell, Chicago—p 82  
 Phosphatase Studies III Serum Phosphatase in Disease of Bone Interpretation and Significance A Bodansky and H L Jaffe New York—p 88  
 Further Observations on Effect of Drugs on Induced Cardiac Standstill Effect of Epinephrine and Related Compounds M H Nathanson, Minneapolis—p 111  
 Morphologic Varieties of Bronchiectasis in the Adult Their Probable Pathogenesis and Clinical Differentiation R A Bendove and B S Gershwin New York—p 131  
 \*Osteomalacia Necropsy Observations in Man F D Gunn and W H Nadler, Chicago—p 145

**Chronic Arthritis**—According to Cox and Hill, Cecil's hemolytic streptococcus AB 13 shows a greater serologic selectivity for atrophic arthritis than for any other disease group studied, as evidenced by the percentage of positive reactions in high agglutinin titer. The proportion of serums of patients having atrophic arthritis which contain agglutinins in high titer for AB 13 cannot be accounted for on the basis of (1) previous artificial immunization or (2) previous or concomitant streptococcal infections. No other organism employed in this work was as selective as AB 13 for serums from patients with atrophic arthritis either in the height of the serum titer or in the frequency of positive agglutinin reactions. No correlation was found between agglutinin titers and cutaneous reactions to vaccine of homologous organisms in the patients with atrophic arthritis. Often within a short time a striking unexplained variation of agglutinin titers, not accounted for by clinical developments, occurs in patients untreated by vaccine. In this study there was no regularity in the changes in the

agglutinin titer as a result of vaccine therapy. There is no apparent relationship between the variation in agglutinin titer and the clinical course. A few patients seemed to be benefited by desensitization with vaccine. The improvement in other patients who received vaccine therapy may have been due to other factors impossible to control. The AB 13 agglutinin titer has a definite but limited use as a diagnostic aid in arthritis.

**Necropsy Observations in Osteomalacia**—Gunn and Nadler present the observations of necropsy in a typical case of osteomalacia in a man. Besides the typical skeletal deformities, the pathologic changes of special interest were hypertrophy and hyperplasia of the parathyroids, slight hypertrophy of the anterior lobe of the hypophysis and numerous small calcareous deposits in the kidneys. Only two parathyroids could be found. These were equally enlarged and presented microscopic evidence of mild hyperplasia interpreted as a compensatory condition caused by increased physiologic activity.

### Arch of Physical Therapy, X-Ray, Radium, Chicago

15 321 384 (June) 1934

- \* Grenz Ray Therapy in Dermatology M Dorne and E P Zeisler, Chicago—p 325  
 Management of Neoplastic Lesions of Accessory Sinuses and the Orbit W L Clark Philadelphia—p 333  
 Malignant Epithelioma of the Neck E N Kime Indianapolis—p 339  
 Malignancy About the Head Radiation or Electrosurgery? T C Grilloy Evanston Ill—p 343  
 Cancer of the Tongue W H Schmidt Philadelphia—p 346  
 New Type of Water Cooled Quartz Ultraviolet Applicator for Official Use C W Symonds Pasadena Calif—p 352  
 Paraffin Treatment of Chronic Arthritis with Especial Reference to Improved Type of Equipment B L Wyatt Tucson Ariz—p 353  
 Ultra Short Wavelength Roentgen Rays Problems in Therapeutic Use H Schmitz and H E Schmitz Chicago—p 356  
 Physical Measurements of Ultraviolet Radiation C E Greider, Cleveland—p 360  
 Balneotherapy in Circulatory Disorders W S McClellan, Saratoga Springs N Y—p 366

**Borderline Ray Therapy in Dermatology**—Dorne and Zeisler found borderline rays superior to x-rays in certain superficial mycotic infections, in localized and disseminated neurodermatitis and in lichenified eczemas. They are also of value in superficial basal cell epitheliomas, especially of the eyelid, in nevus flammeus, in some keratoses and occasionally in senile warts. In a miscellaneous variety of other inflammatory dermatoses the effect of borderline rays is probably equal to that of roentgen rays. In many of the commoner dermatoses occurring about the face, such as acne vulgaris, rosacea, seborrhea and sycosis, the therapeutic effect of the borderline ray is unsatisfactory and it is not considered the method of choice. Conservatism in dosage is recommended. On the basis of their observations the authors do not feel justified in concluding that borderline rays will supplant x-rays in dermatology.

### Colorado Medicine, Denver

31 221 258 (July) 1934

- Tuberculin Test Its Value and Limitations in Diagnosis of Childhood Tuberculosis H J Corper Denver—p 225  
 Cardiovascular Observations in Two Hundred and Fifteen Neurosyphilitics C T Burnett and C A Rymer Denver—p 230  
 Coronary Thrombosis Acute Indigestion of Coronary Thrombosis and Electrocardiograph M Katzman Denver—p 233  
 Surgical Treatment of Adhesive Pericarditis Report of Case J M Foster Jr and D Prey Denver—p 244

### Illinois Medical Journal, Chicago

66 1100 (July) 1934

- Medical Economics Philadelphia Plan Results Accomplished Medical Relief Under F E R A and C W A. F. A. Fought, Philadelphia—p 67  
 Bacteriologic Investigation of Arthritic and Preparation of an Auto-genous Vaccine L J Murphy Chicago—p 77  
 Bleeding from the Bowel P W Brown Rochester Minn—p 79  
 Spinal Anesthesia Experimental Study A M Winograd and H H Rosenbloom Chicago—p 82  
 Recticular Cell Sarcoma of Kidney Case Report R F Elmer and C E Boylan Chicago—p 83  
 Action of Dekamethylendiguandine Bitartrate on Blood Sugar B L Monias Chicago—p 87  
 Blood Calcium Laboratory Study of Relationship Between Total Calcium Diffusible Calcium and Inorganic Phosphorus A A Jan son Evanston—p 91  
 Removal of Huge Bladder Stone Under Spinal (Neocaine) Anesthesia with Recovery A F Barnett Menard—p 95

## Journal of Clinical Investigation, New York

13 517 724 (July) 1934

- Passage of Native Proteins Through the Normal Gastro Intestinal Wall  
B Ratner and H L Gruehl New York—p 517
- \*Studies in Congestive Heart Failure XVII Method for Obtaining  
Mixed Venous Blood by Arterial Puncture B Friedman G  
Clark and T R Harrison, Nashville Tenn—p 533
- \*Relationship Between Blood Cholesterol and Increased Metabolism from  
Dinitrophenol and Thyroid W C Cutting D A Ryland and M L  
Tainter San Francisco—p 547
- Physiologic Disturbances During Experimental Diphtheritic Intoxication  
IV Blood Electrolyte and Hemoglobin Concentrations D C Darrow,  
H Yarnet and M Katharine Cary New Haven Conn—p 553
- Studies of the Heart and Circulation in Disease Estimations of Basal  
Cardiac Output Metabolism, Heart Size and Blood Pressure in Two  
Hundred and Thirty Five Subjects I Starr Jr J S Donal A  
Margolies R Shaw L H Collins and C J Gamble Philadelphia  
—p 561
- Radiation of Heat from the Human Body I Instrument for Measur-  
ing Radiation and Surface Temperature of the Skin J D Hardy  
New York—p 593
- Id II Comparison of Some Methods of Measurement J D Hardy,  
New York—p 605
- Id III The Human Skin and a Black Body Radiator J D Hardy  
New York—p 615
- Relation of Circulating Antipneumococcal Immune Substances to the  
Course of Lobar Pneumonia I Natural Immune Substances O H  
Robertson, J B Graesser, I T Coggeshall and M Agnes Harrison  
Chicago—p 621
- Id II Acquired Immune Substances O H Robertson J B Graesser  
L T Coggeshall and M Agnes Harrison Chicago—p 633
- Id III Injected Immune Substances (Antipneumococcus Serum Types  
I and II) O H Robertson J B Graesser L T Coggeshall Chi-  
cago and R H P Sia Peiping China—p 649
- Relation of Variations in Mean Corpuscular Volume to Number of  
Reticulocytes in Pernicious Anemia Significance of Increased Bone  
Marrow Activity in Determining the Mean Size of Red Corpuscles  
M M Wintrobe Baltimore—p 669
- \*Diagnostic Importance of the Heterophile Antibody Test in Leukemia  
A Bernstein Baltimore—p 677

**Method for Obtaining Mixed Venous Blood by Arterial Puncture**—Friedman and his associates describe a modification of the method of Burwell and Robinson for determining the gas contents of "mixed" venous blood. The procedure depends on obtaining blood from a peripheral artery while the subject breathes a gas mixture which has been equilibrated with his venous blood by previous repeated rebreathings. The several procedures involved in the method have been checked by various experiments. Application of the method to dogs has demonstrated that the values found for the blood gases by this indirect method are in close agreement with the gas contents of blood obtained by puncture of the right ventricle. The presence in the lungs of sufficient fluid to produce well marked arterial anoxemia does not invalidate the results. The method involves considerable discomfort to the subject. Its agreement with the modified acetylene procedure constitutes additional evidence as to the validity of the latter in subjects with cardiac disease.

**Blood Cholesterol and Increased Metabolism from Dinitrophenol and Thyroid**—Cutting and his co-workers establish a significant correlation between the basal metabolic rate and the blood cholesterol concentration for human subjects. This correlation was not present when the metabolism was raised by dinitrophenol. Therefore the changes in blood cholesterol present in thyroid disease are not related directly to the metabolic rate but to other actions of thyroid secretion. The stimulation of metabolism by dinitrophenol was as great in patients with initial metabolic rates below 15 per cent as it was in those with higher rates which indicates that the drug may increase depressed as well as normal metabolism.

**Heterophile Antibody Test in Leukemia**—Bernstein found that heterophile agglutinins in the blood serums of twenty one patients having leukemia were confined to low titers less than 1 to 4 in twenty instances. In most of the conditions simulating leukemia, heterophile agglutinins were found over a wider distribution of titers up to 1 to 16. The author presents two clinical histories as examples of instances in which this differential point was of assistance in arriving at a diagnosis. Intravenous administration of horse serum which in a normal person elicits an increase in the concentration of heterophile antibodies, failed in one case of lymphoid leukemia to raise the heterophile antibody titer. In a second case of probable leukosarcoma, horse serum brought about a minimal increase of sheep cell agglutinins. Neither of these patients developed

serum disease. The restriction of heterophile antibody concentrations in leukemia to low titers is in accord with previously known immunologic characteristics of persons having the disease.

## Journal of Immunology, Baltimore

26 437 522 (June) 1934

- Inheritance of Diphtheria Immunity in Ducks D T Fraser T H  
Jukes H D Branion and K C Halpern Toronto—p 437
- Sensitization of Bacteria with Normal and Immune Human Serum  
S Mudd Philadelphia—p 447
- Relation of Serum Protein Fractions to Serum Sickness in Rabbits  
L Jones and M S Fleisher St Louis—p 455
- Existence of Antigenic Determinants of Diverse Specificity in a Single  
Protein II In Two Natural Proteins Crystalline Duck Egg Albumin  
and Crystalline Hen Egg Albumin S B Hooker and W C Boyd  
Boston—p 469
- Absorption Spectra of the Carbohydrates of the Pneumococcus Pre-  
liminary Note A Wadsworth, M O L Crowe and L A Smith  
Albany N Y—p 481
- Group Specificity of Dried Muscle and Saliva W C Boyd and L G  
Boyd Boston—p 489
- Reaction Between Crystalline Urease and Anturease J S Kirk and  
J B Sumner Ithaca N Y—p 495
- \*Concerning Vaccination of Monkeys Against Acute Anterior Polio-  
myelitis with Especial Reference to Oral Immunization J A Kolmer  
and Anna M Rule Philadelphia—p 505

**Vaccination Against Acute Anterior Poliomyelitis**—Kolmer and Rule found that a chloroform treated vaccine of monkey poliomyelitic spinal cord in a total dosage of 1 cc by subcutaneous and intracutaneous injection failed to immunize two monkeys against intracerebral inoculations of virus. A sodium ricinoleated vaccine appeared to produce slight immunity in one monkey by subcutaneous injection while intracutaneous injections immunized two additional animals in a more convincing manner. An untreated vaccine by intracutaneous injection immunized one animal successfully but failed to protect two animals when administered by stomach tube. A heated vaccine failed to immunize five monkeys when administered subcutaneously, intracutaneously and by stomach tube.

## Journal of Pharmacology &amp; Exper Therap, Baltimore

51 263 370 (July) 1934

- Proof of Existence of a Follicle Stimulating and Luteinizing Hormone  
in Anterior Lobe of Pituitary Body Zonja Wallen Lawrence  
Chicago—p 263
- \*Cardiac Irregularities Produced by Ephedrine and Protective Action of  
Sodium Barbitol W J Meek and M H Seevers Madison, Wis—  
p 287
- Action of Morphine Papaverine Atropine Pilocarpine Pituitrin Pitocin  
and Pitressin on Intestinal Propulsive Activity Determined in Unan-  
esthetized Dog by Bolus Method J P Quigley W H Highstone and  
A C Ivy Cleveland—p 308
- Pigeon Emesis and Drug Action C C Lieb and M G Mulinos New  
York—p 321
- Respiratory Effects of Morphine Codeine and Related Substances  
I Effect of Codeine Isocodeine Allopseudocodeine and Pseudocodeine  
on Respiration of Rabbit C I Wright Ann Arbor Mich—p 327
- Id II Effect of Dihydrocodeine Dihydroisocodeine Dihydroallo-  
pseudocodeine and Dihydropseudocodeine C I Wright Ann Arbor,  
Mich—p 343
- \*Histologic Study of Action of Estrin in Terminating Pregnancy F E  
D Amour and R G Gustavson Denver—p 353
- Use of Pigeons in Estimation of Digitalis Potency H B Haag and  
J D Woodley, Richmond Va—p 360

**Cardiac Irregularities Produced by Ephedrine**—Meek and Seevers recorded the effect of ephedrine on cardiac rhythm by the electrocardiograph after intravenous injection of the drug into intact dogs. Doses of from 0.5 to 8 mg per kilogram of weight produce almost at once a stage of marked bradycardia. This more or less quickly merges into a second stage characterized by ectopic extrasystoles and slow ectopic rhythms. These two stages are believed to be largely the result of reflex vagal stimulation from the high blood pressure. The first is a direct inhibition of the normal pacemaker. The second consists of escape phenomena from the lower automatic centers. Coincident with the escape phenomena there is developing a third stage of excitation. This is shown by the slow rhythms occasionally passing into tachycardias. If ephedrine is given after atropine the reflex effects are eliminated and the stage of stimulation is reached almost at once, tachycardias being observed in almost every experiment. Ephedrine also affects cardiac conduction. In the second stage there are various types of block due to reflex vagal stimulation. In the third stage of excitation bundle-branch block and disturbed ventricular

conduction are probably caused by the opening up of abnormal pathways. Doses of from 6 to 20 mg of ephedrine per kilogram of weight begin to show a fourth stage of depression. As the amount injected is raised above 20 mg, paralysis of the upper automatic centers begins to occur and the ventricle may pass into fibrillation. After from 125 to 200 mg of sodium barbital per kilogram of weight there is a high degree of protection against the cardiac effects of ephedrine. Since barbital somewhat increases the normal heart rate but slows it after atropine, it is believed the protection is brought about by a certain degree of vagal paralysis and a simultaneous depression of the automatic centers.

**Action of Estrin in Terminating Pregnancy**—The histologic study of D'Amour and Gustavson of the action of estrin administration during the course of pregnancy indicates that 1 In preimplantation stages, the uterus, when exposed to an adequate dose of estrin, has a hyperplastic mucous membrane, considerably fibrosed, and the secretion in its lumen has practically no coagulable material in it, resembling rather the secretion that dilates the uterus at estrus. 2 Pregnancy in postimplantation stages is terminated by killing the embryo, without necessarily involving any morphologic changes except the absence of the characteristic edema of pregnancy.

### Journal of Urology, Baltimore

32 1130 (July) 1934

- Renal Tuberculosis as a Local Manifestation of General Tuberculosis H G Bugbee New York—p 1
- \*Roentgenologic Diagnosis of Perinephric Abscess J H Shane and M Harris Rochester Minn—p 19
- Nephrectomy for Malignant Disease of Kidney Suppression of Urine and Death Following Massive Doses of X Rays F R Hagner and S R Coleman Washington D C—p 27
- Consideration of Development of Polycystic Kidney C M McKenna and O F Kampmeier Chicago—p 37
- Occurrence of Metastatic Malignant Disease of Kidney J D Barney and E R Mintz Boston—p 45
- Adjustable Renal Forceps B E Ellis Hubbard Woods Ill—p 53
- Intravenous Urography in Infants and Children Observations in Three Hundred and Four Cases Meredith F Campbell New York—p 55
- Sarcoma of the Prostate Report of Two Cases J B Gilbert Schenectady N Y—p 63
- Lymphosarcoma of the Prostate Case Report D L Dial Lancaster, Pa—p 79
- An Operating Dilatocysto Urethroscope for Use in Female Urethra R L Dourmashkin New York—p 85
- Large Urethral Calculi Case Report W N Taylor Columbus Ohio—p 93
- Fibrosarcoma of Male Urethra O T Bailey Albany, N Y—p 103
- Urinary Reabsorption from the Urinary Tract of Alkaline Fed Rats T Fuchs Vienna—p 115
- Primary Myxoma of Scrotum J G Menville New York—p 125

**Roentgenologic Diagnosis of Perinephric Abscess**—Shane and Harris conclude that the roentgenographic signs of perinephric abscess must be considered as a valuable adjunct in the diagnosis. The shadow of the psoas muscle was obliterated to some extent in all cases. Some abnormality of the renal shadow was found in thirty-three cases, scoliosis was observed in eighteen cases and elevation of the diaphragm was found in eight of the thirty-two cases in which roentgenologic examination of the thorax was performed. In twenty-two cases an associated pathologic condition was found at operation, stones being present in seventeen. The frequency with which obliteration of the shadow of the psoas muscle occurs on one or both sides, and the frequency with which some degree of scoliosis is found in the course of routine roentgenography, diminish to some extent the clinical value of these data. For instance, the shadow of the psoas muscle was obliterated on one side in 10 per cent of cases and on both sides in 3 per cent. Definite scoliosis was present in 3 per cent, but there were several other films in which it occurred. The roentgenograms were studied in a series of fifty cases of renal calculi, and obliteration of the psoas muscle, or scoliosis was found to some extent in more than 30 per cent of these cases. The roentgenologic signs of perinephric abscess, especially obliteration of the shadow of the psoas muscle or scoliosis, do not necessarily indicate the existence of perinephric abscess and therefore cannot be regarded as pathognomonic. They have a relative importance, however, when considered in conjunction with the clinical manifestations of the disease, that is increased when coincident scoliosis and obliteration of the psoas muscle are observed.

### Medical Annals of District of Columbia, Washington

3 185 210 (July) 1934

- Diagnosis and Treatment of Female Sterility J Kotz Washington—p 185
- Peripheral Neuritis W Freeman Washington—p 190
- \*Treatment of Urinary Infections by Ketogenic Diet W D Goodman, Washington—p 195
- Septic Abortion, Complicated by Bilateral Lobar Pneumonia Retroperitoneal Abscess and Femoral Thrombophlebitis Report of Case with Recovery H Hertzberg, Washington—p 198

**Treatment of Urinary Infections by Ketogenic Diet**—Goodman points out that the ketogenic diet is indicated in initial or recurrent acute pyelonephritis or cystitis without acute obstruction, chronic urinary infection without demonstrable gross pathologic changes, chronic urinary infection associated with pathologic change demonstrable by roentgenography, urography or cystoscopy, urinary infection following operations, preliminary preparation for certain urologic operations, urinary infection following instrumentation such as the passing of catheters, sounds or cystoscopes and in urinary infection following gonorrhea, in the presence of inoperable neoplasms and in the presence of anomalies. The author obtained satisfactory results in twenty-two of thirty patients receiving the diet, five of which were outstanding cures. (1) chronic pyelonephritis, cystitis and prostatitis, (2) polycystic kidneys, (3) cystitis, prostatitis and chronic epididymitis, (4) chronic gonorrhea with prostatitis and (5) prostatitis with residual urine of 180 cc. Local treatments must be given for foci of infection. Vitamins are added to prevent metabolic disturbances. Should ketosis be too severe, alkalis and a small amount of orange juice or tomato juice should be given. Thin, cadaveric patients do not tolerate the diet. Patients on the diet lose from 4 to 10 pounds (1.8 to 4.5 Kg).

### Nebraska State Medical Journal, Lincoln

19 241 280 (July) 1934

- Status of Irradiation in Living Tissue E W Rowe Lincoln—p 241
- Traumatic Neurosis G Neubaus Omaha—p 248
- Classification of Anemias E B Reed Lincoln—p 253
- Fibromyomas of the Vaginal Wall A F Tyler Omaha—p 257
- Tumor of the Pinar Body Case Report L Ragan Seward—p 258

### New England Journal of Medicine, Boston

210 1355 1406 (June 28) 1934

- \*Treatment of Hydrocephalus by Endoscopic Coagulation of the Choroid Plexus Description of New Instrument and Preliminary Report of Results T J Putnam Boston—p 1373
- Acute Pancreatic Necrosis in Acute and Chronic Alcoholism W K Myers and C S Keefer Boston—p 1376
- Arsenic Poisoning J G Downing Boston—p 1380
- Malpractice Suits Their Cause and Prevention H G Stetson and J E Moran Greenfield Mass—p 1381
- Backward Displacement After Ankle Fracture Corrective Operations F J Cotton and G M Morrison Boston—p 1386

**Treatment of Hydrocephalus by Endoscopic Coagulation of the Choroid Plexus**—Putnam describes an endoscopic instrument with which it is possible to destroy the choroid plexuses within the lateral ventricles by means of electrical coagulation without removal of spinal fluid. He employed the procedure in seven cases of communicating hydrocephalus in infants and one of meningocele without hydrocephalus, relieving the bulging of the fontanels and decreasing the diameter of the head in all cases except one. There have been two deaths, which were due to intercurrent diseases and possibly are not to be attributed to the operation. The intra-cranial pressure was relieved up to the time of death in the two fatal cases.

211 1 48 (July 5) 1934

- Menace of Diabetic Gangrene E P Joslin Boston—p 16
- Liver Abscess Review of Eighty Five Cases C S Keefer Boston—p 21
- \*Endometrioma of Bartholin's Gland C J Duncan Boston—p 24
- Certain Factors Influencing the Mortality of Sanatorium Treated Cases of Pulmonary Tuberculosis A D Langmuir New York S L Williams Montreal and A S Pope, Boston—p 26
- Uterine Bleeding from a Needle in Uterine Cervix H F Day Boston—p 29
- Fibula Resection in Certain Ankle Deformities F J Cotton and G M Morrison, Boston—p 31

**Endometrioma of Bartholin's Gland**—Duncan presents what he believes to be the first case of endometrioma of the gland of Bartholin. The patient complained of a hard, painful mass on the left side of the vulva, which had been trouble some for the past year and a half. The pain became worse

periodically at the time of each menstruation and decreased after the flow stopped. Four years before the present admission she had an acute inflammation of the gland of Bartholin, at which time the gland was incised and drained. The day following operation she began to menstruate. On examination a firm bluish nodule, 2 cm in diameter, was found at the site of the left gland. The nodule was not tender and could be moved about freely in the tissues of the labium. A diagnosis of endometriosis was made. The tumor was removed and on section presented the typical picture of endometriosis, photomicrographically. It seems tenable that following the incision and drainage menstrual blood containing living endometrial cells penetrated the site of the gland and produced the tumor.

### New Orleans Medical and Surgical Journal

87 172 (July) 1934

- Prevention of Cancer J A Lanford New Orleans—p 1  
Neglected Conditions of the Eye Ear Nose and Throat H L Arnold Meridian, Miss—p 4  
Hoarseness Its Significance Motion Picture Demonstration F E LeJeune New Orleans—p 5  
Some Menstrual Problems of the Growing Girl L A LeDoux New Orleans—p 9  
Epilepsy and Its Treatment C S Holbrook New Orleans—p 13  
Physiologic Preventive Medicine A Eustis New Orleans—p 17  
\*Complete Prolapsed Rectum Treated by Office Method J W Warren, New Orleans—p 19  
Etiology and Pathology of Appendicitis A V Friedrichs New Orleans—p 20  
Acute Appendicitis Between the Extremes of Life with Analysis of Nine Hundred and Ten Cases U Maes F F Boyce and Elizabeth M McFetridge New Orleans—p 24  
Cecostomy in Treatment of Ruptured Appendix and Peritonitis C W Mattingly, New Orleans—p 31  
Conservative Treatment of Appendiceal Peritonitis A Ochsner New Orleans—p 32  
Breast Tumors as Related to the Anterior Pituitary Gland A L Culpepper New Orleans—p 39

**Treatment of Prolapsed Rectum**—Warren presents two cases of complete prolapse of the rectum in children, in which there has been no recurrence in three years. The following technic was used. Beginning at the apex of the protrusion a dental needle is plunged through the mucosa into the muscular coat of the protrusion and an injection of 4 or 5 minims (0.25 or 0.3 cc) of a solution of 4 per cent quinine and urea in 0.5 per cent solution of procaine hydrochloride is made. The needle is withdrawn, moved to the right half an inch, inserted again and the injection is made. This is repeated at one-half inch intervals until a complete circle has been made. Then one half inch away a new circle is started, the punctures staggered so that they will not be in a straight line. The circles of punctures are continued at one-half inch spaces until the anal margin has been reached. With the patient in the knee chest posture the mass is replaced. A heavy gauze pack is placed in the rectum, 8 or 10 inches of a 3 or 4 inch gauze bandage, being used with 1 or 2 inches of gauze protruding from the rectum to facilitate removal. The patient is then given one-fourth grain (0.016 Gm) of morphine and put to bed for from twenty-four to thirty-six hours and given a liquid diet. At the end of that time an ounce of petrolatum is injected into the rectum with a glaseptic syringe and by gentle traction the gauze can be removed with almost no inconvenience to the patient. Nothing more is needed except to keep the patient in bed another twenty-four hours on a liquid diet.

### Northwest Medicine, Seattle

33 225 262 (July) 1934

- Ulcer in Different Situations Within the Stomach Clinical Study A B Rivers Rochester Minn and J M Bowers Seattle—p 225  
Postoperative Peptic Ulcers M E Steinberg Portland Ore—p 231  
Value of Methylene Blue as an Aid in Localization of Perforated Peptic Ulcers O M Nisbet Portland Ore—p 238  
Surgical Progress in 1933 R D Forbes Seattle—p 239  
Enlargement of Spleen Diagnosis of Conditions Presenting S P Lucia San Francisco—p 244  
Peptone Broth in Treatment of Ruptured Appendix with Peritonitis H Feagles Chehalis Wash C G Bain Centralia Wash and M J Gregg Chehalis Wash—p 249  
Diphtheria in Oregon F D Stricker Portland Ore—p 250  
Brain Tumors Diagnosis and Operability A W Adson Rochester Minn—p 254

**Methylene Blue in Localization of Perforated Peptic Ulcers**—Nisbet recommends methylene blue in abdominal emergencies in which a perforated peptic ulcer is suspected. The operating time is definitely shortened. There should be

less manipulation of the viscera if the distribution of the dye is observed. The dye is of definite value in a differential diagnosis. The diameter of the perforation is easily determined and, when the perforation is sealed by a plastic exudate, the stain shows the site of the original lesion and also whether or not further plastic surgery is required. During the last five years the author has had seventeen cases of perforation. In some the diagnosis was obscured by the inability of the patient to give an accurate history.

**Peptone Broth in Treatment of Ruptured Appendix**—Feagles and his associates have used isotonic peptone broth in the treatment of eight cases of ruptured appendix with peritonitis and one case of amputation, with apparent benefit. At present their procedure is to pour in about 100 cc of the broth before inserting a fenestrated split rubber tube drain and closing. On each subsequent day from 5 to 10 cc of the broth is injected into the drainage tube. The pus is examined at the time of operation and every day thereafter for organisms. The organisms disappeared from the discharge on the fourth to the sixth day. The temperature and the pulse were down to normal on the third to the fifth day. The drainage tube was shortened and out as a rule by the fifth day. Hospitalization time was much reduced and apparently complications were less frequent.

### Rhode Island Medical Journal, Providence

17 107 124 (July) 1934

- Present Crisis in Medicine C S Christie West Warwick—p 107  
Complete Heart Block in Young People C B Leech Providence—p 112

### Southern Medical Journal, Birmingham, Ala

27 569 666 (July) 1934 Partial Index

- Roentgen Ray Studies of Mediastinal Tumors C H Peterson Roanoke, Va—p 569  
Multiple Polyps of the Colon F W Rankin Lexington Ky—p 574  
\*Intrathoracic Changes in Tularemia A Blumberg and R L Russell Oteen, N C—p 578  
Osteomyelitis W H Goodwin, University Va—p 583  
Treatment of Prostatic Cancer W C Stirling Washington D C—p 490  
Krukenberg Tumor of the Ovary Report of Three Cases C J Andrews Norfolk Va—p 597  
Use of Gold Sodium Thiosulphate in Treatment of Lupus Erythematosus H King and C M Hamilton Nashville Tenn—p 604  
Concentrated Feedings in Nutrition of Premature Infants C H Webb Shreveport La—p 608  
Management of Intracranial Birth Injuries W O Ott Fort Worth Texas—p 613  
Management of Occipitoposterior Positions with Especial Reference to the Scanzoni Maneuver J W Reddoch, New Orleans—p 615  
\*Amaurosis Following Topical Application of Ethyl Hydrocupreine in Acute Septic Sore Throat E W Griffey Houston Texas—p 623  
Upper Respiratory Tuberculous Complications of Pulmonary Tuberculosis G H B Terry Oteen, N C—p 626  
Gastrointestinal Allergy II Concerning the Mimicry of the Peptic Ulcer Syndrome by the Symptoms of Food Allergy H J Rinkel, Kansas City Mo—p 630  
Myoma of Fundus Uteri R A Nichols Jr, Richmond Va—p 633  
Experimental Production of Gastric Ulcers in the Albino Rat as Result of Vitamin G Deficiency also as Result of the Specific Influence of Vitamin B Deficiency Preliminary Report B Sure and H S Thatcher, Little Rock Ark—p 634

**Intrathoracic Changes in Tularemia**—Blumberg and Russell point out that clinical, roentgenologic and gross pathologic changes within the thorax in tularemia may be those of increase in hilus and bronchial lymph nodes, exudation, pneumonic consolidation, abscess formation, cavitation, vascular changes, necrosis, thickening of bronchial trunks, fibrosis and pleurisy with or without effusion. The microscopic observations are those of vascular changes, necrosis, and proliferation of fibrous tissue. Endothelial cells and mononuclear and polymorphonuclear leukocytes are seen. The Langhans type of cell is usually absent in the pulmonary lesions but can be found in the affected bronchial lymph nodes. Unexplained pulmonary and pleuritic conditions should always be investigated, as they may be tularemic in origin. Patients presenting intrathoracic complications may recover unless the condition has advanced too far. In order to avoid any hazard to the patient and that intrathoracic complications may be recognized early, a roentgenogram should be taken of every patient having tularemia.

**Amaurosis Following Application of Ethylhydrocupreine**—Griffey states that those who prescribe ethylhydrocupreine should be familiar with its dangers to the visual



pathways The toxic action is due to a spasm of the retinal vessels, causing ischemia of the retina Degenerative changes occur in the ganglion cell layers of the retina and, if severe, lead to ascending atrophy of the optic nerve fibers Depending on the severity of the reaction the final visual results grade from complete recovery, through relative or absolute scotomas and constricted visual fields, to complete and permanent amaurosis The toxic action of the drug on the visual apparatus may be due to drug idiosyncrasy in a susceptible person or to faulty elimination in one who is nonsusceptible The author reports a case of complete amaurosis in a patient having damaged kidneys, who received not more than 8 grains (0.5 Gm) of the drug by topical application to the pharyngeal mucosa

## Surgery, Gynecology and Obstetrics, Chicago

59 1148 (July) 1934

- Picture of Very Early Carcinoma of Uterine Cervix G V S Smith and F A Pemberton Brookline Mass—p 1  
Clinical Manifestations of the Chromaffin Cell Tumors Arising from the Suprarenal Medulla Suprarenal Sympathetic Syndrome A E Belt, Los Angeles and T O Powell San Francisco—p 9  
Acute Osteomyelitis Clinical and Experimental Study K O Halderman, San Francisco—p 25  
Single Pyogenic Liver Abscess Study of Twenty Four Cases R E Rothenberg and W Linder Brooklyn—p 31  
Thyroid Crisis R H Bayley Ann Arbor Mich—p 41  
Present Status of Blood Examination in Diagnosis of Surgical Infections Study of Twenty Seven Indexes of Infection Reported in the Literature H N Harkins Chicago—p 48  
\*Effect of Gamma Ray of Radium on Wound Healing I T Nathanson, Chicago—p 62  
Dental Prosthesis in Relation to Facial Reparative Surgery V H Kazanjian, Boston—p 70  
Irradiation of Parathyroids in Generalized Osteitis Fibrosa Cystica Report of Case M Cutler and S E Owen Chicago—p 81  
Juxta Articular Partial Tibial Osteotomy H Milch New York—p 87  
\*Preoperative Preparation of Dilated Stomach T G Orr and W C Curphey Kansas City Kan—p 92  
Spinal Anesthesia in Fact and Fancy W W Babcock Philadelphia—p 94  
Simple Method of Performing External Perineal Urethrotomy Report of Its Value After Fifteen Years J D Barney, Boston—p 100  
Narrow Bispinous Diameter and Persistent Occipitoposterior Position S Hanson Stockton Calif—p 102  
Placenta Praevia E F Daily Chicago—p 106

### Effect of Gamma-Ray of Radium on Wound Healing

—Nathanson treated wounds produced in fifteen dogs with varying dosages of the gamma-ray of radium at different time intervals with fixed distance and filtration to ascertain the effects of this type of radiation on the healing process Acceleration of healing was observed in those wounds which were exposed to small and moderate doses immediately after incision Retardation was noted in those wounds receiving higher doses Retardation of healing was noted in all wounds exposed to any dose of radiation twenty-four hours after incision, the degree varying directly with the dose When the wounds were subjected to varying doses forty-eight hours after incision, retardation effects were noted by the use of the higher doses and no change was seen with the smaller doses The retardation in healing did not interfere with the formation of a smooth scar

### Preoperative Preparation of the Dilated Stomach—

Orr and Curphey restore a markedly dilated stomach to normal size in an average of from four to six days by using the continuous gastric lavage with suction An indwelling Levine tube passed through the nose is suitable for this purpose At the beginning of such treatment it may be necessary to lavage the stomach through a large tube to remove particles of food and mucus too large to pass through a Levine tube With the nasal tube in place, the patient is urged to drink as much water as possible All water, secretions and gas are promptly removed from the stomach by continuous suction After a few hours of lavage, liquid will frequently begin to pass through a previously completely obstructed pylorus This may be demonstrated by the administration of a small quantity of barium sulphate Careful attention must be given to the maintenance of chemical, water and metabolic balance A study of the blood chemistry may indicate the need of sodium chloride Water, salt and dextrose should be given by vein or hypodermoclysis Since a loss of the gastric juice reduces the body chlorides, a daily check of the blood chloride content is advisable

## United States Naval Med Bulletin, Washington, D C

32 257 380 (July) 1934

- Peace Time Activities of the Medical Department of the United States Navy P S Rossiter—p 257  
\*Method for Culturing Anaerobes and Bacteria Requiring Carbon Dioxide Tension P F Dickens—p 267  
The Importance of the Chancre in the History of Medicine C S Butler—p 270  
Measurement of the Speed of Adjustment of the Eye to Near and Far Vision C J Robertson—p 275  
A Naval Medical Officer with the Civilian Conservation Corps W T Buddington—p 283  
Efficiency of Carboxide Gas as an Insecticidal Fumigant for Naval and Merchant Vessels E W Brown—p 294  
Nutrition in Relation to Dental Disease H E Harvey—p 318  
Malignant Neutropenia Case Reports J M McCants—p 322  
Injuries of the Head and Spine K E Lowman—p 330  
Malarial Relapse After Atabrine J Love—p 335

### Culturing Bacteria Requiring Carbon Dioxide Tension

—Dickens points out that in 1932 the United States Naval Medical School began investigations of the cause of accidents in the navy incident to personnel entering compartments that had been closed for a long time The investigation was started with the knowledge that paints drying by oxidation depleted the oxygen content of the atmosphere, provided the compartment was closed prior to the drying of the paint The air obtained from compartments of ships that had been painted with linseed oil paint and closed for a considerable period was found to be markedly deficient in oxygen In the experiments conducted at this school it was found that small containers such as Erlenmeyer flasks, in which a small quantity of linseed oil had been placed, depleted the air in the flask of its oxygen content and further investigation determined that, if this oil was heated and the flask stoppered before the air had been allowed to cool, the oxygen content could be reduced to as low as 2 per cent within a few hours The oxidation was markedly accelerated by the addition of a catalytic agent (common commercial paint dryer) The final working method is as follows: The Erlenmeyer flask containing from 75 to 100 cc of linseed oil was heated, the air above the oil was displaced by carbon dioxide gas and the flask was stoppered with a rubber stopper containing a bent glass tube immediately connected to the rubber tubing from the culture tube The Stewart clamp was then opened and a partial vacuum was created when the hot oil cooled The carbon dioxide in the flask diffused across, and as the linseed oil absorbed the oxygen the bacteria began to grow when the oxygen-carbon dioxide tension became optimal The gas tension can be controlled, as the growth of an organism reaches an optimum, by closing the Stewart clamp and detaching the Erlenmeyer flask containing the oil Should the bacteria fail to grow further, after the flask has been detached, the oil may again be heated, more carbon dioxide added and the flask attached to the culture tube as before The growth may be thus accelerated from time to time, as the occasion warrants The materials necessary for this method of growing anaerobic organisms are the usual culture tubes containing the mediums to be used, two rubber stoppers in which a short piece of bent glass tubing has been inserted, an Erlenmeyer flask, small pieces of chemical rubber tubing, Stewart clamps, linseed oil, a good commercial paint dryer and a tank of carbon dioxide The author believes that this method of culturing anaerobic organisms is practical and can be applied in any laboratory

## Wisconsin Medical Journal, Madison

33 369 552 (July) 1934

- Significance of the Increasing Diabetic Death Rate A T Holbrook, Milwaukee—p 477  
Chronic Rheumatic Diseases Study of Twenty Two Cases with Especial Reference to Vaccine Therapy G W Carlson Appleton—p 481  
Inflammatory Processes Involving the Optic Nerve M E Nesbit Madison—p 484  
Treatment of Chronic Osteomyelitis W J Jones La Crosse—p 488  
Lower Genital Tract Infections in the Female and Their Treatment H C Hesselstine Chicago—p 491  
Fibroma of Ovary V F Marshall and M E Swanton, Appleton—p 496  
Treatment of Tuberculosis in General Practice V A L Banyai Wauwatosa—p 499  
Tuberculosis of Knee Joint Demonstration of Tubercle Bacilli by Direct Smear at Operation J R Regan and J O Tierler Milwaukee—p 502  
Syphilis of Infant and Child F J Broghammer Superior—p 504  
Recent Experience with Resection of Prostate Gland G J Thompson Rochester Minn—p 509

# FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Medical Journal, London

1 1105 1152 (June 23) 1934

- Musings in the Garden Fifty Years Association with the Tubercle Bacillus R Philp—p 1105  
Parasitic Diseases Common to Man and Animals T W M Cameron—p 1110  
Angular Pregnancy Clinical Entity J M M Kerr and D F Anderson—p 1113  
Acute Epidural Spinal Abscess L Abrahamson A A McConnell and G R Wilson—p 1114  
Tetanus in Toy Pistol Wounds W Brown—p 1116  
Treatment of Pneumococcal Empyema with Bile Salts B R Sworn and T V Cooper—p 1117

1 1153 1196 (June 30) 1934

- Congenital Hypertrophic Stenosis of Pylorus Analysis of One Hundred and Forty Five Cases Treated by Operation H L Wallace and L B Wevill—p 1153  
\*Improved Method for Determination of Bilirubin in Blood A A H van den Bergh and W Grotepass—p 1157  
\*Antenatal Use of Quinine F W Buddee—p 1159  
Observations on Association of Hemolytic Streptococcal Infection with Acute Rheumatism W A R Thomson—p 1162  
Mental Deficiency and Heredity F Grundy—p 1165

**Method for Determination of Bilirubin**—Van den Bergh and Grotepass describe an improved method for the determination of bilirubin in the serum by means of the diazo method. The first improvement is the colorimetric determination in monochromatic light by means of a dimming wire gauze, instead of the fluid for comparison which was formerly used. This instrument is standardized with azo-bilirubin, derived from chemically pure bilirubin. The second improvement is the prevention of the adsorption of bilirubin to the albuminous precipitate, which occurred when the old technic was followed. This result is achieved by adding, in suitable proportions to the serum, a mixture of reagent, diluted alcohol and a buffer.

**Antenatal Use of Quinine**—Buddee gave sixty-six primiparous and thirty-four multiparous women quinine hydrochloride during the last weeks of gestation. A series of the same number of primiparas and multiparas has been observed for comparison. It was found that quinine, given in small doses in the last weeks of gestation, acts as a general tonic and stimulant, and the patients feel well and are often improved. Idiosyncrasy is likely in a small proportion of cases, and its manifestations may include skin reaction and the onset of premature labor. There is no evidence to suggest any fetal toxicity or increase in fetal mortality and, apart from idiosyncrasy, little risk of premature labor. The effect of the drug on the duration of labor is of doubtful value. Inertia is certainly not eliminated.

## Indian Journal of Medical Research, Calcutta

21 661 950 (April) 1934

- Identification of Larvae of the Genus *Phlebotomus* R O A Smith A V Krishnan and S Mukerji—p 661  
Studies in Pernicious Anemia of Pregnancy Part VI Tropical Macrocytic Anemia as a Deficiency Disease with Especial Reference to Vitamin B Complex Lucy Wills—p 669  
Ages of Epiphyseal Union at Elbow and Wrist Joints Among Indians R Lal and B S Nat—p 683  
Action of Bacillus Coli on Conjugated Bile Acids K P Basu and S C Chakravarty—p 691  
Spleenic Enlargement in South India Study Based on Postmortem Records T B Menon—p 695  
Rat Flea Survey of Peermade District Travancore M O T Iyengar—p 723  
Sensitization and Antibody Production in Granuloma Genito Inguinale N G Pandala and V G Nair—p 731  
Comparison of MacConkey's Bile Salt Broth and Dominick Lauter Broth in Routine Water Analysis T N S Raghavachari and P V S Iyer—p 735  
Studies on the Antigenic Structure of *Vibrio Cholera* Part VI Analyses of *Vibrio* Proteins Racemization R W Linton B N Mitra and D L Shrivastava—p 749  
Investigations on Nutritive Values of Indian Foodstuffs Part II A R Ghosh and B C Guha—p 761  
Observation on Chemistry of the Oxytocic Hormone of the Pituitary Gland Part II N Das and B C Guha—p 765  
Cultivation of Gonococcus for Vaccine N Singh—p 769  
Sandfly Fever on Indian Frontier Preliminary Note on Some Laboratory Investigations H E Short, L T Poole and E D Stephens—p 775  
Bacteriophage in Treatment and Prevention of Cholera Statistical Examination J Morrison E M Rice and B K P Choudhury—p 789  
Preliminary Note on Electrical Charge Carried by the Rabies Virus G Sankaran K R K Iyengar and W A Beer—p 909  
Electrophoresis Experiments with the Virus of Rabies R McCarrison G Sankaran and W A Beer—p 917

## Indian Medical Gazette, Calcutta

69 301 360 (June) 1934

- Congenital Syphilis R V Rajam—p 301  
Toxic Effects of Emetine R N Chopra—p 309  
Diagnosis and Treatment of Some Urinary Complications in Gynecology W C Spackman—p 312  
Relapsing Malaria D Manson—p 314  
Naga Sore in a Tea Estate Practice A K Ghose—p 316  
Incidence of Clonorchis Infection in India K N Bagchi—p 318  
Further Observations on the Metabolism of Carotene B Ahmad, K S Grewal and K S Malik—p 320  
Prevention of Cholera in Rural India S Khan—p 323  
Method of Plating Stools D Read—p 326  
New Capsule Forceps G J Gnanadickam—p 327  
\*Nutritive Value of Mustard Oil B B Brahmachari—p 327

**Nutritive Value of Mustard Oil**—The experiments of Brahmachari show that mustard oil is entirely destitute of vitamin A and tends to inactivate vitamin A in other food articles given along with it. But, as fat, it is as nutritive as other fats, provided sufficient vitamin A is supplied in other articles of food.

## Journal of Mental Science, London

80 187 468 (April) 1934

- Attempt at Physiologic Interpretation of Obsessional Neurosis and Paranoia I P Pavlov—p 187  
Nature of Inhibition Review W R Ashby—p 198  
Relative Mortality of Cancer in the General Population and Mental Hospitals of England and Wales Report Presented to the Infectious Diseases Subcommittee of the Research and Clinical Committee (Royal Medico-Psychological Association) G de M Rudolf and W R Ashby—p 223  
Melancholia Clinical Survey of Depressive States A J Lewis—p 277  
\*Blood and Urine Chemistry During Specific Dynamic Action of Glycine in Normal Subjects and in Schizophrenics C Reid—p 379  
Mental Deficiency Practice at Caterham Mental Hospital T Lindsay—p 397

**Action of Glycine in Schizophrenic Patients**—Reid observed the chemical changes in the blood and urine during the specific dynamic action of glycine in twenty normal subjects. The dose of glycine used was 22.5 Gm. per square meter of body surface. Six controls were given water instead of glycine. After glycine (average dose 38 Gm.) the aminonitrogen content of the blood reached its maximum near the end of the second hour. In the seventh hour it was usually less than 1 mg. above the fasting level, but there were considerable individual variations. Blood urea nitrogen increased slowly and steadily during the period of observation. The mean increase in the seventh hour after glycine was about 4 mg. per hundred cubic centimeters but the actual increase in a particular case appeared to depend entirely on diuresis and the urea excreted. Blood sugar decreased from about 10 to 15 mg. per hundred cubic centimeters after glycine ingestion but tended to approach the fasting level in the course of from six to seven hours. The non-dextrose reducing substances were not significantly altered. The nonprotein nitrogen fraction (nonurea and aminonitrogen) of the blood was increased after glycine administration. Nitrogen elimination was much increased after glycine. Approximately the excess urea nitrogen excretion during six hours of the postglycine period amounted to 0.23 of the nitrogen given as glycine. The total nitrogen of the urine (less the aminonitrogen and ureanitrogen fractions) was increased after glycine feeding. This was due either to increased elimination or to increased production in the tissues, or to both. Sulphate excretion after glycine was maintained at a higher level than was found for controls during the postabsorptive period. It appeared that the sulphate excretion provided a more reliable index of specific dynamic action than the nitrogen excretion during the period of observation in the experiments dealt with. The examination of schizophrenic subjects after glycine ingestion (average dose 32 Gm.) did not reveal any striking deviation as regards their blood and urine chemistry from the results in normal subjects. The character of the mean blood aminonitrogen and urine aminonitrogen curves suggested delay in the absorption of the ingested material as compared with normal. Blood nitrogen and urine nitrogen estimations were not significantly different in schizophrenic patients from normal subjects. Approximately the excess urea nitrogen excretion after glycine amounted to 0.21 of the nitrogen ingested as glycine. Sulphate excretion on the whole was less for schizophrenic patients than for normal subjects after glycine. Blood urea values in schizophrenic patients and in normal controls after the administration

of 15 Gm of urea in 100 cc were suggestive of delayed absorption, since the rise in the blood urea was slower in the former. The author considers the attempt to demonstrate variations in the specific dynamic action of foodstuffs or glycine by ingestion methods in psychotic patients is also unjustifiable, in view of the variations in the processes of absorption that have been demonstrated in both normal and psychotic subjects.

### Lancet, London

1 1155 1210 (June 2) 1934

Role of the Liver in the Metabolism of Carbohydrate and Fat C H Best—p 1155

Possible Role of the Tetus in Labor R A Gibbons—p 1160

Changes in the Central Nervous System Due to Electrocutation E A B Pritchard—p 1163

Treatment with Carbon Dioxide Snow Pencil H C Semon—p 1167

1 1211 1266 (June 9) 1934

Experiments on Man J Barcroft—p 1211

Role of the Liver in Metabolism of Carbohydrate and Fat C H Best—p 1216

Multiglandular Disease O Leyton—p 1221

\*Use and Action of Histamine in Rheumatism B Shanson and C G Eastwood—p 1226

\*Clinical Application of Histamine in Rheumatism F S Mackenna—p 1228

1 1267 1322 (June 16) 1934

Observations on Some Injuries of the Knee Joint N Dunn—p 1267

Role of the Liver in Metabolism of Carbohydrate and Fat C H Best—p 1274

New Technique for the Self Administration of Gas Air Analgesia in Labor R J Minnitt—p 1278

Vitamin C in the Human Pituitary J Gough—p 1279

Hydatid Disease of the Lung Case Report R G P Evans—p 1281

**Use of Histamine in Rheumatism**—Shanson and Eastwood studied the effects of histamine and thiohistamine in the treatment of seventy adult cases of chronic rheumatism and allied disorders. The series included examples of rheumatoid arthritis, fibrositis, osteo-arthritis, subacute rheumatism and gout. It was not possible to withhold other treatment (physical therapy) from these patients, nevertheless the results due to histamine could be easily recognized by the time relation which they bore to the injection. Histamine was given by subcutaneous injection. The solution was prepared in the strength of 1 mg of histamine acid phosphate to 1 cc of saline solution, and 0.5 per cent phenol was added as a preservative. The initial dose was 0.1 mg (i.e., 0.1 cc), and this was increased daily by 0.05 mg until definite improvement was observed. A satisfactory dose was usually found to lie between 0.1 and 0.5 mg. This dose was repeated two or three times a week and further increased if the response diminished. Thiohistamine was given by intramuscular injection and was found to be less potent than histamine. Histamine produced benefit in examples of all types of rheumatism, but a certain type of case was particularly amenable to this treatment, that is, the coexistence of impaired grip, the result of periarticular arthritis in the hand, with vasomotor symptoms. The response to histamine varied from patient to patient, and even in the same patient at different times. The following is a list of all the effects that were observed: flushing, relief of pain, increased range of joint movement, relief of vasomotor symptoms, sweating, headache, dizziness, drowsiness, increased appetite, a sense of well being, changes in blood pressure and temperature, and paresthesias.

**Clinical Application of Histamine in Rheumatism**—Mackenna presents the results he has obtained in rheumatism with histamine by ionization and massage. With the treatment the patient experiences an immediate relief from pain, either complete or partial, and can demonstrate a greater range of movement when previously there was restriction. This lessening of pain is always present and may last a few hours, a few days or permanently. In addition there is a feeling of local warmth and general well being. The undesirable results that must be carefully watched for include headache or a feeling of fullness in the head, tachycardia, a feeling of constriction in the chest with consequent breathlessness, burning and faintness, any one of which is an indication for the immediate cessation of the treatment. Treatment may be given daily. Histamine has a definite place in the treatment of fibrositis and neuritis, and in all chronic rheumatic disturbances associated with pain and limitation of movement. With histamine it is possible to cure fibrositis and neuritis completely and almost invariably to

decrease or remove pains of the joints in other suitable cases. The process of ionization with histamine requires unremitting attention during the whole of the sitting and, even more important, the tolerance of a given patient as to both time and milliamperage varies greatly from day to day.

1 1323 1376 (June 23) 1934

Praise and Dispraise of Doctors R Hutchison—p 1323

Infantile Diarrhea with Especial Reference to Dehydration and Orit Media M Maizels and J Smith—p 1329

Blood Sedimentation Rate and Plasma Proteins G R P Aldred Brown and J M H Munro—p 1333

\*Protective Action of Bayer 205 Against Trypanosomes of Man H L Duke—p 1336

**Action of Complex Carbamide Compound of Trisulphuric Acid Against Trypanosomes**—Duke states that a consideration of the evidence now available suggests that 1 A single dose of 1 grain (0.065 Gm) of complex carbamide compound of trisulphuric acid (germanin) given intravenously will protect a man for at least 113 days from infection by tsetse carrying cyclically *Trypanosoma rhodesiense*. 2 The administration of a second dose three weeks or more after the first enhances the protective effect of the compound. 3 Within certain at present undetermined limits the protective effect may be directly proportional to the number of doses given, although this point is not yet definitely settled. Three infected volunteers, all treated with complex carbamide compound of trisulphuric acid as soon as trypanosomes were first detected in the peripheral blood and each receiving six doses of 1 grain were protected against *T. rhodesiense* for 180, 182 and 190 days, respectively. 4 The natural sensitiveness of the mammal to the trypanosome plays an important part in determining the duration of the protection conferred by the compound, the more susceptible monkey receiving less protection per dose per kilo gram of body weight than the more resistant man. It is probable that the protection conferred by the drug is greater against *T. rhodesiense* than against *T. gambiense*. *Trypanosoma gambiense* is an established parasite of man, whereas research has shown that *T. rhodesiense* may in certain circumstances lose its pathogenicity to man. If, then, the resistance of man to *T. rhodesiense* is indeed greater than to *T. gambiense*, then this factor will in all probability tend to produce the effect suggested. It is also possible that *T. rhodesiense* is actually more sensitive to the compound than is *T. gambiense*. Strains of *T. rhodesiense* vary in their power to use man. The drug will be most effective against the weakly endowed strains supplementing the natural resistance of the host. *Trypanosoma rhodesiense* strain LX was strongly pathogenic to man. The author points out that the prophylactic injection of from 1 to 1½ grains (0.065 to 0.1 Gm) for each adult should be repeated every three months while exposure to infection continues.

### Chinese Medical Journal, Peiping

48 415 514 (May) 1934

Chronic Frontal Sinusitis M L Hu—p 415

Kline Test in Diagnosis of Syphilis Including a Study of Its Use in Experimental Syphilis in Rabbits Dorothy Hue Wong and T L Ch'in—p 431

\*Immunization Against Diphtheria and Scarlet Fever with Combined Toxoid E T H Tsen—p 445

Genital Tuberculosis in the Male Rationale of Epididymosectomy H E Campbell—p 449

Phrenicectomy in Treatment of Pulmonary Tuberculosis with Analysis of Forty One Cases T L Leo and C Chang—p 457

Bladder Stone P B Price—p 462

Foreign Bodies in Urinary Bladder Z M Kau—p 475

Acute Suppurative Infections of the Upper Neck R A Peterson—p 481

**Immunization Against Diphtheria and Scarlet Fever with Combined Toxoid**—Tsen administered three doses of a mixture of four volumes of diphtheria toxoid lot 6 and six volumes of scarlatinal toxoid lot 1, both of which were prepared in the usual manner by the addition of 0.4 per cent of formaldehyde to the original standardized toxins and incubating at about 40 C until they were detoxicated, to 112 children who gave positive Schick and Dick reactions. The results show that ninety or 80.36 per cent, became Schick negative, sixty eight, or 60.71 per cent, became Dick negative and fifty-six, or 50 per cent, became both Schick and Dick negative. The batch of combined toxoid used contained only 48 Lf units of diphtheria toxoid and 12,000 minimal skin doses of scarlatinal toxoid per cubic centimeter.

**Archives Med-Chir de l'App Respiratoire, Paris**

p 81 188 (No 2) 1934

Rational Indications for Phrenicectomy A Bonniot and J Foix—

p 81

\*Abdominal Complications of Phrenicectomy Y J Longuet and C Launay—p 157

**Abdominal Complications of Phrenicectomy**—The abdominal complications of phrenicectomy are divided into early and late types by Longuet and Launay. After left phrenicectomy, some patients complain for several days of pains in the upper part of the abdomen at the level of the left hypochondrium. In other patients, vomiting may develop into a serious complication. In any case the early complications appear immediately after the operation and are almost always transitory. The most rational explanation is that they are attributable to traumatism of the intercostal nerve fibers which anastomose in the diaphragm with the terminal branches of the phrenic nerve. More important are the late complications that tend to develop months or even years after the operation. Their frequency varies in different reports, but, although not apparently rare, really serious cases are the exception. Left phrenicectomy is especially likely to produce these complications, owing to the location of the stomach on the left. Gastric disturbances predominate as a clinical symptom. In the mildest cases they consist of a constrictive and oppressive sensation or of postprandial distention in the left hypochondrium. Gaseous eructations and flatulence may accompany these symptoms. A frequent symptom is the sensation of rapid gastric repletion in the course of a meal. If the patient continues to eat, he becomes nauseated and belches and vomits. In serious cases, intractable vomiting occurs. Intestinal disorders also sometimes occur. Two principal roentgenologic images have been described: the markedly dilated stomach and the volvulus and folded stomach. Rare clinical variants are also described: signs of stenosis of the terminal segment of the esophagus, duodenal stenosis after right phrenicectomy and painful disorders of the iliac fossa and right flank. Treatment in mild cases is dietetic. It consists of small and frequent feedings. Gastric lavage is sometimes practiced with success. Prevention is more important. The authors believe that persons having ptosis and gastric ulcer are especially liable to abdominal complications, and phrenicectomy should not be practiced. Marked displacement of the heart to the left is an important contraindication.

**Gynecologie et Obstetrique, Paris**

29 385 496 (May) 1934

Creation of Artificial Vagina with Help of Ovular Membranes of Egg at Term A Bryndeau—p 385

\*Replacement of Uterovaginal Tamponade By Uterine Examination Combined with Intravenous Injection of Hypophyline E Bohler and M Reiles—p 393

Mechanical Traction in Obstetrics F Houssay—p 405

Irreparable Large Fistulas of Bladder M G Roca—p 409

Observations on Wolfian Bodies and Muller's Canals Marie Louise Quardas Bordes and B Pla Mayo—p 429

Exposure of Sutures to Quartz Lamp After Labor A Gillerson G Hatzkelevitch and I Rabinovitch—p 432

\*Personal Modification of Crede's Method W Karnicki—p 437

**Uterovaginal Tamponade**—Bohler and Reiles discuss the role of uterovaginal tamponade in the hemorrhagic complications of delivery. Although granting the advisability of tamponade in selected instances, the authors advance several disadvantages to its indiscriminate use. In the hemorrhages of delivery treated by expression of the placenta, manual detachment, or massage tamponade is superfluous if the uterus is well contracted. If the uterus after being packed with gauze does not react actively it is technically impossible to fill it to the limits of elasticity and in any case this help would come too late. The hemostatic effect is due to reinstatement of good contractions rather than to the direct action of the tampon. The most important disadvantage of the tampon is the slowness with which the hemostatic effect is obtained. The authors lost five women in this way. Tamponade they feel, is a traumatizing method that may lead to serious lesions of the genital organs. As a substitute for this method of treatment, the method of uterine examination immediately after delivery, as described in an earlier publication, and intravenous injection of hypophyline is proposed. As an intra-uterine intervention

often producing a vigorous massage of the organ, it constitutes an exciting agent of the first order, which often starts powerful contractions in the atonic uterus, rapidly returns the organ to a state of retraction, and stops hemorrhages. This action is not constant, however, and the intravenous injection of hypophyline is also advisable. In more than 200 intravenous administrations of hypophyline the authors observed no accidents. This method may be substituted for tamponade without any of the dangers inherent in the latter, with practically no mortality, with a slight morbidity and, especially, with a prodigious rapidity of action allowing the arrest of nonmassive hemorrhages in less than a minute.

**Modification of Crede's Method**—Karnicki's modification of Crede's method consists in producing a retroplacental hematoma and then the expulsion of the placenta without tearing. The procedure consists of four steps: 1 Search for the point of attachment of the placenta by palpating the region of the uterus asymmetrically enlarged (usually this is one of the horns of the uterus especially the right). 2 Periodic massage, practiced with two fingers of the center of this region until the contraction of the small massaged segment is obtained. This indicates the separation of the placenta and the creation of a retroplacental hematoma. 3 After the formation of the contracted area at the center of the softened portion of the uterus, the surrounding region is massaged until a symmetrical form is obtained indicating a complete placental separation. 4 Expression with the right hand on the segment previously massaged in order to avoid crushing the placental tissues. The hematoma alone is compressed in pushing this part in the direction of the uterine canal to give a favorable direction to the expulsive force. To avoid the production of a fold between the uterine body and the lower genital passages, the palm of the left hand is placed at the level of the pubis. It is useful but not necessary for an assistant to pull on the cord to direct the exit of the placenta. This procedure possesses the advantage of establishing the diagnosis of adherence. The author has used this method for four years and rarely practices artificial delivery any more. When internal manual intervention is necessary, a nonadherent placenta is never found.

**Schweizerische medizinische Wochenschrift, Basel**

64 589 608 (June 30) 1934

\*Traumatic Tuberculosis H von Meyenburg—p 589

\*Significance of Tonsils as Port of Entry in Tuberculosis E Schlittler—p 594

Significance of Tuberculosis of the Aged in Campaign Against Tuberculosis M Kartagener—p 598

General Points of View on Pulmonary Tuberculosis C Schnetter—p 602

Trials with a New Gold Preparation in Pulmonary Tuberculosis W H Gonin—p 604

**Traumatic Tuberculosis**—Von Meyenburg discusses cases in which he rendered expert testimony on the traumatic character of tuberculosis. He concludes that traumatic tuberculosis is rare and thinks that complete responsibility can be talked of only in case of inoculation or vaccination tuberculosis, that is, when together with an injury of the skin a tuberculous infection takes place, or when an existing wound becomes infected with tubercle bacilli. In cases of this type not only should the preexisting tuberculosis be accepted but a differentiation should be made between isolated organ tuberculosis that does not produce hematogenic metastases, even under the influence of a trauma (the most characteristic form being chronic pulmonary tuberculosis), and the hematogenically generalizing tuberculosis that is characterized by dissemination and by tuberculous manifestations in various parts of the organism. In the latter form a considerable mechanical trauma may lead to a localization in the injured area, but presumably then only when accident and dissemination concur more or less.

**Tonsils as Port of Entry in Tuberculosis**—Schlittler relates that in ninety-eight patients with cervical lymphomas, suspected to be of a tuberculous character, but in whom pulmonary tuberculosis or tuberculosis of other organs could be excluded, the tonsils were removed and their examination revealed tuberculosis in forty-eight cases. Thus it appears that in case of a prolonged lymphadenitis of the neck, particularly at the angle of the jaw, a primary tuberculous disease of the corresponding tonsil may be suspected, especially when in

the region of the upper air and food passages there are no other causes detectable that would explain the swelling of the lymph nodes, and when the examination of the lung likewise remains negative. In addition to the subacute or chronic form of lymphadenitis, there is also one in which an acute swelling of the cervical lymph nodes at the angle of the jaw becomes manifest with the symptoms of an acute tonsillitis or periton-sillitis. However, the stationary behavior differentiates it from the swellings of lymph nodes caused by other infections. He thinks that primary tuberculosis of the tonsils is not as rare. There is generally no macroscopic change in the tonsil and only microscopic examination permits a diagnosis. It is nevertheless advisable to remove the primary focus, the tonsils, for this measure would prevent a further invasion of tubercle bacilli from the tonsils into the cervical lymph nodes and thus would lead to a more rapid cure of the tuberculosis of the cervical glands. The tonsils of these patients should always be subjected to microscopic examination in order to gain a better insight into the interrelation between primary tonsillar tuberculosis, tuberculosis of the lymph nodes and tuberculosis of the lungs. Physical and roentgenologic examination of the lungs should also be done.

### Chirurgia degli Organi di Movimento, Bologna

18 529 631 (Dec.) 1933

- Results of Acute Infantile Osteo Arthritis and Congenital Luxation of Hip G. Jemma—p 529  
Simple and Practical Method for Construction of Beds and of Plaster Apparatus G. Campen—p 538  
Clinical and Roentgenologic Contribution to Study of Localized Diseases of Intervertebral Disk C. Schapira—p 545  
Contribution to Study of Etiology of Paget's Disease S. Cimino—p 560  
Roentgenologic Diagnosis of Calcified Parasites in Muscular Site C. Casuccio—p 569  
Apparatus for Mobilization of Scapulohumeral Articulation F. Vannini—p 582  
Evolution of Mediastinal Abscesses Due to Pott's Disease with Climatic therapy G. Mancini—p 587  
\*Functional Test of Reticulo-Endothelial System with Congo Red for Qualitative Diagnosis of Osteo Articular Tuberculosis T. Rabboni and G. Alberghina—p 599  
Mixed Intra Articular and Extra Articular Arthrodesis of Shoulder in Cases of Poliomyelitis of Upper Limb O. Scaglietti—p 609  
Congenital Spinal Anomaly Rare Case F. Cataliotti—p 616

**Functional Test of Reticulo-Endothelial System for Diagnosis of Osteo-Articular Tuberculosis**—Rabboni and Alberghina experimented with the congo red test on thirty patients having osteo-articular tuberculosis. Their technic is the following: About 8 cc of blood is aspirated from a vein of the elbow and poured into a centrifuge tube containing 1 cc of a 5 per cent solution of sodium citrate in physiologic solution of sodium chloride and, without removal of the needle, a 1 per cent solution of congo red is injected in the proportion of 1 cc for every 6 Kg of body weight. This is the dosage used by most authors in the congo red test. After intervals of four minutes and of sixty minutes, 5 cc of blood is aspirated from the other arm of the patient and put in tubes containing 1 cc of the solution of sodium citrate. The blood is centrifuged and the concentration of the color in the plasma is determined by means of the colorimeter of Hellig and by artificial illumination. These tubes are compared with the sample solution prepared from the plasma of the blood originally obtained, making a 1/10,000 solution of congo red. The authors found that the functional activity of the reticulo-endothelial system by means of the congo red test in various anatomoclinical forms of osteo-articular tuberculosis constantly shows a behavior parallel to the seriousness of the disease, in that there is a greater retention of color on the part of the cellular elements of the reticulo-endothelium in benign forms tending toward fibrosis, or beginning and slight retention in fungoid forms. In forms considered fibrosclerotic processes with a tendency to ankylosis, the congo red found in the circulation one hour after injection varies from 50 to 60 per cent, in beginning forms of hydrarthrosis from 60 to 77 per cent, in forms with cold abscess with or without fistulas, from 63 to 85 per cent, in fungoid forms from 74 to 95 per cent. Since there was a constant and gradual correspondence between the gravity or lack of gravity of the anatomoclinical system as tested by congo red, the authors feel authorized in attributing some value to this test in the qualitative diagnosis of this localization of the tuberculous infection.

### Archiv fur klinische Chirurgie, Berlin

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- \*Surgically Important Localizations of Heterotopic Endometriosis A. Furst and T. Škorpil—p 485  
Studies of Applicability of Our Contrast Medium in Angiography of Healthy and Diseased Vessels O. Stor—p 502  
\*Tuberculosis of Mammary Gland and Possible Diagnostic Errors A. L. Resnitzky—p 519  
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Wound Healing and the Thyroid A. S. Kosdoba—p 551  
Ulcers of Greater Curvature of Stomach W. Heim—p 561

**Surgically Important Localizations of Heterotopic Endometriosis**—Furst and Škorpil discuss the symptomatology and the pathology of surgically important sites of development of heterotopic endometriosis. These involve principally the navel, Poupart's ligament, the intestine and the urinary bladder. The authors describe three personal cases: (1) an endometrioma of the navel with a characteristic bleeding at each menstruation, (2) a recurrent endometrioma of the extraperitoneal portion of Poupart's ligament with invasion of the femoral vein, and (3) retrocervical endometriosis invading the rectum in which, during each menstrual period, there was an exacerbation of the intestinal symptoms and rectal menstruation. Because of a correct diagnosis and favorable location the authors were able to observe the endometrioma through a rectoscope. They were the first to describe the alterations in a rectal endometrioma provoked by the menstrual function as well as their disappearance after roentgenologic castration. In the histologic studies of their cases the authors found among the usual elements scattered elastic fibers, which they believe developed from the vessel wall. Tumor tissue excised repeatedly at menstrual periods showed histologic alterations corresponding to those of uterine mucosa.

**Diagnostic Errors in Connection with Tuberculosis of Mammary Gland**—Resnitzky states that tuberculosis of the mammary gland is rare. It occurs almost exclusively in women, with greater frequency in multiparas. The involvement is always unilateral, the right breast being the one more frequently involved. The author considers biopsy the most reliable method of diagnosis. Errors in diagnosis based on histologic studies of removed biopsy material are due to faulty technic in performing the biopsy. Biopsy pieces must be sufficiently large to permit examination of a number of areas as well as to include a zone of normal tissue. The author reports a personal case in which histologic examination of biopsy material revealed a structure closely resembling that of a squamous cell carcinoma. Histologic examination of the amputated breast revealed its tuberculous character.

### Beitrage zur klinischen Chirurgie, Berlin

159 559 670 (June 6) 1934

- \*Diagnosis and Treatment of Pressure Damage to Spinal Cord D. Kulenkampf—p 559  
Treatment of Prostatic Hypertrophy W. Willing—p 576  
\*Hyperparathyroidism and Related States J. Bauer—p 583  
\*Paget's Disease of Bones and Parathyroid Tumors R. Kienbock—p 597  
Treatment of Compound Injuries of Skull R. Wanke and H. Weselmann—p 612  
Chronic Duodenal Ileus and Its Surgical Treatment W. Nell—p 639

**Treatment of Pressure Damage to Spinal Cord**—In arriving at an early diagnosis of a spinal cord lesion one should aim, according to Kulenkampf, at a recognition of the existence of damage to the cord rather than at determination of the nature of the lesion. The purely anatomic diagnosis based on the recognition of involvement or paralysis of definite nervous elements is not sufficiently refined to permit of an early diagnosis. When such a diagnosis is possible the outlook for a cure is rather poor. The living organism reacts to damage by a complicated interplay of adaptation and correction mechanisms for which a definite anatomic pattern does not exist. The recognition of these changes, a functional diagnosis, should precede the purely anatomic one. Variability is a characteristic feature of these early functional changes. There may be noted an early fatigue of the legs or arms, a change in the psychic attitude toward a limb, and insignificant circulatory changes giving rise to cold or to warm feet. There may be noted abnormal pigmentation, sweating and abnormal growth

of hair or of nails. The patient may develop a clumsiness in movements and a tendency to stumble or to drop objects. On physical examination there are found, as a rule, lively reflexes which are of no diagnostic value and, occasionally, a doubtful or a strongly suggestive Babinski sign. A definite impairment in power in the same and similarly developed muscle groups is quite suggestive. Simultaneously with Dandy the author called attention to the so called coughing and sneezing symptom, the development of a severe pain on coughing or sneezing. There may be limitation of the movements of the spinal column due to associated alterations in it, or a slight gibbus may be present. It is essential to get all the information possible from the simple spinal puncture. Xanthochromia, for example, is characteristic of a tumor, while the Queckenstedt test furnishes information as to the existence of an obstruction. The latter, however, is not always reliable. The diagnosis of the level of the lesion is arrived at through roentgenography after the injection of iodized sesame oil. The author never injects more than 1 cc. of this substance and did not see any damage arise from its use. He stresses the necessity of taking stereoscopic views of the cord after the injection of iodized sesame oil. These, not infrequently, give a remarkably clear localization and delineation of a shadow caused by the tumor. This is a distinct advance over the method of level localization by the purely neurologic examination. The iodized sesame oil roentgenographic method, however, is not entirely free from errors. In the presence of arachnoiditis there may be a definite obstruction to iodized sesame oil filling, which may be erroneously interpreted as due to tumor. The author operated in two such cases. Stereoscopic and lateral views of the spinal column are essential in recognition of associated scoliosis, lordosis or slight gibbus. Intercostal neuralgia, lumbago or sciatica may be caused by pressure of the tumor. A spinal puncture is therefore indicated in their presence. The differentiation of an extradural or intradural tumor can be made in many cases on the presence of neurologic signs. In the operative treatment the author emphasizes the advantages of local anesthesia, of the lateral position, preferably on the left side, of slow, painstaking exposure and of omission of drainage. Operations for recurrence are difficult but are worth while.

**Hyperparathyroidism and Related States**—Bauer reports the further developments in the case in which F. Mandl removed in 1926 an adenoma of the parathyroid for the cure of osteitis fibrosa cystica generalisata of von Recklinghausen. This was the first operation of the kind to be performed for the cure of von Recklinghausen's disease of the bones. The result was good, and the formerly bedridden patient was able to walk without pain at the end of two months. The improvement lasted six years. In 1932 the patient was admitted to Bauer's clinic because of the return of the original symptoms of pain on movement of the extremities and because of progressive deformity of the skeletal frame. While under observation the patient developed renal colic caused by calculi in the right renal pelvis. The blood calcium was slightly increased (125 mg per hundred cubic centimeters), but the phosphorus was lowered (25 mg per hundred cubic centimeters). The calcium balance was decidedly negative because of the abnormally high amounts of calcium excreted in the urine. There was a lowering of electrical irritability of muscles and nerves. The symptoms mentioned were significant of a return of a state of hyperparathyroidism possibly due to a formation of another hyperfunctioning parathyroid tumor. Roentgen irradiation of the pelvis, the femurs, the tibiae and the region of the parathyroids was ineffective. A secondary operation was undertaken by Mandl, but in spite of painstaking search no tumor of the parathyroid was found. A subtotal thyroidectomy was performed. An examination of the removed tissue by the pathologist Professor Sternberg revealed one normal parathyroid body on the surface of the thyroid and another normal body within the thyroid. There was no improvement after the operation. At the end of two months the patient was in worse condition than before the operation. The blood calcium did not sink, the inorganic blood phosphorus remained unaltered and the excretion of abnormally high amounts of calcium in the urine persisted. The author is of the opinion that there exists a hyperfunctioning adenoma of the parathyroid which because of inaccessible location, was not found.

**Paget's Disease of Bones and Parathyroid Tumors**—Kienbock states that the consideration of the entire course of Mandl's case convinces him that the original diagnosis of Recklinghausen's osteitis fibrosa was erroneous. He believes that to be a case of Paget's disease of the bones associated with a rather unusual complication of a parathyroid tumor and irregularly arising porosis, softening, bending and fragility of the bones accompanied by pains rarely observed in this condition. The roentgenologic appearances of the bone changes are characteristic of Paget's disease. Diffuse thickening, malacic bending, alternating porosis and thickening, and involvement limited to the epiphyses and immediately adjacent part of the shaft rather than of the shaft alone are characteristic of Paget's disease. There was an absence of large cysts such as are seen in Recklinghausen's disease. The author regards the occurrence of the parathyroid adenoma here as a coincidence rather than the cause of the condition. The mild state of hyperparathyroidism, as suggested by the studies of blood chemistry in the case, is not infrequently seen in the porotic form of Paget's disease. Additional evidence is to be seen in the fact that a sister of the patient, aged 49, was found to present a clear cut clinical and roentgenologic picture of Paget's disease. Familial occurrence of Paget's disease is not uncommon, it has not thus far been described in connection with Recklinghausen's disease. The error in the original diagnosis arose because in Germany at that period the existence of two separate entities was not appreciated. Nevertheless the author feels that Mandl's work contributed much to the subject of Recklinghausen's disease. The author is of the opinion that bone changes develop first and that these are followed by the development of hyperparathyroidism. The latter influences unfavorably the progression of skeletal changes and retards regenerative processes. Since the operation by Mandl a number of similar operations have been performed the world over with success in cases of osteitis fibrosa of Recklinghausen.

### Klinische Wochenschrift, Berlin

13 937 968 (June 30) 1934

- Colloid Chemical Pathology of Central Nervous System. A. von Braunmühl —p. 937.  
Extrathyroidal Development of Iodine Compounds with Thyroxine Like Effect. J. Abelin —p. 940.  
\*Criticism of Demonstration of Occult Hemorrhages and New Method. I. Boas —p. 942.  
\*Behavior of Sex Hormones of Anterior Lobe of Hypophysis in Urine of Older Men. A. Kukos —p. 943.  
Roentgenologic Studies on Skeletons of Uniovular Triplets. F. Buschke —p. 944.  
\*Changes in Blood Distribution Caused by Changed Position. H. Ude —p. 949.  
Therapy of Pernicious Anemia. F. Reimann and F. Fritsch —p. 951.  
Saccharose in Urine in Case of Disorder of Pancreas. T. Baranowski and W. Mozolowski —p. 955.

**Method for Demonstration of Occult Hemorrhages**—Boas emphasizes that, without extracting from the feces all substances disturbing the peroxidase reaction that is, all anti-catalytic substances, correct results cannot be expected in the examination of the feces for occult hemorrhages. Further, he points out that all peroxidase reactions known thus far are extremely volatile, owing to the further oxidative transformation of the reaction products. This is especially true of the benzidine test. A further disadvantage of the benzidine as well as of the guaiac tests is the slow development of the reaction, particularly if the blood content is slight. This retardation may lead to a negative interpretation. The author describes a new peroxidase reaction which is in many respects superior to the older methods. He employs as reagent 2,7-diamino-fluorene-hydrochloride (called for short 'fluorene reagent'), it was first introduced as a reagent for persulphates and blood pigments by Schmidt and Hinderer. This reagent proved more sensitive than benzidine. Since the aqueous solution of 2,7-diamino-fluorene-hydrochloride was not sufficiently stable, the author employed a solution in concentrated acetic acid. He found that a 0.2 per cent solution of the reagent in 50 per cent acetic acid was the most suitable. The test is made in the following manner. A small amount of feces is placed into a porcelain dish, pure acetone is poured over it and after repeated shaking it is left standing for from five to ten minutes. After the acetone has been poured off, the smear is dried by shaking it. Then 5 cc of absolute alcohol and ten drops of glacial



acetic acid are poured over it and it is mildly shaken and then left to stand. The alcohol is poured off into a clean test tube and from three to five drops of the reagent and the same amount of a 3 per cent solution of hydrogen dioxide are added. If there is a considerable amount of blood pigment, a green to blue coloration sets in after several minutes of shaking. If kept in a dark place the color remains unchanged for twenty-four hours or longer, when it changes to olive green. The greater the amount of hematin, the more intense is the coloration and vice versa. If the hematin content is slight, the reaction becomes manifest only after from ten to twenty minutes, if it is entirely absent, there is no green coloration at all. The author further describes a more complicated modification, in which the colors are more vivid and the product of the reaction can be kept for longer periods.

**Hypophyseal Sex Hormone in Urine of Old Men**—Following a review of the literature on the behavior of hypophyseal sex hormone in the urine of old women, Kukos reports his studies on the urines of seventeen old men, aged between 70 and 84. The urine was examined not in the native condition but in a fivefold concentration. The test object was the same as in the Aschheim-Zondek test. The estimation of the outcome of the test was based on the microscopic examination. A tabular report of the results of the test indicates that the vagina never showed a positive reaction and that all positive reactions were detected by the microscopic examination of the ovaries. An increased elimination of the hypophyseal sex hormone could be detected in only six out of seventeen cases, and in four of these six the reaction was weak. The author concludes from this that the elimination of the hypophyseal sex hormone is increased in only a small percentage of aged men. He is unable to give an explanation of this phenomenon.

**Changes in Blood Distribution Caused by Changes in Position**—Ude studied the temporary course of fluctuations in the fluid distributions within the body by means of an apparatus resembling Mosso's scale. He found that when a young healthy adult is placed on the scale while lying horizontal and on his back there is an increase in weight toward the head for approximately thirty minutes. This 'shifting time' is longer when the test is made toward evening than when it is made in the morning. If the person has been lying down for from sixty to ninety minutes previous to the test, the erect posture of several minutes' duration does not produce a shifting in the center of gravity, but after approximately ten minutes of standing the scale indicates again an increasing heaviness toward the head shortly after the person has been placed on it in the horizontal position. The shifting time is now approximately proportional to the time of standing. The author assumes that this shifting in weight is due to the fact that while the person is standing the blood sinks into the lower extremities and that it flows back again when he is reclining. He thinks that on the basis of these observations it may be possible to estimate conditions of incipient cardiac insufficiency, because in persons with such disorders the time of shifting and probably also the quantity of shifted fluid differ from those in normal persons.

### Monatsschrift für Kinderheilkunde, Berlin

60 81 240 (June 14) 1934

- Physical and Chemical Aspects of Normal Feces of Nurslings and Children T. Baumann—p. 81  
 Clinical Experiences in Epidemic of Poliomyelitis in Szeged 1932 E. Kramar and I. Liszka—p. 136  
 \*Pathogenesis and Therapy of Nursling Toxicosis J. Csapó and E. Kerpel-Fronius—p. 154  
 \*Mode of Action of Apple Diet in Diarrhea H. Fasold—p. 169  
 Experimental Investigations on Influence of Food on Quantity and Constituents of Mother's Milk U. S. Ruzicic—p. 172  
 Morphine Disease of Infants Born to Mothers Addicted to Morphine E. Menninger-Lerchenhal—p. 182  
 Influence of Food (Intake of Carbohydrates, Proteins and Fats) on Blood Sugar Content in Children A. Panoff—p. 194  
 \*Problem of Pneumococci During Childhood G. Joppich—p. 205  
 \*Treatment of Alimentary Intoxication with Intravenous Drop Infusions According to Schick and Karelitz Helga Schmiedeberg—p. 220  
 Problem of Diphtheria Therapy F. Barber—p. 224

**Pathogenesis and Therapy of Nursling Toxicosis**—Among twenty-eight cases of nursling toxicosis, Csapó and Kerpel-Fronius observed only one that could be considered a pure alimentary intoxication, in all others an infectious focus could be demonstrated. To be sure, in most cases the nutri-

tion was likewise faulty. They give the history of one case of a parenteral toxicosis (otitis and mastoiditis) with a subsequent intestinal disturbance. They think that the mastoiditis was the most important factor in the etiology of the toxicosis, but it was not recognized, because of lack of symptoms. However, the unrecognized focus continuously discharged bacterial toxins into the blood stream, thereby impairing the parenchymal organs and reducing the tolerance to such an extent that even feeding with two-thirds milk presented an overburdening of the intermediate metabolism. The increased elimination of water led to exsiccosis. The quantity of urine was reduced, the elimination of the nitrogen containing waste matters became insufficient and the rest nitrogen of the blood increased. The elimination of the phosphates and of the organic acids that are produced in larger amounts was disturbed. The organic acids and to a certain extent also the phosphates reduced the bicarbonate, and a decompensated acidosis developed. By way of the gastro-intestinal tract, loss of chloride took place, which manifested itself in a hyposalemia. The authors think that the reported case is the most frequent type of parenteral toxicosis. As the most characteristic aspect of the intoxication, they consider the disturbance in consciousness and the deficient oxidation. In the subacute cases the disturbance in consciousness may be absent. The treatment of enteral and parenteral toxicoses, the authors generally begin with gastric lavage. To counteract the acidosis and to stimulate the cardiac action, they administer intravenously 50 cc of a 4 per cent solution of sodium bicarbonate and 20 cc of a 20 per cent solution of dextrose. In case of a severe acidosis the injection is repeated after twelve hours. Orally the child receives for from twenty-four to thirty-six hours only tea (sweetened with gluside) and Ringer's solution (1/3). The authors consider it inadvisable to let the patients fast longer than thirty-six hours, since a prolonged fast may increase the acidosis. After the tea pause, feeding with human milk is begun, the quantity being gradually increased. In case of hyposalemia intravenous administration of sodium chloride (4 per cent solution) is advisable. However, this measure can be taken only if careful chemical tests have been made, for a hyponatremia does not always present a chloropenia. The most important factor of the treatment is the removal of the bacteriotoxic factor. In enteral toxicosis the solution of this problem is difficult because of the inadequacy of specific serotherapy. The serum of dysentery is effective only in rare cases. Repeated blood transfusions are effective in only a few cases. In conditions in which the infectious foci are amenable to surgical treatment, the problem is comparatively simple.

**Action of Apple Diet in Diarrhea**—Fasold shows that the efficacy of the raw apple pulp in diarrhea has been ascribed to various factors to the mechanical cleansing process by the bulky matter, to the toxin adsorbing action of the colloids, and to the sedative and tanning influence of organic acids and of the tanning substances. Without disregarding the sedative and astringent action, the author believes that the therapeutic action is largely due to the mechanical and adsorbing factors. Thinking that cellulose is an important factor, he has treated diarrheal disturbances in children by giving them a suspension of cellulose. He observed that the stools showed almost the same changes as are observed during apple diet. He concludes from this that the adsorptive and mechanical actions of cellulose are mainly responsible for the good results obtained with the apple diet. Further, he describes the studies made by Malyoth, which indicated that the curative physicochemical properties of the raw apple pulp are primarily the result of its pectin content. The author thinks that his observations and those of Malyoth complement each other and concludes that the two colloid groups pectin and cellulose are responsible for the efficacy of the raw apple diet in diarrheal disturbances.

**Type of Pneumococci in Children**—Joppich reports the type distribution in pneumococcal infections during childhood. He found that in infections with the  $\alpha$ -group of pneumococci the number as well as the severity of disease processes predominates over those that develop in infections with the fixed types of pneumococci. The pneumococci of the  $\alpha$ -group are the most frequent causal agents of all types of localized pneumonia and their complications which develop during childhood. Moreover, the majority of cases of meningitides of

childhood are likewise caused by them. However, in lobar pneumonia with its complications and in pneumococcal peritonitis, types I and II of pneumococci are generally found. But since in children the lobar pneumonias are of less importance (as regards numbers as well as prognosis) than the localized pneumonias, the types I and II are of secondary significance. The author observed also that the pneumococci of the  $\lambda$  group may lead to serious disorders out of a state of complete health. He found that the mortality rate of children is much higher after infections with the  $\lambda$ -group of pneumococci than after infections with types I to III.

**Treatment of Alimentary Intoxication with Intravenous Drop Infusions.**—Schmiedeberg reports that at the children's clinic in Tübingen the drop infusions recommended by Karelitz and Schick were introduced into the treatment of alimentary intoxication of infants. The regulations were strictly adhered to, that is, Ringer's solution with 5 per cent dextrose was infused into the vein of the arm, so that within twenty-four hours the child received from 100 to 125 cc for each kilogram of body weight. Moreover, in accordance with the directions of Schick the children were given before onset of the drop infusion 100 cc of a 5 per cent dextrose-Ringer's solution into the sinus longitudinalis or into the already exposed vein of the arm, into which the cannula for the continuous drop infusion was then inserted. Some of the children were given several infusions of citrate blood (from 70 to 100 cc). The drop infusion was continued for several days. During the first thirty-six hours the children were given no food. The dryness of the oral cavity was counteracted by giving some tea. Cardiac remedies were given every two hours. At the end of the thirty-six hours, food was given in small quantities. The author points out that Schick obtained favorable results with this method in that he reduced the mortality from over 60 to approximately 15 per cent. Her own results, however, were not this favorable. Numerical comparison of former therapeutic results and of those obtained with the Karelitz-Schick method revealed that in the uncomplicated cases the mortality was the same, whether drop infusion or the older methods were used. In the complicated cases the mortality was even slightly higher after the drop infusion. She thinks that the difference in the patient material may explain why she did not obtain the same favorable results with drop infusion as did Schick and Karelitz. She treated only severe cases of alimentary intoxication with this method. She further concedes that although numerically she was not able to demonstrate the superiority of the drop infusion over other treatments, at the bedside she nevertheless gained the impression that in some of the cases the drop infusion was of distinct advantage.

#### Wiener klinische Wochenschrift, Vienna

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The Physician's Professional Secrecy and His Duty to Testify K. Meremer—p 769

Methylene Blue as an Antidote H. H. Meyer—p 773

Allergic Manifestations and Their Interrelations B. Fornet—p 773

Boundary Spheres of Surgical Therapy and Ray Therapy L. Freund—p 776

\*Roentgen Examination of Vermiform Appendix L. Krenn—p 778

Removal of Cancerous Intestinal Occlusions by Carcinolytically Acting Induction Currents A. Brosch—p 781

Cold Quartz Lamp in Fight Against Nongonorrheal Leulorrhea M. Scharman—p 782

**Roentgenoscopy of Vermiform Appendix.**—Krenn used roentgenoscopy of the appendix in cases in which chronic appendicitis was suspected and which presented obscure symptoms of the gastro intestinal tract. A tabular report shows the results of the roentgenoscopy in 234 cases. In 117 of this number an operation was performed. In 86 of these 117 the appendix had not been demonstrable. Only 9 approximately 10 per cent were found to be free from changes. All appendices in which roentgenoscopy revealed filling with contrast medium but in which the filling showed abnormalities (short filling adhesions pressure points) were found to be diseased. Only 9 per cent of the appendices the roentgenoscopy of which had revealed signs of chronic appendicitis were free from pathologic changes. The high number (33 per cent) of erroneous diagnosis of chronic appendicitis before the introduction of roentgenologic examination has been reduced to 9 per cent.

#### Zeitschrift für das ges. Neurol u. Psychiatrie, Berlin

150 317 492 (June 18) 1934 Partial Index

\*Creatinine Content of Cerebrospinal Fluid F. Lickint—p 317

Case of Postencephalitic Korsakoff Syndrome Y. Tsimnakis—p 323

Two Fundamental Types of Compulsion Manifestations O. Kant—p 328

Pallidal Syndrome with Hyperkinesia and Compulsory Ideas as Sequel Following Poisoning with Nitrobenzene Alexandra Adler—p 341

\*Etiology of Amyotrophic Lateral Sclerosis S. Dawidenkow—p 346

**Creatinine Content of Cerebrospinal Fluid.**—Lickint examined 500 specimens of cerebrospinal fluid by means of the calorimetric method suggested by Folin. He determined the normal creatinine content to be between 0.5 and 1.52 mg per hundred cubic centimeters. Within this normal range the creatinine content of the cerebrospinal fluid amounts to from 50 to 77 per cent of the serum values. In meningitis a complete equalization may take place between the creatinine content of the cerebrospinal fluid and that of the serum but in renal diseases the difference is generally increased because of greater retention in the serum. In various types of renal diseases (102 cases of acute and chronic nephritis and uremia) increases were usually observed, but the creatinine content of the cerebrospinal fluid did not always go parallel to its renal nitrogen content. The highest creatinine content of the cerebrospinal fluid amounted to 15.6 per hundred cubic centimeters. In fifteen cases of syphilis with a negative reaction in the cerebrospinal fluid the creatinine values were always normal, but eight out of thirty-three cases of metasyphilis or cerebrospinal syphilis showed a slightly increased creatinine content. Of the cerebrospinal fluids of sixty-seven patients with concussion of the brain, six showed a slight increase, while all other cases of encephalitis, meningism, epilepsy, hydrocephalus, multiple sclerosis and cerebral tumors had normal values. Of forty-two patients with meningitis only fifteen showed increases up to 2.44 mg per hundred cubic centimeters, the increase being somewhat more pronounced in epidemic than in tuberculous meningitis. The author concludes that an increase in the creatinine content of the cerebrospinal fluid has neither a differential diagnostic nor a prognostic significance.

**Etiology of Amyotrophic Lateral Sclerosis.**—Dawidenkow stresses that the familial amyotrophic lateral sclerosis of children and young persons should not be identified with the amyotrophic lateral sclerosis of adults, for a familial accumulation of the disorder in adults has not been observed as yet. The infantile form of the amyotrophic lateral sclerosis is not a uniform group, for in some cases it seems to be inherited according to the dominant and in others according to the recessive type. Moreover, there are cases in which the bulbar and spastic symptoms are only a part in a much more complicated symptomatology, then there are cases in which the atrophies are developed only in a mild form, in others the amyotrophy may have an uncharacteristic localization or the bulbar symptoms may be absent. However, in some instances the familial form occurring in children presents almost the same symptomatology that is observed in adults. The author shows that, in the search for the etiology of the amyotrophic lateral sclerosis in adults numerous factors have been considered. He mentions physical and psychic traumas, poliomyelitis and syphilis, and he points out that it has been considered as an abiotrophic systemic disorder. Since the investigations on most of these factors led to no definite conclusion, he decided to resort to the genealogical method. The study of ten genealogical trees revealed to him that in the families of patients with amyotrophic lateral sclerosis there is a considerable accumulation of constitutional anomalies of the nervous system, which become manifest primarily in abnormalities of the tendon, periosteal and cutaneous reflexes. These anomalies in the reflexes may be a weakening, a complete abolishment and an increase, or these various forms may occur together. However, there are approximately as many members of the families who are free from the reflex anomalies. The hereditary transmission of the reflex anomalies takes place according to the dominant type. The author concludes that his studies proved the existence of a hereditary component in the etiology of amyotrophic lateral sclerosis, but further studies will be necessary to solve the problem completely.

**Nederlandsch Tijdschrift voor Geneeskunde, Haarlem**

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Clinical Importance of Sputum Examination for Tubercle Bacilli W Bronkhorst—p 3007

Advantages of Oriented Pulmonary Roentgenoscopy G J van der Plaats—p 3014

\*Especially Filtrable Form of Tubercle Bacilli P C Flu—p 3019

\*Spontaneous Recovery of Testicle Injured by Estrin Through Gonadotropic Hormone S E De Jongh and E Laqueur—p 3030

**Filtrable Form of Tubercle Bacilli**—Flu demonstrates that filtrates of tuberculous material made with Chamberland porcelain filters L2 and L3, being free from the test microorganisms mixed with the material to be filtered, do not produce any signs of classic tuberculosis or of the so called ultravirus tuberculosis. This would suggest that the germ is not filtrable. The author takes exception to Van Densen's criticism of the validity of his observations. No one can ever be sure that a filtrate made from a suspension of bacilli through the Chamberland L3 filter does not contain any bacilli. This is all the more true of the L2 filter. According to Van Densen, a large number of acid-fast bacilli are found if the filtrate is injected intraperitoneally into the guinea-pig. Acid-fast bacilli are sometimes found in peritoneal scrapings, provided the animals are dead within five to seven days after injection. It is striking that the acid-fast bacilli from the lymph nodes as well as from the peritoneum are not found in cultures and that sometimes through injections of the lymphatic fluid in guinea-pigs typical tuberculosis may be produced. The postmortem picture of the guinea-pig injected with the so-called tuberculous ultravirus is not described by every investigator in the same way. Although they all declare that no ulcer appears on the site of the subcutaneous injection some describe regional swellings of the lymph nodes with the presence of acid-fast bacilli, while others describe as the only symptoms swollen bronchial lymph nodes with or without individual bacilli. Some describe infiltrates in the internal organs, especially in the lungs, while others declare that they remain normal. In many cases the ultravirus was believed to be present because in injected animals every trace of pathologic change, aside from the slightest swelling of the bronchial lymph nodes, was absent and in no way could the acid-fast bacilli be developed from the supposed ultravirus forms. The author found that injections of acetone extracts from tubercle bacilli have an activating effect on a tuberculous infection of the guinea-pig only if free acetone is still found in the suspension of the extract to be injected. Only when the filtrates are free from bacterial elements can the tuberculous process in guinea-pigs be activated through injections of such filtrates mixed with acetone extracts. There is no proof that these injections really activate an ultravirus. But even in injection with a slight number of such virulent bacilli it happens, though seldom, that the infiltrate does not form on the site of injection and that it does not ulcerate. The former phenomenon happened once, the latter twice in thirty-two guinea-pigs. In injecting a small number of virulent bacilli the author found as the only symptom of tuberculous infection indurating glands, in which after an investigation of several hours some acid-fast bacilli were found. He could not find any proof of the existence of a tuberculous ultravirus. Perhaps everything that is regarded as the result of an infection with ultravirus may be attributed to the fact that, during filtration, a few tubercle bacilli of weak virulence passed through the filter. Filtration tests with Chamberland L2, L3 or even with other filters cannot solve the question of whether a tuberculous ultravirus is present or not.

**Spontaneous Recovery of Testicle Injured by Estrin Through Gonadotropic Hormone**—De Jongh and Laqueur state that the size of the testicle is no measure of its endocrine activity. Testicles of young animals treated with the gonadotropic hormone complex from the urine of pregnant women, by which treatment their hormone production is selectively stimulated, are hardly or not larger than those of untreated controls. The power of the gonadotropic hormone complex to cause a discrete growth becomes evident in testicles that are artificially made to regress by a treatment with estrin. In this case their weight is restored more completely by the gonadotropic hormone complex than without it. Far greater

is the influence of the gonadotropic hormone complex on the development of Leydig's tissue of the testicle and on the size of the other male organs, measured in this case by the seminal vesicle.

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Remarks on Atmospheric Pathogenesis II A Magelssen—p 673

\*Investigations on Bone System of the New Born K U Toverud—p 688

Hemolytic Jaundice with Ulcers of Leg Treated with Extirpation of Spleen Case E Poppe—p 705

\*Intestinal Rupture in Hernia Without Incarceration (Effect of Trauma Against Abdomen) G Røvig—p 710

\*Calcification and Circulatory Disturbance in Bone Tissue After Roentgen Irradiation B Dahl—p 718

Treatment of Addison's Disease with Extract of Suprarenal Cortex L L Linneberg—p 724

\*Atypical Muciparous Cancers of Stomach ('Linitis Plastica' Krukenberg's Tumor) L Kreyberg—p 729

**Investigations of Bones of the New-Born**—Toverud's material comprises 100 necropsies in new-born infants, of whom forty-seven were full term, forty-three premature, and ten twins. Chemical analysis of the same portion of the fourth rib and of the parietal bone in these cases showed a variation in the total ash content and in the calcium content, depending partly on whether or not the mother's diet during pregnancy had been deficient and partly on whether or not the child was born at term. Histologic studies of the parietal bone, rib and jaw in the first twenty-five necropsies disclosed somewhat enlarged osteoid zones and small osteoblasts with scanty intracellular spaces, especially in premature infants and those born of mothers receiving an insufficient diet during pregnancy. The author states that early postnatal craniotabes and early deformities of the jaw are direct consequences of a congenital osteoporotic condition and that this condition increases the tendency to the development of rickets.

**Intestinal Rupture in Hernia Without Incarceration.**—In Røvig's patient, a man aged 69, having an inguinal hernia, rupture of the intestine in the hernial sac occurred after a fall from the height of a meter. The clinical picture was that of diffuse peritonitis. Roentgen examination revealed a perforation in the gastro-intestinal tract. Laparotomy and suture of the ruptured intestine, done about eight hours after the injury, were followed by recovery. A grave complication due to the spinal anesthesia, in the form of cessation of respiration, which set in during the intervention, was successfully treated by placing the patient in the Trendelenburg position and applying artificial respiration for about an hour, with 10 cc of a 25 per cent solution of pyridine betacarbonic acid diethylamine and 1 cc of epinephrine intravenously.

**Bone Tissue After Roentgen Irradiation**—Dahl irradiated the tibia and femur in young rats, which were then killed at regular intervals. A densification of the irradiated bones, seen as early as three hours after irradiation, became closer during the days following. In a second series, irradiated in the same way, vital staining with alizarin showed intensified coloration on the irradiated side beginning eight hours after irradiation. In a third series, in which carmine was injected two or three hours before the animals were killed, the skin reacted with increased exudation after eight hours following irradiation, and reduced circulation in the bone tissue was demonstrable as early as two days after irradiation. The experiences with alizarin are thought to show that the early densification seen in the roentgenograms is due to deposit calcium.

**Atypical Muciparous Cancers of Stomach**—In the three cases of cancer of the stomach of the leather bottle type and one of cancer of the gallbladder with metastases of Krukenberg's type to the ovaries, the tumor cells appeared as single cells or in small groups and produced mucin, mostly contained in intracellular vacuoles. As the cells tend to produce a marked fibrosis reaction and often appear in limited number, especially in the metastases, and as the metastases often give clinical symptoms before the primary tumor, diagnostic errors are frequent in this form of cancer. However, staining the specimens with mucicarmin, Kreyberg says, gives a characteristic picture and facilitates a correct diagnosis.

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## THE UNDERGRADUATE TEACHING OF GASTRO-ENTEROLOGY IN AMERICAN MEDICAL SCHOOLS

CHAIRMAN'S ADDRESS

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BROOKLYN

The question whether gastro-enterology is a specialty or whether the care of diseases of the digestive tract and nutrition should be left entirely to the internist is one that has caused much controversy. In this connection it must be realized that the properly trained gastro-enterologist must be first a competent internist and must in addition have devoted much time to a special study of gastro-enterologic subjects, including the basic sciences, physiology, biochemistry, pathology, laboratory work, roentgen diagnosis and nutritional problems. The large numbers of clinicians applying for admission to postgraduate courses in gastro-enterology wherever they are presented is evidence of the importance of the subject and the lack of information in regard to it. The difference in results obtained in the treatment of gastro-intestinal disorders by the gastro-enterologist as compared with the general internist is so marked that the medical profession in general has long recognized the value of special care in these diseases, and it is to be hoped that soon even the general internist will cease to be prejudiced against this specialty. With the much less important and no more technical branches of internal medicine, neurology and dermatology, recognized as specialties, it is strange that gastro-enterology should be so generally unrecognized.

The prejudice against the gastro-enterologist has, unfortunately, projected itself into the medical schools, where prejudice and petty jealousies are so much to be deplored. It has resulted in a neglect of the teaching of subjects pertaining to the gastro-intestinal tract even in the early, preclinical years, where gastro-intestinal physiology today receives entirely inadequate attention and the student's time is largely wasted in the intensive study and contemplation of nerve-muscle reactions and abstruse biochemical problems.

One of the most important studies entered into by the Commission on Medical Education, organized in 1925 by the Association of American Medical Colleges, the final report of which was published in great detail in 1932 in a book of 600 pages, is the study of the frequency of occurrence of various symptoms as determined by the tabulation of the chief complaints of large numbers of patients applying for care in hospitals and their clinics, industrial clinics and the offices of general

practitioners in all parts of the country, supplemented by the study of the nature of disabling illnesses, the causes of death and the observations in health examinations such as school and factory surveys and the draft. A few sample tables taken from this book are shown in the accompanying tables, which have been chosen as being representative of the average. A study of the relative frequency of the chief complaints or illnesses of patients in ten separate studies presented in the tables of this book shows that gastro-intestinal complaints average between third and fourth places in relative frequency, being exceeded regularly only by minor surgical conditions, infections of the upper respiratory tract and venereal diseases. Logically, therefore, a medical education should aim to prepare a student adequately to handle these most important conditions. Yet what does one see in the average curriculum? The first two, preclinical, years are spent largely in the study of technical problems, taught in many schools by experts who are not physicians, and in most cases not only not correlated with clinical teaching but not even of value to the student in his subsequent study of clinical medicine, and the clinical years often devoted to intensive courses in some less important phases of internal medicine, with an entirely inadequate consideration of problems pertaining to digestive diseases.

In a questionnaire recently sent to the eighty-five class A medical schools in the United States and Canada, sixty-eight sent complete answers to a list of six questions propounded. Eight of the schools answering were so-called two year schools, giving only the preclinical course, and the authorities of these schools emphatically disclaimed any attempt at correlation between their teaching and that of clinical gastro-enterology. Of the sixty regular schools from which answers were received, only thirty-five, or 58 per cent, stated that there is such a correlation in their courses in the first two, preclinical, years. Only three schools were listed as presenting clinical lectures on gastro-enterology in their preclinical years. Is not this neglect of gastro-enterology surprising when it is realized that preclinical studies include biochemistry, which covers the study of digestion and nutrition, of physiology, the most interesting phase of which is undoubtedly a study of the digestive processes, of bacteriology, with the most prolific culture medium provided by nature in various parts of the digestive tract, and of pathology, the practical application of which consists largely in the diagnosis of tissue specimens or tumors removed from the gastro-intestinal tract? A survey of the work of the schools failing to show any such correlation between clinical and preclinical instruction shows that these are the schools in which not only is there no separate department for the teaching of gastro-enterology but in which the teaching of gastro-enterology is considered a relatively unimportant part of the course in medicine.

Of the sixty schools answering the questionnaire, only six, or 10 per cent, reported that they have a separate unit for the teaching of gastro-enterology. In four of these schools there is an established chair of gastro-enterology and the professor of this department has a staff of competent assistants giving a properly coordinated course in his subject, including the laboratory, clinical and roentgenologic phases of the work, as well as practical instruction in dietetics. In two schools a similar course is supervised by a clinical professor of gastro-enterology and an individual designated as "clinical professor of medicine (gastro-enterology)," respectively. In the other fifty-five schools the instruction in gastro-enterology is given by the department of internal medicine as a part of its course, the titles of the instructors ranging from professor to instructor in medicine. In more than a score of these schools these teachers are nationally known gastro-enterologists, but in most instances the time allotted to them is insufficient

TABLE 1—*The Ten Most Common Disabling Illnesses, by the Number of Cases\**

Study 1	Study 2	Study 3	Study 4	Study 5
1 Colds and bronchial conditions	Colds and bronchial conditions	Colds and bronchial conditions	Colds	Colds and bronchial conditions
2 Influenza and grip	Digestive diseases and disorders	Influenza and grip	Influenza	Headache and neuralgia
3 Digestive diseases and disorders	Diseases of pharynx, tonsils and larynx	Digestive diseases and disorders	Measles	Diseases of pharynx, tonsils and larynx
4 Diseases of pharynx, tonsils and larynx	Diseases of nervous system	Nonvenereal diseases of genito urinary system and adnexa (chiefly dysmenorrhea)	Mumps	Digestive diseases and disorders

Study 1 was made at Hagerstown, Md. by the U. S. Public Health Service for twenty-eight months, Dec. 1, 1921 to March 31, 1924.

Study 2 was a study of employees of the Edison Electric Illuminating Company, Boston, by the U. S. Public Health Service for ten years ended Dec. 31, 1924.

Study 3 was a study of workers by the U. S. Public Health Service for the year ended Jan. 31, 1921.

Study 4 was a study of school children in Missouri by the U. S. Public Health Service during 1919-1920.

Study 5 was a study of school children in Hagerstown, Md. by the U. S. Public Health Service, December 1921 to May 1923.

\* From Final Report of the Commission on Medical Education, 1932, upper half of table.

for adequate instruction in their important subject. In six schools clinical teaching is attempted in a short, and often an elective, course in a gastro-enterologic clinic.

Inquiry as to the hours devoted to the teaching of gastro-enterology showed three schools giving only an elective course in this subject and twenty-two reporting that no definite number of hours is assigned. Instruction in this subject is given in the junior year in eighteen, or 20 per cent, of these schools, the total number of teaching hours varying from eight to twenty. Thirty-five schools devoted from eight to twenty-two hours to the teaching of gastro-enterology in the senior year. The total number of hours in the entire medical course given to the teaching of disease of the digestive tract averaged twenty-seven hours, which is less than 4 per cent of the time devoted to the teaching of internal medicine in the average medical school. The survey shows no improvement in the situation since the studies of this subject by Simon<sup>1</sup> and by Lucas<sup>2</sup> in 1925 and 1926, respectively. How evident it is that the work of the Commission on Medical Education is being ignored!

1 Simon, S. K. Teaching of Gastro-Enterology in Our Medical Schools. *J. A. M. A.* 87: 73 (July 10) 1926.  
2 Lucas, C. G. Present Status of Gastro-Enterology in Medical Schools. *Tr. Am. Gastro-Enterol. A.* 29: 6 1927.

The interpretation of roentgenologic observations constitutes a very important part of gastro-enterologic diagnosis. An inquiry regarding the teaching of this subject was therefore included in the questionnaire. All of the sixty schools are attempting to teach something about gastro-enterologic roentgen diagnosis, the roentgenologist being the teacher in fifty-six, or 93 per cent, of the schools. In six schools the gastro-enterologist, and in five the internist, is collaborating with the roentgenologist in this instruction, and in two the gastro-enterologist alone is the one to cover this subject. In one school a physical therapist is designated as the one to teach this important branch of diagnosis. In most schools this instruction is haphazard, with no definite time devoted to it.

If there is one subject, aside from gastro-enterologic diagnosis, about which the average general practitioner is very poorly informed, it is the subject of dietetics. Most of the diets prescribed for patients are based on superstition, on individual fancies, on information obtained from literature advertising freak food products or merely on the simple principle that the food an ailing patient enjoys and has been in the habit of eating must be bad for him and should be forbidden. Such freakish and unscientific diets as are broadcast on the air and in the press by charlatans who are actuated only by greed would not find favor with the public if the family doctor gave more specific instructions to his patients than to advise against the ingestion of starchy or greasy foods. Specific instructions in regard to diet necessitate some knowledge of the principles of dietetics. In only forty-two, or 70 per cent, of the sixty medical schools is there any definite attempt at teaching dietetics, and an analysis of the methods of teaching shows that in most schools it is entirely inadequate. In eleven of these schools a dietitian, not a physician, is the sole instructor in this subject. In twelve an internist and in four a biochemist does this work, and in twelve no definite instructor is designated. Ten schools, 17 per cent of the total number answering the questionnaire, designate the gastro-enterologist as the one responsible for the teaching of dietetics. None of the schools give an adequate amount of time to the subject except possibly one, where thirty-six hours of the second year is devoted to dietetics.

It is quite evident that something is wrong about the teaching of gastro-enterology in the medical schools. The statistics obtained after seven years of painstaking work by an eminent commission show that digestive diseases stand third or fourth in the order of frequency of occurrence in a variety of studies. They are an important cause of disability among workers, furnish surgeons with a considerable part of their operative work, and contribute an appreciable amount to the income of undertakers. The preliminary reports of the commission were made available to the medical schools from time to time during the seven years of its work, although they were not published in book form until 1932. Doctors are returning to their medical schools or applying at postgraduate schools, demanding postgraduate instruction in gastro-enterology. The public is turning to quacks and charlatans for its advice in regard to digestive disorders. And what are the medical schools doing about it? It has been shown in the analysis attempted in this study that less than 4 per cent of the time in teaching hours devoted to the teaching of internal medicine is assigned to instruction in diseases of the digestive system and nutrition. An

entirely disproportionate amount of time is devoted to subjects of distinctly less importance, such as neurology, psychiatry and dermatology. Even in the preclinical years the digestive system seems to be shunned, only a small proportion of schools giving a course providing an adequate foundation of knowledge on which to build a clinical conception of the diseases of the digestive tract. And correlation between preclinical and clinical instruction is either not attempted or is ephemeral. What is to be done to correct this gross neglect of an important subject? It is evident that an increased number of teaching hours must be devoted to this subject and that the instruction must be planned and carried out by clinicians who have a proper grasp of the needs in this important branch of internal medicine. Gastro-enterology should not be taught as a specialty, as is unfortunately so commonly being done in the case of other medical specialties. The teaching must be integrated with that in internal medicine, in surgery, in roentgenology, in clinical laboratory work, in preventive medicine and even in obstetrics. In the preclinical years adequate time devoted to the anatomy, physiology, chemistry and pathology of the digestive system is not the only need. There must be a correlation between the teaching in these sciences, not only in respect to the need for a preliminary consideration of anatomy, followed by simultaneous instruction in the physiology and chemistry of the digestive functions by these two departments, but by definite attempts at integrating the teaching through combined lectures. These should, of course, precede a consideration of pathology of the digestive organs. During the period devoted to this instruction occasional lectures by clinicians, showing the practical application to the practice of medicine of the knowledge just acquired, will do much to fix in the student's mind the

the time devoted to clinical teaching in a well organized gastro-enterologic clinic should be greater than that given to ward clerkships. It must be realized that a short period of intensive work in one subject, with the ability to follow a few actual patients through a period of diagnosis and treatment, is infinitely more valuable than many scattered hours devoted to many different subjects, and single contacts with a variety of patients.

In regard to the personnel to whom should be entrusted the teaching of this important subject, the

TABLE 3—The Most Important Nonreportable Diseases in New York State in 1927\*

Colds, bronchitis and grip	Gynecologic cases
Digestive disorders (excluding diarrhea and enteritis under 2 years)	Operative
Surgical cases—operative traumatic (excluding gynecologic)	Nonoperative
Neuroses	Heart disease
Diseases of children (excluding communicable and those listed elsewhere in this table)	Arteriosclerosis
Tonsillitis	Chronic arthritis
	Acute rheumatic fever
	Diarrhea and enteritis (under 2 years)
	Bright's disease (chronic interstitial nephritis)
	Appendicitis
	Gonorrhea

\* Reports to the New York State Board of Health From Report of Commission on Medical Education '1932

report of the commission gives considerable space to the subject of specialism as applied to teaching, and the following extracts from this report seem relevant to this branch of the subject.

"Specialization is necessary in the diagnosis and treatment of some patients and in research, but the educational needs of the student are general in character. Over-teaching in technical fields of science or practice interferes with laying the foundation of learning in the subjects every physician should know. The teaching in the specialties should be integrated with that in general medicine, surgery and obstetrics" (page 200).

"A unified plan of instruction properly carried out should heighten the interest of students in the contributions which the special fields can make to general medicine and surgery" (page 201).

"Emphasis should be laid on the general character of the training to be secured and upon the fact that specialists can make contributions to the training of the student which can not be satisfactorily obtained in any other way. The various specialties have distinct fields in medical practice and to them must be credited much of the advance in knowledge in recent years. No effort to curtail their development or recognition is implied in the suggestion that they should be used only as they contribute to the general training of the student" (page 201).

"Specialists trained in the technic and experienced in dealing with the diseases common in their domain should conduct the teaching in these fields. A study of the work of specialists shows clearly that many of the demands for their services are essentially general in character and that a properly trained physician should be competent to deal with many of the conditions met" (page 202).

These extracts from the commission's report present an admirable and unbiased view of the importance of having specialists do the undergraduate teaching in their fields. The specialist, who is most apt to see the mistakes made by the general practitioner, should realize most acutely what the educational needs of the student must be. It is necessary for him however to concentrate in his teaching particularly on the general phases of his subject, leaving the most technical considerations to postgraduate study. The student must be taught to recognize the more common, easily treated

TABLE 2—Grouping of Diagnoses Reported by General Practitioners\*

	Office Visits	
Minor surgery	20.6%	
Upper respiratory tract infections	15.1	
General medical diseases	14.3	
Veneral diseases	6.3	
Gastrointestinal disorders	5.3	
Throat infections	4.1	
Vaccinations inoculations	3.6	
Physical examinations (90% for life insurance)	3.4	
Gynecology	3.3	
Skin diseases	3.2	
Urogenital diseases (including pyelitis)	3.0	
Obstetrics	2.4	
Nervous disorders	2.4	
Syphilis	2.3	
Eye conditions	2.3	
Infant feeding	1.6	
Tuberculosis	1.6	
Contagious diseases	1.5	
Fur infections	1.3	
Nose and sinus infections	1.3	
Major surgical conditions	1.1	
	100.0%	

(Note—Study embraces one million visits.)

\* From Report of Commission on Medical Education 1932

salient facts in regard to the subject, making it much easier, in the clinical years, to return to a consideration of these fundamental problems. In the clinical years a preliminary didactic or quiz course outlining the principles involved in the diagnosis and treatment of digestive tract diseases preferably given in collaboration, or at least simultaneously, with courses in clinical laboratory and roentgenologic diagnosis should precede the student's actual contact with patients and will save much time in clinical teaching. Realizing that most patients with gastro-intestinal disorders are ambulatory,



diseases in the realm of the specialist and the type of case requiring special study and care. The high mortality from such diseases as acute appendicitis, acute intestinal obstruction and even gastro-intestinal carcinoma can be attributed ordinarily to inadequate instruction in the medical schools, and the awe with which the average general practitioner contemplates a diagnosis of such common and relatively simple diseases as peptic ulcer and gallbladder disease may be similarly attributed to a lack of familiarity with those conditions which should be acquired during his medical course.

In an effort to suggest an improvement in the teaching of gastro-enterology in medical schools I present with all diffidence, and with a realization of its shortcomings, the following outline of a comprehensive course covering the disorders of digestion through the average four year course in medicine. The instruction should be planned and carried out by trained gastro-enterologists functioning as a separate department.

#### A PLAN FOR THE TEACHING OF GASTRO-ENTEROLOGY

##### *First and Second Years*

**Anatomy.** Instead of isolated studies of the various parts of the digestive tract, a definite course should be given in the anatomy and histology of the tract as a whole from mouth to anus, demonstrating the accessory organs, the relations to other organs and the innervation of the tract. This course could be greatly aided by a roentgen study of the barium filled gastro-intestinal tract preceding dissection of this tract.

**Biochemistry.** The chemistry of digestion and nutrition should be taught in a way to emphasize its importance from the clinical standpoint and the course should immediately precede the consideration of the functions of the digestive tract by the department of physiology.

**Physiology.** The study of secretion, digestion and nutrition should supplement and amplify the information obtained in the course in biochemistry. The neurologic control of the digestive functions should be studied in an orderly way. The motility of the gastro-intestinal tract can best be taught in an efficient and graphic way by means of fluoroscopic observations by small groups of students, of one of their number who will volunteer to take a barium meal.

The bacteriology and pathology courses have as a rule been quite adequate. Pathologic conferences in later years, in conjunction with the department of internal medicine, help to crystallize the knowledge previously obtained.

**Pharmacology and Materia Medica.** A short time given to the effects of drugs on the functions of the gastro-intestinal tract would do much to dispel the many misconceptions in regard to this subject.

During these courses of the first and second years an experienced gastro-enterologist should give an occasional clinical lecture or demonstration illustrating the practical application of what the student has just learned to the practice of medicine. This will help to fix the subject in the student's mind and will simplify later instruction in clinical medicine. At least two or three such lectures should be given each year.

##### *Third and Fourth Years*

**Lecture Course.** A preliminary course of at least twelve lectures covering the general principles involved in gastro-enterologic diagnosis and treatment and a brief consideration of the principal, common, diseases of the digestive tract should precede the clinical courses.

The course in clinical laboratory procedures should include a practical consideration of gastric analysis, examination of duodenal contents and stool examinations.

There should be, if possible, a period of at least six or eight weeks during which the students in small groups attend regularly a thoroughly organized gastro-enterologic clinic where they can become trained in careful history taking and physical examination and can observe and assist at the clinical laboratory tests, roentgenologic studies and therapeutic procedures.

In the hospital clinical clerkships, care must be taken that each student gets a fair proportion of gastro-enterologic cases. Conferences between the small groups of students and the attending gastro-enterologist who is in charge of the patients to whom the students have been assigned should consist of the reading of history and physical and laboratory observations by the student, a review of the literature on the subject of the patient's disease which the student has looked up in the library, a demonstration of x-ray films of the patient and of similar cases, a discussion of the possibilities in diagnosis, and an outline of the treatment and operative indications. Where possible, specimens from the pathologic museum should be used to illustrate the character of the lesion. The student in his record of the case, should make continuation notes, and he should be given time to follow his patient into the fluoroscopic room, the examining rooms of other special departments, and, in operative cases, into the operating room. Preoperative and postoperative care must be taught by actual demonstrations on patients.

Dietetics, the biologic principles of which have been taught in the early biochemistry course, should be discussed in detail by the gastro-enterologists and internists in the course of their clinical teaching, should be covered in principle in a few special lectures by these instructors, and should receive practical consideration in a brief course in the diet kitchen, where the preparation of foods and their arrangement into suitable diets can best be demonstrated. Bedside observation of the diets of patients at meal hours is also a valuable aid in teaching.

Gastro-enterologic roentgen diagnosis, begun in preclinical years when the study of normal anatomy and physiology was clarified by film and fluoroscopic studies of the gastro-intestinal tract should be taught to small sections of students by means of observations in the fluoroscopic room, guided by a competent roentgenologist and preferably also by a gastro-enterologist and by a demonstration of groups of films by the roentgenologist. This work will supplement the demonstration of films of actual patients under the student's observation in the clinic or the hospital ward.

During the clinical years an occasional amphitheater clinic which the whole class can attend, given by the head of the gastro-enterologic department or by a visiting gastro-enterologist, will help to stimulate interest in gastro-enterologic problems. Lectures or clinics held in conjunction with the departments of surgery, obstetrics and pediatrics will help to emphasize the importance of a broad outlook in the consideration of gastro-intestinal symptoms.

#### COMMENT

The course in gastro-enterology outlined, while at first glance appearing to be too complicated and lengthy for practical consideration, can really be covered in a surprisingly small number of hours. It must be remembered that this should not be in the nature of an intensive postgraduate course, but its aim should be to acquaint the student with the symptoms of the most common gastro-intestinal diseases, the methods of study and the principles underlying treatment. A constant reference to the physiologic principles involved helps to fix the subject in the student's memory and makes it easier for him to work out his own cases. The preclinical work will involve no extra expenditure of time but merely a rearrangement of present schedules. The time devoted to gastro-enterology in the clinical years should consist of from twelve to fifteen hours of preliminary lectures and from four to eight hours of later clinical lectures to the entire class. The minimum number of hours spent in the gastro-enterologic clinic should be from twelve to fifteen. The exact time devoted to ward assignments cannot be accurately estimated, but the small group conferences should embrace at least twelve to sixteen hours, and the dietetic and roentgenologic conferences should take another six to twelve hours. Our plan, therefore, for a unified study of gastro-enterologic problems involves

the assignment of at least forty-six hours to this subject, which is still considerably less than 10 per cent of the time devoted to internal medicine in some schools and less than 5 per cent in many. The importance of the subject would surely warrant the expenditure of at least 15 or 20 per cent of the time, and it is to be hoped that the day will come when the average medical school will devote at least 100 hours to the teaching of gastro-enterology.

#### SUMMARY

1 The importance of gastro-enterology as a teaching problem has been demonstrated by the Final Report of the Commission on Medical Education in its conclusions in regard to the prevalence of digestive diseases in general practice.

2 The medical schools of the country have not yet become cognizant of its importance, and the teaching of this important subject is woefully neglected in all but a few of the schools.

3 The commission has called attention to the value of having the specialist do the teaching in his special subject, and this applies with special force to the teaching of gastro-enterology.

4 An adequate course in gastro-enterology should include a correlation between preclinical and clinical teaching and integration with the courses in internal medicine, surgery, obstetrics and other specialties.

5 A plan for the teaching of gastro-enterology is presented, which involves a minimum of forty-six hours devoted to this subject and a recommendation for a larger number of hours wherever this is feasible.

88 Sixth Avenue.

## POSTGRADUATE DERMATOLOGIC TRAINING

### ITS RELATIONSHIP TO CERTIFICATION OF SPECIALISTS IN DERMATOLOGY

#### CHAIRMAN'S ADDRESS

C GUY LANE M.D.  
BOSTON

The supervision of specialism with emphasis on certain educational aspects was discussed in detail before the American Dermatological Association last year by Dr. Fred Wise in his presidential address. Since that time there has developed a certain amount of misunderstanding concerning the objects and work of the American Board of Dermatology and Syphilology, so that it seems worth while to review some phases of the board's activities and particularly its relationship to postgraduate training in dermatology and syphilology.

#### OBJECTS

The board has been established with the object of improving standards of practice in dermatology and syphilology. In furthering this aim it is necessary to determine the competence of physicians who specialize in dermatology and syphilology. This entails the determination of adequate standards of fitness, the conducting of investigations and examinations to test the qualifications of voluntary applicants, and the granting of certificates to those applicants who successfully fulfil the established requirements. For the benefit of hospitals, medical schools, other physicians and the lay public the board will make available lists of those

physicians who have been certified by the board. Other boards which antedate ours have found that in order to accomplish their purposes it has been necessary to study and attempt to improve the facilities which provide instruction in their particular fields, and it is one of the objects of this board to survey the postgraduate facilities for training in dermatology and syphilology. It is expected, as a result of the work of this board that better undergraduate and postgraduate training facilities, both clinical and laboratory, will be furnished that better dermatologists will be provided as a result of this training, and that as an ultimate result greater progress in the scientific attack on skin disease will be made and better service will be rendered in dermatology and syphilology by both the specialist and the general practitioner.

#### ACCOMPLISHMENTS

In the year and a half since its actual formation, the board has become incorporated and developed its program. It has investigated the methods used by the other boards and it has developed methods of procedure on the basis of experience of these boards. It has also considered thoroughly standards to be expected of individuals in practice for a varying length of time. It has received 221 applications and has held three meetings. At two of these meetings the board has examined forty-nine applicants. More than 190 certificates have been issued. A list of those certified by the board has already been published, and further lists will be issued from time to time.

The board has also initiated an educational survey based on certain standards of postgraduate training in dermatology and syphilology which are acceptable to it. Briefly, this standard at present provides for at least two years of well planned intensive training in the clinical, laboratory and therapeutic branches of dermatology and syphilology. Approved postgraduate training should include (1) adequate clinical and laboratory facilities, (2) properly supervised instruction under a staff of approved dermatologists, (3) opportunities for properly supervised research work, and (4) access to adequate dermatologic literature.

Among its other accomplishments may be mentioned participation of this board in the formation of the Advisory Board of Medical Specialties, which plans to coordinate the work of the various specialty boards and those organizations interested in medical education especially postgraduate education. These accomplishments indicate to a slight degree the importance of the work to be performed by the board. Of additional significance is the fact that the American Dermatological Association has already voted to require a certificate of all new members admitted after 1935. A representative of the American Hospital Association stated last winter that an attempt has been started toward the adoption of a similar resolution for staff appointments in the various hospitals belonging to this association. It seems probable that medical school faculties may adopt a similar requirement.

#### SOME MISUNDERSTANDINGS

One of the points on which confusion has arisen is in regard to the use of the word "license." The term license implies governmental or municipal restrictions, or some legal qualifications but no license to practice dermatology or syphilology is even considered by the board, as it has nothing whatever to do with the licensure of specialists. In the second place, there has been some confusion concerning the American Board of

Dermatology and Syphilology and the American Dermatological Association. The board is related to the latter association only as it is related to the Section on Dermatology and Syphilology of the American Medical Association. The board was formed as a result of the reports of committees appointed by both of these organizations, and each of them contains equal repre-

TABLE 1—Age Groupings of Diplomates

30 to 39 years	27
40 to 49 years	47
50 to 59 years	44
60 to 69 years	20
70 plus years	1
Total	139

sentation on the board. Thirdly, no one is compelled to apply for a certificate issued by the board. The establishment of the board affords an opportunity for physicians desiring to become accredited specialists to make application voluntarily, present credentials, take examinations (if such are deemed necessary), and receive a certificate (if their credentials and examination are satisfactory) as a diplomate of the American Board of Dermatology and Syphilology. Fourthly, a physician obtaining this certificate does not become a member of the board. The members are the representatives designated by the two component societies. The term "diplomate" is applied to a physician who fulfils the requirements of the board and receives a certificate. The work of our board in the field of dermatology and syphilology parallels the work of the National Board of Medical Examiners in the field of general medicine. The formation of national specialty boards will obviate the confusion that might arise from the establishment of a number of state licensing boards for specialists, a plan that has previously been proposed. I do not mean that it will be possible to prevent eventually the licensing of specialists in this country as it is done in other countries, but the work of the board should go a long way in determining physicians properly prepared for admission to the practice of this specialty.

#### RELATIONSHIP TO POSTGRADUATE DERMATOLOGIC EDUCATION

With this statement of the board's activities I turn to its relationship to postgraduate dermatologic education. In this connection it has seemed advisable to ascertain the type of postgraduate training received by the diplomates of this board up to January 1 of the present year. The application blanks of these 139 diplomates are only a small number on which to make generalizations, but I feel that a study furnishes sufficient information to aid as a guide for a short period in a project on which today little information exists.

A study of these application blanks shows that the oldest is 72 and the youngest 30 years old. The age grouping is given in table 1.

It was also noted that fifteen of these applicants have been graduated from medical schools outside the United States and that ninety, or 65 per cent, had had some general practice, varying from one to twenty-five years. The great majority of these (88 per cent) had held internships in hospitals previous to their specialized training. One hundred and one diplomates are teaching dermatology and syphilology in class A medical schools, fifteen have held such positions, and only twenty-one, or 15 per cent, have had no teaching experience.

It has been difficult to develop data in regard to the length of training in this group. In many cases the exact month and year have not been stated, and the period of training has overlapped the beginning of private practice. In addition, many men obtained their training on a part time basis and it is difficult to compare such training with that received as full time assistant or resident. Table 2 shows the best approximation it was possible to make from the study of these applications.

For the purpose of studying the postgraduate training, the application blanks have been reviewed on the basis of years of limitation of practice to dermatology and syphilology (table 3).

There are certain facts about each of these groups of various lengths of practice which it is of interest to detail briefly. Of the three individuals in group I, two spent from one and one-half to two years in postgraduate work abroad, and two of them spent further time as assistants on their return home.

Of the three who have practiced from thirty-five to thirty-nine years, two (or 60 per cent) spent from one and one-half to two years abroad in work, and two were assistants to well known dermatologists for a period of years.

Nine have practiced from thirty to thirty-four years. Seventy-five per cent studied abroad from eight months to almost three years. Six of these individuals had been in general practice for from one to eleven years before going into the specialty.

Of those practicing from twenty-five to twenty-nine years there were fourteen, and twelve (or 85 per cent) of these spent from seven months to two years abroad. In this group eight were recruited from the ranks of general practitioners. At the same time it is worth noticing that four of these individuals had held special internships for skin diseases.

In group V, sixteen in number, only one half took their training abroad and a larger percentage, twelve, had previous experience as general practitioners. The average time spent abroad in this group was distinctly shorter than in any of the former groups.

Of the fifteen to nineteen year group of twenty six physicians, only seven spent any time abroad. It is to be remembered that this group began their training during the war and the facilities for postgraduate training at that time were greatly disrupted. Five of these men held residencies or internships and twenty one had had general practice for from two to nineteen years before entering dermatology.

TABLE 2—Length of Training

Training Period	Number
4 years or more	34
3 to 4 years	18
2 to 3 years	41
1 to 2 years	20
6 to 12 months	19
Uncertain	7
Total	139

The largest group of all is the ten to fourteen year group of forty-two physicians. Only six of these individuals had any training abroad and that training in general was for short periods. In this group two other tendencies are noticeable. About 25 per cent of the men took internships or residencies as the major part of their training. About half the men, twenty-two in all, received their training as assistants to well

known dermatologists, together with experience in clinics which their chiefs controlled. There was a falling off in the percentage that entered from private practice, only twenty-eight having had previous general practice experience. There were also a number who signified their taking of short postgraduate courses as a part of their training.

TABLE 3—Limitation of Practice

Group	I	40 to 45 years of practice	3
	II	35 to 39 years of practice	3
	III	30 to 34 years of practice	9
	IV	25 to 29 years of practice	14
	V	20 to 24 years of practice	16
	VI	15 to 19 years of practice	27
	VII	10 to 14 years of practice	42
	VIII	5 to 9 years of practice	23
			67
Total			139

In the youngest group, those in dermatologic practice for from five to nine years, there were twenty-five men, and of these six men received their training abroad, and several of them for relatively long periods. The limits were from six months to four years. A still larger number, sixteen, or 64 per cent, received their training as assistants in the offices of well known men. Seven held residencies or internships. Fourteen of these men, or 56 per cent, had had previous experience as general practitioners. Five of the men in this group have received their training in institutions conferring a degree of Master of Science in Dermatology or Doctor of Medical Science. This is another new development in the training methods for dermatologic practice. About half, or seventy-two, of these diplomates have limited their practice for fifteen years or more, and sixty-seven have limited their practice for from five to fourteen years.

SOURCE OF TRAINING

In reviewing these applications and the training that was received for specialization in dermatology and syphilology it is apparent that these methods of training can be divided roughly into five groups (table 4). There is, of course, much overlapping, and certain individuals will perhaps have received training in several of these different groups, but in general such a grouping can be clearly made out.

First, there is the group of those physicians who have studied outside the United States. Fifty-one diplomates, or 36.6 per cent, received some training in other countries. This training has usually been taken early in their dermatologic career, but eleven of the men went abroad later for short courses of training, usually of a few months' duration. Twenty-nine received the major portion of their dermatologic training abroad, the majority of them for more than a year. Eighteen were abroad for from four to twelve months, and twenty-one for more than a year. Some of these became assistants to well known dermatologists on their return, and a few entered a residency or internship in addition to an assistantship. I have already called attention to the smaller percentage of men going abroad since the war.

In the second group are fifty-six diplomates, or 40 per cent, comprising those physicians who have received their training for the most part as assistants to well known dermatologists, usually for a period of from one to five years. At the same time they have had training in the clinics of their chiefs. The number of younger men in this group, thirty-three, with less than fifteen

years of limitation of practice, indicates a distinct tendency on the part of the younger specialist to obtain his training in this country in direct relationship to some one of the older and more experienced men. Ten of these men also had short courses of graduate training abroad for usually less than one year's duration. Twelve diplomates had held a residency before the assistantship.

The third group, twenty-six in number, or 19 per cent, includes those physicians who have served for a definite time in a hospital with beds for the care of skin and syphilis patients and have there received a specialized training in this field. These positions have been spoken of variously as internships, residencies or fellowships. The duration of this service has ranged from six months to three years. Many of these individuals on the completion of their residency or internship have become assistants to well known dermatologists. There are also a few who have taken work abroad after the completion of their residency for a period averaging from six to eight months. The 1931 Directory of the American Medical Association contains a list of twelve hospitals in which residencies for dermatology are maintained. Not all of these, however, can be relied on for adequate training, and the list omits certain institutions where even better training can be obtained under the title of Fellows. The training which this group has received has been for the most part obtained at the Skin and Cancer Hospital in New York, the Mayo Clinic, the University Hospital at Ann Arbor, the City Hospital and Lakeside Hospital in Cleveland, the Barnard Skin and Cancer Hospital at St. Louis, and the Massachusetts General Hospital in Boston.

The fourth group includes only five men, but their training is a definitely forward step in postgraduate teaching. These men have obtained a Master of Science in Dermatology or a similar degree from the postgraduate department of a medical school on the completion of from two to three years of study. This period has included rather strict supervision of clinical and laboratory activities, together with the satisfactory

TABLE 4—Source of Training

	Total	Practice Limit 15-45 Years 72		Practice Limit 6-14 Years 67	
Abroad	51	39	18 (4 to 12 mos) 21 (1 year plus) 9 (later)	12	4 (2 to 12 mos) 4 (3 yrs plus)
Assistant ships	56	23 (17 yrs)	In addition 6 studied abroad 5 held resi- dencies	33 (9 mos to 5 yrs) (3 below 1 yr)	In addition 7 held resi- dencies 2 studied abroad
Residencies and fellow ships	26	12 (13 yrs)	In addition 3 studied abroad 4 held assis- tantships	14 (13 yrs)	In addition 6 held assis- tantships
Master of science	5	0		5	
Clinical experience	55	18		17	

completion of a regularly outlined program and the acceptance of satisfactory research work. This degree is at the present time awarded by only five institutions, namely, University of Pennsylvania, University of Michigan, University of Minnesota, Columbia University and Northwestern University. The University of Illinois also issues an M. A. on the satisfactory completion of one year's work.

applications that do not fit into any of these four are thirty-five in number, about 25 per cent applications show that practically all these men obtained most of their training by clinical experience in and syphilis clinics, often supplemented by short courses in large centers. The older and younger groups equally considered are represented equally among applications. Only three of these men have had training abroad. Twenty-four of these men, or two thirds, had, in addition to their clinical experience, courses of postgraduate training in larger hospitals. Five of them have taken courses of less than six months' duration, the rest of them signifying varying periods of training up to two years. It was also found that twenty-four who have taken courses that the older and younger groups were again equally divided. There were ten diplomates who had received their training from clinical experience alone, with an equal number in both the older and younger groups. A few of them have also held assistantships for short periods. It is interesting to note that twenty-five of this whole group are at the present time teaching in class A medical schools, the great majority of them with a professional rank.

## COMMENT

In the first place, as one reviews these data, one is impressed with the high percentage of specialists who received their training abroad twenty-five years ago or earlier.

Following this came a very complete falling off in postgraduate training abroad during and shortly after the war, with a return in the last ten years to postgraduate study abroad, 25 per cent of the younger men availing of such facilities and in this time remaining abroad for longer periods than before.

In the second place is to be noted in the last fifteen years the development of postgraduate training as assistance to well known men in our field.

Thirdly, there is a rise in the internship or residency fellowships as a factor in postgraduate teaching due to the greatly increased facilities made available in this country and the tendency toward specialization.

Fourthly, has come perhaps the most striking development, the awarding of a postgraduate degree, Master of Science in Dermatology. This recognition of a satisfactory period of training, perhaps in connection with a fellowship, will become more general, I believe, as postgraduate medical education expands and improves under the guidance of class A medical schools. It is hoped that funds will become available as time goes on so that more physicians of high caliber interested in dermatology and deserving of such training need not depend on clinical experience alone.

One notes also that 25 per cent of these applicants obtained their training in dermatology on the basis of clinical experience, usually supplemented by courses at some larger institution. Two thirds of these men received a teaching position in dermatology in a class A institution, the great majority with a professional rank. Financial reasons are undoubtedly the main factor in determining this choice of training. Long clinical experience may provide sufficient training for practice in a specialty but it does not provide the knowledge of fundamentals needed for well rounded practice in a special field. If postgraduate work also be taken, and trips to large clinics for short periods made at intervals, such men may keep abreast of progress in a specialty. At the same time such a man is always more or less handicapped by a relatively

incomplete start, and it is probable that some one of the other four methods described will furnish a distinctly better fundamental training. It is not possible to say at the present time which of these methods is the best. A great deal, of course, depends on the characteristics of an individual as it does in any profession or business, and the fact that so many men have attained teaching positions in the last group, I believe, points fully as much toward the individual as a factor as to the training that he received. In other words, these individuals would probably have been better specialists if they could have had one of the types of training cited. It would seem better therefore, to insist on better standards of fundamental training in order to furnish better trained men for the practice of a specialty.

As a part of the endeavor to accomplish this purpose, the Advisory Board of Medical Specialties has created the Committee on Standards and Examinations. Among other matters this committee has inquired into the standards of the various specialty boards, has considered the matter of postgraduate training, and is placing before the advisory board at its meeting here in Cleveland a report on the minimum requirements for admission to the examination of a medical specialty board, as follows:

Each applicant should have certain (a) general qualifications, (b) professional education, (c) specialized training.

## A. General qualifications

- 1 Satisfactory moral and ethical standing in the profession
- 2 A license to practice medicine
- 3 Membership in the American Medical Association or, by courtesy, membership in such Canadian medical societies as are approved by the Council on Medical Education and Hospitals of the American Medical Association

## B. Professional Education

- 1 Graduation from a medical school of the United States and Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association

- 2 Completion of an internship of not less than one year in a hospital approved by the same council

## C. Specialized Training, to be effective as far as practical not later than Jan 1, 1938

- 1 A period of study after the internship of not less than three years in clinics, dispensaries, hospitals and laboratories recognized by the same council as competent to provide a satisfactory training in the special field of study

- 2 This period of specialized preparation should include

(a) intensive graduate training in anatomy, physiology, pathology, and the other basic medical sciences which are necessary to the proper understanding of the disorders and treatment of conditions in that particular field,

(b) an active experience of not less than eighteen months in hospitals, clinics, dispensaries and diagnostic laboratories recognized by the council as competent in the specialty,

(c) examinations in the basic medical sciences of a specialty as well as in its clinical laboratory and public health aspects

- 3 An additional period of not less than two years of practice

In case of an applicant whose medical training has been received outside of the United States and Canada the credentials must be satisfactory to the Advisory Board

## TRENDS

The trend in modern medicine has been toward specialization, and with this trend many men have entered a specialty with inadequate fundamental training, often realizing this deficiency too late to make up for it adequately as they have become increasingly busy with their practice and hospital work. From an examination of these records there is a definite trend toward postgraduate special training in this country, either as an assistant to a well known specialist or as a resident

or fellow or in a prescribed two or three year graduate course in dermatology provided in several institutions. There is also the trend toward obtaining a postgraduate degree in dermatology. Furthermore, in the formation of the various boards there is a very definite trend toward the control or regulation of specialists. There is some feeling among authorities studying medical education that the licensing of specialists will be ultimately reached. There is no doubt of the fact that more stringent qualifications for the practice of a specialty will be required and that candidates for teaching positions and hospital staff appointments will be selected from those individuals fulfilling these higher requirements.

#### CONCLUSION

I have attempted to clarify any misunderstanding about the activities of the American Board of Dermatology and Syphilology. I have also reviewed the preparation for special practice which the diplomates of their board have received, indicating some of the significant changes that have occurred and the trends suggested by this study. We as physicians and as specialists in dermatology and syphilology must accept the fact that these changes are in progress at the present time and furthermore that we must participate actively in this adjustment period. We should review the situation thoroughly and lend our aid, as individuals as well as an organization, in the program to regulate or control our specialty, perhaps best through the board that has been formed for this purpose rather than at some later period undergo the restrictions imposed on us by governmental or other outside agencies.

416 Marlborough Street

### THE RELATION OF POSTGRADUATE MEDICAL INSTRUCTION TO PUBLIC HEALTH

LEROY E. PARKINS, M.D.

Secretary to the Harvard Medical School Courses for Graduates  
BOSTON

Public health service originated in the minds of doctors who recognized the need of the community for this important branch of medicine. Jenner and Waterhouse were practitioners of medicine as well as the founders of preventive medicine and the forerunners of modern public health service. Oliver Wendell Holmes was likewise an ardent champion of preventive medicine as well as a practitioner of the medical art. Austin Flint, the eminent physician and cardiologist, was one of the earliest epidemiologists; he conclusively established the source of an epidemic of typhoid in New York State when there was error and much confusion of thought in regard to the etiology.

The practitioner of medicine by tradition is interested in public health problems. His enthusiasm for and cooperation in public health programs has varied from time to time. By training, the physician is taught to individualize his knowledge to a great degree. However, it is known that often a single patient's disease may have a direct bearing on community health. Thus the early, accurate diagnosis and treatment of an individual's contagious disease is the best kind of preventive medicine for the community. This type of case

treatment is a public health problem and is recognized as such by the public and profession in a large group of contagious diseases.

Hard and fast lines cannot be drawn between public health problems and the private practice of medicine. These two types of medical work have the common aim and purpose of maintaining the highest degree of community health. The public health physician attacks this problem primarily from the group standpoint, while the private physician is concerned chiefly with the individual patient. The public health physician has a large field of undisputed practice in guaranteeing pure food and water supplies, supervision of quarantine laws, and all similar public safeguards. These are obvious mass health problems. The improvement of community health beyond these broad realms is largely a problem of individual attack. If this is true, the situation cannot be adequately met in the most efficient manner unless the best remedial and preventive medical service is available to every person. This is possible only through the united efforts of public health physicians, private practitioners and their co-workers. No corps of public health physicians and nurses can alone hope to cope successfully with this immense, vital, human problem without the friendly, active cooperation and assistance of the whole medical profession. That this cooperation has not existed at all times is patent to any observer who reads vital statistics for various communities. There have been occasions when health departments have attempted to provide facilities for postgraduate instruction without great success. The causes of such failures are varied; they are usually due to lack of mutual understanding and full appreciation of the fact that all physicians have many common interests and problems irrespective of their fields of work. However, it is not an idle dream to hope for better results from real cooperation between these two groups of the medical profession.

New discoveries and improvements are constantly being made in all fields of medicine and related science. It is a major problem in private practice as well as in the realm of public health to provide the practicing physician and health worker with this new knowledge, which may be of the greatest importance to individual and community health. A working educational system is needed that is flexible enough to meet all practical requirements. There are two modes of direct approach to the problem of postgraduate medical instruction: one is for doctors to return to postgraduate medical centers for study, the other is to take postgraduate courses to the individual communities. For the best results both of these methods should be used in much larger measure than is done at present. There has long been much indirect teaching through medical books and journals, but this is not sufficient to meet present day needs. In addition, direct methods of personal teaching are desirable and practicable.

It is interesting to know about some successful cooperative efforts in postgraduate medical instruction which have been carried out to the mutual advantage of the public and the profession. The Detroit Department of Health has inaugurated a program of postgraduate instruction in cooperation with the Wayne County Medical Society. This instruction aims to develop interest and proficiency in the practice of preventive medicine by the practicing physician. This health department started a program of weekly clinics in 1930. The first year the largest attendance was



forty-five, while in the last season as many as 300 physicians were in attendance at one session. The teaching material has been enlarged to include many problems related to the diagnosis, treatment and prevention of the acute communicable diseases.<sup>1</sup> Also the state health departments of Georgia, Massachusetts, North Carolina, Virginia and other states have cooperated with the state medical societies in giving postgraduate extension courses.

The following data on the successful cooperation of the Massachusetts State Health Department with the Massachusetts Medical Society in inaugurating a state-

The background of more than 4,000,000 people who need and expect good medical service provides a strong incentive in motivating this work. The Massachusetts Medical Society is the central professional group which is interrelated with all the organizations named in the upper section of the chart, the component district societies are named in the lower section.

Chart 2 explains how the Massachusetts Plan of Postgraduate Medical Instruction functions. The committee on postgraduate instruction is a group of eighteen doctors. Among the members are representatives of all sections of the state society, the chairmen of the standing committees of the medical education and diplomas and public health, the editor of the *New England Journal of Medicine*, the state health commissioner, the state commissioner of mental diseases, the deans of Boston University, Tufts and Harvard medical schools, or their official representative, and the president of the Boston Medical Library. This committee formulates plans and policies, the work of organization and administration is delegated to an executive committee of three, an executive secretary is also a member of the committee. In actual operation this past year the executive committee arranged a curriculum and provided a faculty, which was drawn largely from the medical schools. However, some non-medical school faculty instructors gave splendid service. The committee has a free hand to secure teachers from any source. When this program was started, the Harvard Medical School abandoned all its work in giving postgraduate extension courses in Massachusetts. It is the opinion of the Massachusetts Medical Society that it is the duty of the organized profession to carry on this type of graduate instruction. The committee has received active assistance from the state health department, the state department of mental diseases, many community and private general hospitals, and the medical schools. As this work develops, other related organizations will be of assistance.

The Massachusetts Medical Society program of postgraduate instruction was finished on May 15, 1934. The total benefit to the profession and the public is difficult to evaluate, however, this value may be estimated from the fact that 1,002 doctors enrolled in twenty-two courses, which were given in groups of ten subjects in twenty-four different cities. A faculty of 170 instructors gave the course of study. The cost per member was \$5 for registration, and the project is essentially self supporting. The Massachusetts Medical Society plans to continue this work. The success of the Massachusetts Plan has been due to the splendid cooperation of the state health department, the medical schools and other professional groups who have worked with the state medical society.

Is it not reasonable and desirable that public health physicians should take a more active interest in programs of postgraduate medical instruction? Specialists in public health are in an advantageous position to assist practicing physicians to provide better medical service. The best medical care for the individual and community is possible only by having highly trained and efficient physicians who carry on their work enthusiastically. There has been much criticism of the present social order of medical service. Is it not a possibility that much of the difficulty is the inadequate and uneven distribution of the knowledge of how to provide the highest grade of modern medical service? The actual need of society is not essentially cheap medical service,

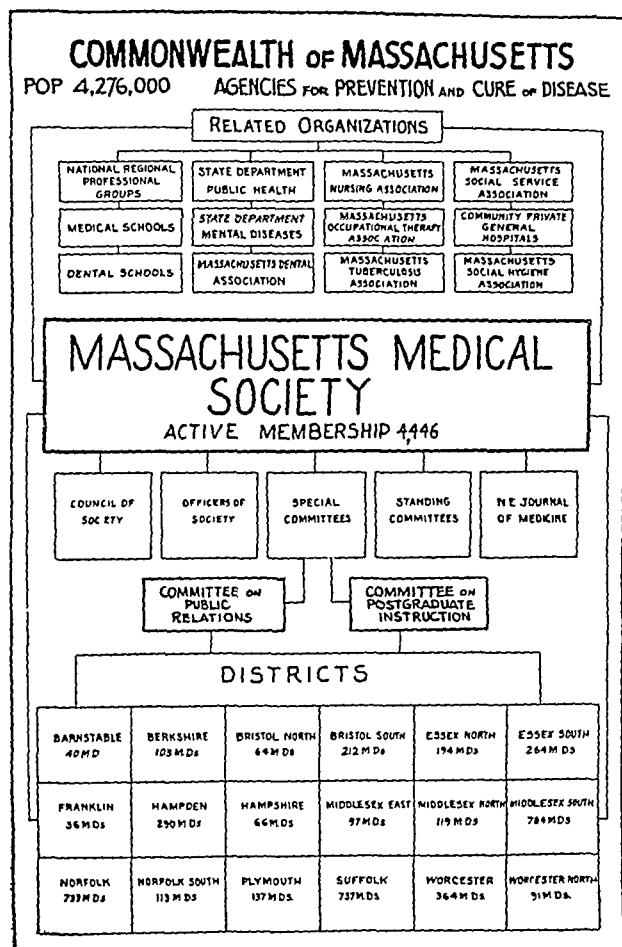


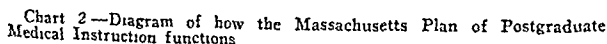
Chart 1—Relation of the department of postgraduate instruction to the state society as a whole

wide program of postgraduate medical instruction may be of interest in visualizing ways and means of active participation by public health physicians in assisting the organized profession to secure instruction in preventive and curative medicine. This experience is not of great length, but it has been successful. The Massachusetts Medical Society has just finished its first year of state-wide postgraduate extension instruction which has functioned in 100 per cent of the state. Every district society has taken an interest and proved that doctors everywhere, whether they reside in city or village, have a genuine interest in improving their ability.

Chart 1 shows the relation of the department of postgraduate instruction to the state society as a whole. This work is carried on under a special committee

<sup>1</sup> Gordon J. E. medical director health department of the city of Detroit. Per oral communication to the author.

DR LEROY E PARKINS, Boston In Massachusetts the state medical society appropriated \$1,000 the first year to defray the beginning expense, but it was also voted to charge \$5 for each member who registered for the course. Actually the \$1,000 appropriated was never used. The \$5 registration fee amply covered all expenses. The state society organized a faculty of 170 instructors. We really organized a postgraduate school within the medical society. The best instructors available in Massachusetts gave the courses. Some of them were private practitioners from various parts of the state. The committee was given a free hand to obtain instructors from any source. The first year it was agreed to pay no salary to instructors beyond the actual expenses. We were liberal in allowing any expenses they wanted to incur. At the present we are just finishing the first year, so that we have not made a final accounting, but I know we are going to come out with a balance to the good. Just now we are organizing the curriculum for next year. Twenty-two individual subjects were offered last year, that will be reduced this year to probably ten groups, actually thirty subjects. Each district society will be allowed to choose three groups and one elective. We are very liberal in our agreement to give any type of instruction. This has included tuberculosis, gonorrhea, syphilis, pneumonia, fractures, surgery, obstetrics and the general run of medical subjects. We are fortunate in having the state 100 per cent organized. We have an excellent chairman in each district, who has been wonderfully cooperative with the state committee in each case, so we have had splendid service from them. They are organized as a committee, last week they met in Worcester at the state convention, and told us what they wanted, now it is our job to provide what they want. This project of giving instruction to the medical profession is one of the greatest things the organized medical society can do, and I am certain that it can be financed in any state. Canada does it on a national scale, the Sun Life Insurance Company has given \$30,000 a year to the Medical Association of Canada for six years to carry on extension teaching. If there is any one here from Virginia, I think he could tell you about the Commonwealth Fund, which gave the Medical Society of Virginia \$10,000 to help organize the work there.



## ABSTRACT OF DISCUSSION

DR J E GORDON, Detroit In 1930 a scheme of postgraduate instruction was started in Detroit, relating particularly to problems in the control of communicable diseases Preventive medicine profits in proportion to the increased interest and activity of the private physician Vaughan has emphasized that successful participation of the private physician in preventive medicine depends on three factors the prepared physician, the prepared public and a sympathetic health agency An increased interest of the physician in the possibilities of preventive medicine as contrasted with curative medicine, together with instruction in the technic of the methods involved, has been attempted in three ways—by postgraduate instruction, by

# CONSERVATIVE TREATMENT OF LATE TOXEMIAS OF PREGNANCY

WITH SPECIAL REFERENCE TO THE INTRAVENOUS  
USE OF MAGNESIUM SULPHATE

LYLE G. McNEILE, M.D.  
LOS ANGELES

F. S. Newell,<sup>1</sup> in addressing the alumni of the New York Lying-In Hospital, Nov. 12, 1913, said "Any one reading the two papers on eclampsia which were presented at the last meeting of the New York State Medical Society, one on the surgical and one on the medical treatment of eclampsia unless he has strong views of his own, would be in serious doubt as to how to treat a case of toxemia because he is told on the one hand that the only real hope of the eclamptic patient lies in the immediate emptying of the uterus

and on the other hand he is assured that the only safe method of treating eclampsia is by purely medical means." Twenty years later, the routine surgical treatment of eclampsia cannot be seriously considered by one who has even superficially examined the contributions of Stroganoff<sup>2</sup> and others. The definitely lowered maternal and infant morbidity and mortality in clinics employing conservative methods is well established.

The treatment of a disease of unknown etiology must of necessity be empirical, and this is particularly true of eclampsia. Theories and opinions advanced by investigators of unquestionable honesty and technical ability have been at such variance that the average practitioner is often confused in regard to the specific details of any one of the standardized procedures and the results which may reasonably be expected from such procedures.

My purpose in this presentation is to supplement a report<sup>3</sup> on the intravenous use of magnesium sulphate in the care and treatment of preeclampsia and eclampsia, read by my former associate, Dr. John Vruwink, before this section at the Dallas session in April 1926. In that paper we reported the results of treatment in forty-five severely preeclamptic patients and 103 eclamptic patients, using the technic developed by myself and associates at the Los Angeles County General Hospital. The mortality among the eclamptic patients was 14.8 per cent, and only six of the forty-five patients with preeclampsia developed convulsions.

Several distinct clinical entities are included in the term "late toxemia of pregnancy." While fully appreciating the value of classifying the late toxemias as eclampsia, preeclampsia, chronic nephritis complicating pregnancy and low reserve kidney, as suggested by Stander and Peckham,<sup>4</sup> I agree with Plass<sup>5</sup> that it is impossible to differentiate clinically between the last three types, and I include in this study all late toxemias of pregnancy which have resulted in convulsions, or in

which at least a portion of the treatment has been directed toward the prevention of convulsions.<sup>6</sup>

The conditions indicating the necessity for treatment in this clinic may be summarized as a sustained rise in the systolic blood pressure to 135 mm. of mercury or over, albuminuria, edema, headache, visual disturbances and epigastric pain.

In general, the active treatment of the late toxemias of pregnancy has included the following principles:<sup>7</sup>

- 1 The reduction of the products of protein metabolism, in order to spare the kidneys.
- 2 The rapid elimination of the toxic elements circulating in the blood, in order to reduce the damage to the brain, heart and liver.
- 3 The administration of carbohydrates to replenish depleted stores of glycogen in the liver.
- 4 The protection of the patient from injury during unconscious periods.
- 5 The support of the cardiac and respiratory centers until the peak of the intoxication is passed.
- 6 The emptying of the uterus if the patient's condition does not improve under active treatment.

## WHAT IS MEANT BY CONSERVATIVE TREATMENT

Considerable difference of opinion exists as to the limitations of conservative treatment. When the pendulum swung from the surgical treatment of eclampsia to the medical treatment, there were many who con-

TABLE 1—Results of Treatment of Eclamptic Patients During the Radical Period 1919-1924

Types of Delivery	Number of Cases	Died	Mortality Percentage
Cesarean section	16	7	47
Accouchement forcé	9	4	44
Spontaneous with forceps or version	41	12	29
Not delivered (moribund)	8	6	75
Postpartal eclampsia	18	4	22
Totals	91	33	36

demned operative delivery under any conditions. Stroganoff reserves operative delivery for patients in whom intervention becomes absolutely necessary for the sake of the child. Plass, in a classic review of the subject, writes "At present, there can be no question but that the regular treatment for eclampsia should be conservative, with radical surgical procedures reserved for the unusual cases with complications which themselves afford indications for operative delivery." This statement expresses my general policy. I believe, however, that in view of the known latent effects on the mother and the high infant mortality, unless the toxemia shows definite response to ameliorative measures, systematically used over a reasonable period of time, a complication exists which may justify the termination of pregnancy. Peckham<sup>8</sup> in a review of the fetal mortality in the toxemias of pregnancy expresses my view in this regard. He says "It is generally agreed that chronic nephritis is definitely aggravated by pregnancy; the severity of the condition after pregnancy is much advanced, and the amount of renal damage is in ratio to duration to which pregnancy is allowed to continue. A considerable number of women suffering from a non-nephritic variety of toxemia will be found to have a definite chronic nephritis some months after

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1 Newell, F. S. *Bull. Lying-In Hosp. New York* 9 (Jan.) 1914.

2 Stroganoff, B. *Am. J. Obst. & Gynec.* 11: 756 (June) 1926.

3 McNeile, L. G. and Vruwink, John. *Magnesium Sulphate Intravenously in Care and Treatment of Preeclampsia and Eclampsia*. *J. A. M. A.* 87: 236 (July 24) 1926.

4 Stander, H. J. and Peckham, C. H. *Am. J. Obst. & Gynec.* 11: 533 (May) 1926.

5 Plass, E. D. quoted by Berman, S. *Am. J. Obst. & Gynec.* 16: 410 (Sept.) 1928.

6 Lazard, E. M., Irwin, J. C. and Vruwink, John. *Am. J. Obst. & Gynec.* 12: 104 (July) 1926.

7 (a) Falls, F. H. *California & West Med.* 31: 2 (Aug.) 1929.

(b) Titus, P., Dodds, P. and Willets, E. W. *Am. J. Obst. & Gynec.* 15: 302 (March) 1928.

8 Peckham, C. H. *Fetal Mortality in Toxemias of Pregnancy*. *J. A. M. A.* 101: 1608 (Nov. 18) 1931.

delivery. A high fetal mortality rate exists with all types of toxemia of pregnancy. In the cases with the severer toxemic manifestations the outlook for the child is so poor that it should have little effect upon the treatment."

While the treatment given in this clinic is generally spoken of as the magnesium sulphate treatment for eclampsia, I have never regarded the intravenous injection of magnesium sulphate as more than a very valuable

TABLE 2—Results of Treatment of Eclamptic Patients with Magnesium Sulphate from 1924 to 1934

	Number of Cases	Gross Mortality	Corrected Mortality
From May 1924 to February 1926	54	10.66%	11.5%
From February 1926 to July 1929	71	7.0%	5.7%
From July 1929 to November 1932	100	16.0%	10.5%
From November 1932 to April 1934	34	11.76%	11.76%
Total	259	12.85%	9.86%

adjunct in the commonly accepted conservative treatment of toxemia. As Lazard<sup>9</sup> states, "it is essentially a sedative, dehydration therapy" which clinically will cause considerable reduction of blood pressure, reduce edema, increase urinary output, and reduce or control convulsions and certain other symptoms. In my opinion there is a strong possibility that additional study of the pharmacology of magnesium may demonstrate properties which will fully explain the clinical effects which we have observed.

The Stroganoff treatment, sedation with morphine and chloral, with noninterference with pregnancy, is the basis of conservative treatment today. The use of chloroform, as advocated by Stroganoff, cannot be justified in view of the present knowledge that it produces central necrosis of the liver lobules. The rationale of such treatment is difficult to understand, but, as Stander states, "It has recently been shown that morphia raises the CO<sub>2</sub> combining power of the blood, and this property, together with its sedative action, may explain the good results following its use in eclampsia." Stander makes another pertinent observation relative to the mortality reported by Stroganoff, in concluding that "Stroganoff deals with mild and unneglected cases, while in most obstetrical clinics in this country the patient is usually admitted when in a desperate condition."

Titus, Dodds and Willetts,<sup>10</sup> in addition to the usual rational procedures, advise the injection of a strongly

TABLE 3—Methods of Delivery in Thirty-Four Cases of Eclampsia from November 1932 to April 1934

	Cases
Spontaneous delivery	23
Low forceps	0
Low cervical section	2
Vaginal hysterotomy	2

hypertonic dextrose solution, which they state has a striking effect in controlling both the severity and the number of the convulsions as well as in lowering the blood pressure and stimulating diuresis. The basis of their recommendation lies in the contention that the principal change in toxemia of pregnancy is one of carbohydrate metabolism based primarily on a deficiency of carbohydrate intake plus increased consumption of

carbohydrate, resulting in a depletion of the glycogen stores with damage to the liver and its function. Stander and others have taken issue with Titus. An analysis of the blood sugar determinations in our cases has definitely confirmed the conclusion of Titus that in true toxemia there is a relative hypoglycemia, and I am utilizing his suggestion regarding the use of carbohydrates in all types of toxemias of pregnancy.

OBSERVATIONS ON THE PHARMACOLOGY OF MAGNESIUM SULPHATE, IN RELATION TO ITS USE IN THE LATE TOXEMIAS OF PREGNANCY

In 1905 Meltzer<sup>11</sup> demonstrated the role of magnesium sulphate in controlling the convulsions of tetanus and established its anesthetic properties. Later he amplified his original contribution.<sup>12</sup> Numerous investigators<sup>13</sup> have confirmed this, and it now seems definitely established that magnesium sulphate possesses the property of controlling convulsions in tetanus, eclampsia and certain other conditions, and that the drug possesses marked anesthetic properties.

It is well established that the intravenous injection of hypertonic solutions of magnesium sulphate will reduce both the cerebrospinal fluid pressure and the brain bulk. Postmortem studies have shown that edema of the brain, causing increase in the bulk of the brain, is an almost constant phenomenon in eclampsia, and many observers believe that increased cerebral pressure may be a cause of the convulsions.

TABLE 4—Mortality in Preeclamptic Patients Treated with Magnesium Sulphate from 1924 to 1934

	Number of Cases	Number of Deaths	Mortality
To July 1929	143	4	2.80%
July 1929 to November 1932	225	2	0.89%
November 1932 to April 1934	160	3	1.76%
Total	528	9	1.68%

Experimental evidence shows that the injection of magnesium salts either subcutaneously or intravenously is followed by a rise in blood sugar.<sup>14</sup>

Beginning with Meltzer's contribution in 1905,<sup>11</sup> investigators have rather consistently warned of the toxic effect of intravenous administration of magnesium sulphate, because of the danger of causing respiratory failure. Stander at first<sup>15</sup> considered the intravenous use of magnesium sulphate unsafe and unwarranted but later<sup>16</sup> considered that a total of 6 Gm of magnesium sulphate administered intravenously in 20 cc doses of a 10 per cent solution over a period of twenty-four hours up to a maximum of 6 Gm of magnesium is within the limit of safety. His principal objection was the production, in experimental animals, of definite histologic changes in the liver and kidneys, in the form of moderate necrosis and degeneration. Hirschfelder<sup>17</sup> calls attention to the fact that a condition of coma easily mistaken for uremic coma, can be induced in nephritic patients by purgation with magnesium sulphate.

11 Meltzer S J. M Rec 68 965 1905  
12 Meltzer S J. Inhibitory Properties of Magnesium Sulphate and Their Therapeutic Application in Tetanus. J A M A 66 931 (March 25) 1916  
13 Meltzer S J and Auer J. J Exper Med 23 563, 1916  
Blake, J A. Surg Gynec & Obst 2 541 1906  
14 Horvath A A. Proc Soc Exper Biol & Med 24 198 (Dec) 1926  
15 Stander H J. Am J Obst & Gynec 12 654 (Nov) 1926  
16 Stander H J. Effect of Intravenous Administration of Magnesium Sulphate. J A M A 92 631 (Feb 23) 1929  
17 Hirschfelder A D. Clinical Manifestations of High and Low Plasma Magnesium. J A M A 102 1138 (April 7) 1934

9 Lazard E M. Am J Obst & Gynec 26 647 (Nov) 1933  
10 Titus P, Dodds P, and Willetts E W. Am J Obst & Gynec 14 89 (Jan) 1927 footnote 7 b

but states that his results in no way conflict with those of investigators who have administered magnesium sulphate intravenously for eclamptic convulsions, since they gave in carefully controlled doses only sufficient magnesium sulphate to produce subsidence of convulsions

I have used magnesium sulphate intravenously in eclampsia for eighteen years, during ten years of which it has been in routine use at the Los Angeles County General Hospital. During the early experimental period,

TABLE 5—Preeclampsia Patients Developing Convulsions While Under Treatment with Magnesium Sulphate

	To July 1929	From July 1929 to November 1932	From November 1932 to April 1934	Total
Cases admitted in labor and given magnesium sulphate as a prophylactic	55	78	77	210
Convulsions	5	1	8	14
Cases admitted during the last 2 weeks of pregnancy and in which magnesium sulphate was the main feature of treatment	83	150	92	330
Convulsions	6	9	6	21

I was in constant fear of the respiratory failure which so many investigators had stressed. An intern, impressed only with a knowledge that doses of 20 cc. of 10 per cent magnesium sulphate were used in the treatment of eclampsia, administered six doses, or 12 Gm., of magnesium sulphate within ten hours to an eclamptic patient who was in a desperate condition. She made an uneventful recovery. The incident had a direct bearing on the increase in the dosage used in the clinic. During this period we have not observed any respiratory depression or any clinical evidence which would indicate that the drug has been injurious either directly or indirectly.

Magnesium sulphate has been administered intraspinally,<sup>18</sup> intramuscularly<sup>19</sup> and intravenously. Since Dorsett's results with intramuscular injections and the results of many observers with intravenous injections have been so satisfactory, there does not seem to be any justification for the intraspinal method. Our experience in a not inconsiderable number of patients

TABLE 6—Method of Delivery in 196 Preeclamptic Patients Treated from November 1932 to April 1934

	Cases
Spontaneous delivery	90
Forceps delivery	26
Version and extraction	5
Breech extraction	7
Cesarean section	16
Vaginal hysterotomy	1
Not stated	1
Undelivered	9
Tabulated as eclamptic	14

treated by the intramuscular administration would indicate that painful induration and sloughs follow that method with sufficient frequency to make the intravenous route the method of choice.

SCOPE OF THE PRESENT REPORT

This report includes 540 preeclamptic patients, of whom thirty-five developed convulsions (6.41 per cent), and 259 patients with convulsive toxemias, a total of 799 cases. The report is a compilation of the reports of

18 Alton Botto J. Exper. Med. 25: 83 (Jan.) 1917  
19 Dorsett L. Am. J. Obst. & Gynec. 11: 227 (Feb.) 1926  
J. Missouri M. A. 27: 316 (July) 1930

Lazard,<sup>9</sup> McNeile and Vruwink<sup>3</sup> and Lazard, Irwin and Vruwink,<sup>20</sup> as well as a summary of the results obtained from November 1932 to April 16, 1934. With the exception of a limited number of cases which were either under the immediate care of a member of the obstetric staff or were seen in consultation, the cases are from my service and that of Dr. E. M. Lazard at the Los Angeles County General Hospital. The obstetric department of this hospital cares for more than 500 cases each month, of which 350 deliveries are conducted in the hospital and 150 deliveries are conducted by the outdoor service. The relative number of patients who receive adequate prenatal care is small. A large proportion of the patients treated for toxemias have had no prenatal care and are often admitted in a desperate condition. A large proportion of the convulsive conditions would be classed as "severe types" according to the classification proposed by the British Congress of Obstetrics and Gynecology in 1922, which classified as severe any case of eclampsia presenting two or more of the following signs: (1) coma, (2) pulse rate over 120, (3) temperature above 103, (4) a number of convulsions greater than ten, (5) a urine that becomes solid on boiling, (6) absence of edema, (7) a blood pressure over 200.

PROPHYLAXIS OF LATE TOXEMIAS OF PREGNANCY

A discussion of the treatment of late toxemias of pregnancy would be incomplete without mention of the

TABLE 7—Indications for Cesarean Sections on Preeclamptic Patients

	Cases
Previous cesarean section	3
Abruptio placentae	3
Deformed pelvis	1
Primipara, aged 41 years	1
Toxemia of pregnancy	8

effect of prophylaxis, i. e., prenatal care. The Los Angeles Maternity Service, the outpatient division of the Los Angeles County General Hospital, caring for prenatal care and home deliveries, rarely sees a case of eclampsia in patients who have registered early in pregnancy. In addition to the usual medical supervision given generally in obstetric dispensaries, we insist on limitation of the patient's weight during pregnancy and on dental examination of all patients to discover and treat oral foci of infection. The results during the three years of dental service have had such a pronounced effect in reducing our incidence of toxemias that I feel that the necessity for stressing this phase of prenatal care is amply justified.

ROUTINE ACTIVE TREATMENT OF PREECLAMPTIC PATIENTS

1. Absolute rest in bed is necessary. Hospitalization is very desirable, but patients with mild toxemias can be cared for in the home if hospitalization is not feasible.

2. A milk diet is used. In conformity with opinions expressed by many authors regarding nephritic, basic and other diets in cases of toxemia, several types of diet have been tried from time to time. I am definitely of the opinion that from the clinical standpoint an intake composed exclusively of milk and water is advantageous.

20 Lazard, E. M., Irwin, J. C. and Vruwink, John. Am. J. Obst. & Gynec. 12: 104 (July) 1926; Irwin, J. C. ibid. 34: 208 (Feb.) 1926.

3 The fluid balance must be maintained by accurately measuring the fluid intake and output. If necessary, a retention catheter is used to insure the accurate measurement of urine excreted. Fluid bowel movements should be measured.

4 The bowels are to be kept active, 1 ounce of magnesium sulphate being given every six hours until the bowel movements are watery, then one-half ounce daily. The recent observation of Hirschfelder<sup>17</sup> that in patients with renal insufficiency the oral administration of magnesium sulphate may produce coma, but that sodium sulphate may be substituted safely in such cases, may be the basis for changing this part of our treatment.

5 A urinalysis of a twenty-four hour specimen is made daily. A quantitative estimation of the albumin is done with a routine chemical and microscopic examination.

6 The blood pressure is taken three times a day, or oftener if indicated by a rising blood pressure or other evidences of an increasing toxemia.

7 Twenty cc of a 10 per cent solution of magnesium sulphate is administered intravenously when the systolic blood pressure is 150 or higher and is repeated when indicated by a rising blood pressure or other evidences of increasing toxemia. From 60 to 120 cc can be safely given in twenty-four hours.

8 Dextrose, 300 cc of a 25 per cent solution, must be given intravenously from one to four times daily and is particularly important in patients showing decreased urinary output with or without a low carbon dioxide combining power of the blood.

9 Patients who are very restless should be given chloral hydrate, 20 Gm, and sodium bromide, 60 Gm, by rectum.

10 If the symptoms improve, we add a basic diet and place the patient on a very restricted regimen. If the symptoms do not improve, or become more severe, after a reasonable period, which, in this clinic usually varies from four to seven days, but in not exceptional cases may be continued much longer, we ordinarily induce labor by artificial rupture of the membranes, or with a Voorhees bag.

Cesarean section is rigidly reserved for cases in which it is definitely indicated for some obstetric condition other than toxemia of pregnancy, and for patients with fulminating toxemia.

#### MANAGEMENT OF THE PATIENT WITH CONVULSIONS

1 Twenty cc of a 10 per cent solution of magnesium sulphate is administered intravenously as soon as possible after the first convulsion. This dosage is repeated every hour until the convulsions are under control. The subsequent dosage is based on recurrence of convulsions, elevation of blood pressure and other signs.

2 The patient is placed in a private room. An attendant is with the patient constantly.

3 Inhalations of pure oxygen are administered to the patient after each convulsion and are continued until the respiration is normal.

4 If the patient is in labor, nitrous oxide or ethylene analgesia is given during contractions if the restlessness cannot be adequately controlled by rectal administration of chloral sodium bromide.

5 Self injury is prevented, if necessary, by using very gentle restraint during the convulsions.

6 Absolute quiet in a dark room is maintained and examinations are made only when absolutely necessary.

7 The general orders applying to the routine treatment of preeclamptic patients are continued so far as possible. The administration of dextrose is of great importance, as is also the rectal administration of chloral sodium bromide to patients who are restless.

8 If the patient is in the second stage of labor and progress is not being made, she is delivered with forceps or by other indicated procedures.

9 Cesarean section is done only for a bona fide obstetric indication or for a fulminating toxemia, and then only with the consent of the senior attending obstetrician.

#### TREATMENT AND RESULTS DURING THE FIVE YEARS (1919 TO 1934) PRECEDING THE USE OF THE MAGNESIUM SULPHATE TECHNIC IN THE TREATMENT OF LATE TOXEMIAS<sup>1</sup>

During the period of five years from 1919 to 1924, our treatment of toxemias of pregnancy consisted of the usual measures in common use at the time, such as elimination, epsom salt by mouth, hot packs, blood-letting and veratrum viride. We greatly relied, however, on the prompt delivery of the patient, particularly in the convulsive type of case. During this period of radical treatment of late toxemias, thirty-four preeclamptic and ninety-one eclamptic patients were treated.

TABLE 8—Number of Intravenous Injections of Magnesium Sulphate Administered in Recent Series of Eclamptic and Preeclamptic Patients

	Eclamptic Patients	Preeclamptic Patients
From 1 to 5 doses	8	88
From 6 to 10 doses	12	22
From 11 to 15 doses	4	14
From 16 to 20 doses	8	11
From 21 to 25 doses	1	4
From 26 to 50 doses		7
Over 50 doses		2

From 1924 to 1934 a total of 799 patients with late toxemias were treated with magnesium sulphate. Of this group 540 had preeclampsia and 259 had eclampsia.

The four deaths occurring in the more recent group were apparently due to eclampsia. All cases were of the severe type. A brief abstract of two cases, no less severe than the others, will serve as an example of the type of eclampsia which contributes to our mortality.

CASE 1—A secundigravida, aged 23, seven and one-half months pregnant, admitted Feb 22, 1934, had had no prenatal care. Convulsions had occurred three and one-half hours before admission and were controlled with chloroform by another physician. The blood pressure on admission was 160 systolic and 106 diastolic. The maximum blood pressure was 192 systolic and 134 diastolic. She was semicomatose and the convulsions were well controlled with magnesium sulphate. Labor was induced Feb 23, 1934, with a Voorhees bag. The spontaneous delivery of a stillborn, premature infant occurred seventeen hours later. The patient died twenty-four hours after delivery.

CASE 2—A primigravida, aged 33, eight months pregnant, admitted May 13, 1933, had had edema of the feet for three weeks and severe headaches for two days. She had had no prenatal care. The first convulsion occurred ten and one-half hours before admission and was followed by alternating periods of coma and convulsions. The maximum blood pressure was 200 systolic and 110 diastolic. Induction of labor by artificial rupture of the membranes was done on May 15, 1933. The patient was delivered May 18. A spinal tap, May 19, showed a spinal fluid pressure of 400 mm. The patient had been comatose for the past six days. Death occurred May 24. The



autopsy showed liver changes characteristic of eclampsia and very marked multiple cerebral hemorrhages

The methods of delivery in the thirty-four cases occurring in the more recent group are of interest

Both low cervical sections were done on primiparas with fulminating toxemia of severe type. Both patients made uneventful recoveries

We are convinced that many reports, criticizing the use of magnesium sulphate in eclampsia because of ineffectiveness, have arisen because an adequate dosage was not used. During the first five years of its use we constantly varied the dosage. It is our opinion that, in general, the dosage recommended in this paper is clinically safe and effective and that the use of smaller doses is not likely to give satisfactory results.

The continued use of the drug over long periods of time in preeclamptic patients who do not show definite improvement is not to be recommended.

#### INFANT MORTALITY IN ECLAMPTIC PATIENTS

In the recent series of thirty-four patients with eclampsia there occurred one pair of twins. Of the thirty-five babies, twenty-two were discharged in good condition. Two of the patients were delivered at home, and the babies were not admitted. Prematurity was the cause of four stillbirths and five deaths. Toxemia was the cause of two stillbirths. The infant mortality was 31.42 per cent.

#### COMMENT

It is obvious that the entire credit for our reduction in maternal mortality which resulted from late toxemias of pregnancy cannot be attributed to the use of intravenous magnesium sulphate. The effect of eliminating radical surgery, except when clearly indicated, has been thoroughly demonstrated. Regardless of the controversy as to the exact interpretation of clinical and laboratory data, the use of carbohydrates in the treatment of toxemias of pregnancy has been the basis for the successful treatment of many severely sick patients. The favorable effect of maintaining a proper water balance in toxic patients is generally recognized. It is not my intention to give the impression that I regard the intravenous use of magnesium sulphate as any more than an extremely valuable adjunct to the commonly accepted conservative treatment. During the eighteen years in which I have used magnesium sulphate intravenously, in the latter ten years of which it has been a major part of the treatment of late toxemias at the Los Angeles County General Hospital, I have clinically demonstrated the safety of the procedure, and its effectiveness in allaying restlessness, controlling the convulsions of eclampsia and increasing the urinary output. In a very large portion of patients there is an immediate and surprising improvement in the general toxic symptoms.

#### CONCLUSIONS

1 In 799 cases of late toxemias of pregnancy, 259 were of the eclamptic type.

2 There was a definite decrease in the mortality in eclamptic patients treated by conservative methods at the Los Angeles County General Hospital.

3 The intravenous injection of a 10 per cent solution of magnesium sulphate has proved a very valuable adjunct in our treatment of the late toxemias of pregnancy. It will cause some reduction of blood pressure, reduce edema, increase urinary output and reduce or control other symptoms.

4 The intravenous injection of a 10 per cent solution of magnesium sulphate will control the convulsions

of eclampsia in nearly every case, and exercises a favorable influence on the other symptoms of eclampsia.

5 The intravenous injection of a 10 per cent solution of magnesium sulphate is clinically proved to be a safe procedure.

123 West Sixth Street

#### ABSTRACT OF DISCUSSION

DR. PAUL TITUS, Pittsburgh: It is apparent from Dr. McNeile's paper that he favors, as most of us do, the "conservative" treatment of eclampsia. This is not necessarily always medical, as an operative procedure, such as forceps delivery during the second stage, may be actually conservative. Dr. McNeile's point that preeclampsia and eclampsia are essentially the same disease should be emphasized. They differ only in the addition of one spectacular symptom, the convulsion, and treatment to be most successful should be begun in the preeclamptic stage. One might question the advisability of stressing a single therapeutic step in the treatment of eclampsia by speaking of it as the "magnesium sulphate treatment," because one might deduce that this constitutes the entire treatment. Dr. McNeile was careful to emphasize the other important procedures, so that this comment is no criticism of his paper. Treatment of preeclampsia and eclampsia is properly divided into three main heads. First is its sedative treatment, magnesium sulphate injections are important here but when not available the older use of morphine is still effective. Second is the supportive treatment, of which intravenous injections of hypertonic dextrose solution are an important part. The third, briefly, is the appropriate management of the pregnancy and labor, as it occurs after the first two general procedures have become effective and the patient's condition improved. It is at these times that proper obstetric intervention is no longer to be considered as being radical. The work of the California group in stressing the fundamental importance of sedation has been of great importance in reducing the mortality rate of eclampsia.

DR. ALBERT HOLMAN, Portland, Ore.: I wish to discuss the neonatal mortality associated with the toxemias of pregnancy. The autopsy reports on babies born alive of toxic mothers and dying in the first forty-eight hours were unsatisfactory, the pathologists most often being unable to determine the cause of death. Following the publication of that monumental work by Dr. Titus and his associates on the relative hypoglycemia associated with eclampsia, I felt that possibly the cause of neonatal deaths in babies of toxic mothers was hypoglycemia. My associate Dr. Albert Mathieu and I determined the normal range of blood sugars in the new-born and the relationship between the blood sugar of the normal new-born and that of the mother at birth. We found that the babies' blood sugar fell into the normal adult range and that there was a very close relationship between the blood sugar of a baby and that of its mother. We felt that the babies of toxic mothers with hypoglycemia must of necessity be born with a hypoglycemia, which increased after birth because of the metabolic drain and frequently descended to a point incompatible with life. We decided that the baby should be protected at birth by prophylactic injection of concentrated dextrose into the umbilical vein. After we had treated several babies in this way we had occasion to examine the blood of an eclamptic mother and her baby taken at birth. The woman had received 300 cc of 25 per cent dextrose solution fifteen minutes before the birth of the child and at birth the blood of the mother and of the baby contained approximately 300 mg of dextrose per hundred cubic centimeters of blood. This demonstrated that dextrose given intravenously to the mother rapidly passes through the placenta into the fetal circulation. We now feel that irrespective of the amount of carbohydrate administered to the toxic mother during the course of her disease, the baby should be protected by the administration of 300 cc of 25 per cent dextrose solution to the mother shortly before delivery. The baby should receive sufficient carbohydrate by mouth after birth to protect it against hypoglycemia. We feel that in this manner the high neonatal mortality associated with eclampsia probably may be decreased.

# PROGNOSIS IN ARTERIOSCLEROTIC HEART DISEASE

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SALT LAKE CITY

No part of medical practice is more difficult than accurate prognosis. Yet to the patient the outlook for length of life and degree of disability is of greater interest than the technicalities of diagnosis or the details of treatment. Heart disease of any kind offers special difficulties in prognosis, and among the different etiologic types of heart disease the problem is greatest among the arteriosclerotic. Not infrequently the physician is called urgently to the bedside of a patient dying suddenly of coronary occlusion and is told by the widow that only a week or a month before a physician had examined the patient and had found no heart trouble or had said that there was "nothing serious." It is still more embarrassing beside the death bed if the same physician has given the optimistic prognosis a week or a month previously.

Since prognosis is merely quantitative diagnosis rational treatment depends on the ability to estimate the stage of cardiosclerotic process. Referring to this fact, Mackenzie said "The recognition of the true state of matters enables us to map out a plan of life for the individual." For this reason he studied a series of cases of angina pectoris to determine the possible relationship between symptoms and physical signs and length of life. While he noted that pulsus alternans, nocturnal dyspnea and Cheyne-Stokes respiration were serious signs, he concluded that the chief one was the ease with which attacks are provoked. Confronted with the all too frequent unexpected deaths, other writers have been frankly skeptical of the possibility of an accurate prognosis. Thus Brooks<sup>1</sup> states that the "prognosis is exceedingly uncertain and there are no rules or signs which permit the clinician to prognose with anything like accuracy." Sutton and Lueth<sup>2</sup> consider the prognosis of coronary occlusion "most uncertain", they predicate the future of the patient with angina pectoris on the likelihood of coronary occlusion, cardiac rupture and ventricular fibrillation and state that not one of these conditions can be definitely foretold. Vaquez<sup>3</sup> stresses the significance of intermittence or progression of the symptoms and of concomitant lesions of the liver, kidneys and arteries in the prognosis of fibrous myocarditis. Lewis<sup>4</sup> describes the usual sequence of symptoms in coronary occlusion and angina pectoris and stresses the difference in the outlook for angina of effort and angina decubitus. Eggleston<sup>5</sup> found the nature and severity of the symptoms unsafe guides in comparison with the heart's response to effort. White<sup>6</sup> studied the records of 200 patients with angina pectoris and compared the number showing certain signs or symptoms in the entire group with fifty of the group who died within five years

and with fifty of the group who were still living at the end of five years. He concluded that hypertension, coronary thrombosis, syphilis, evident arteriosclerosis, poor heart sounds, abnormal T waves in the electrocardiogram and especially cardiac enlargement were more often found in those patients with angina pectoris who died than in those who survived. He noted that as a rule the more severe the pain, the worse the prognosis and the greater the number of the unfavorable factors appearing in a given case, the worse the outlook for the patient. He found that the prognosis was fairly good if the examination, electrocardiogram and roentgen study were all negative, early death was possible in such cases but unlikely.

Most reports considering the prognosis of a series of cases of angina pectoris include not only those in which this symptom is due to coronary arteriosclerosis but also those in which it is due to rheumatic aortic

TABLE 1—Observations in 153 Cases of Arteriosclerotic Heart Disease

	Number	Per Cent
Sex	117	76
Males	36	24
Females		
Age at first examination	Years	
Average	67.5	
Range	46 to 89	
Residence	Number	
Salt Lake City	88	
Utah (outside of Salt Lake City)	52	
Outside of Utah	13	
Occupation		
Business	31	
Professional	21	
Public officials	6	
Clerical	3	
Housewives	27	
Farming	19	
Skilled labor	12	
Unskilled labor	6	
None or not stated	28	
Outcome	Number	Group
Dead, death with anginal syndrome	23	A
Dead, congestive failure	32	B
Dead from noncardiac causes	15	C
Total dead	70	
Alive	77	D

disease and syphilitic aortitis, likewise cases of coronary occlusion due to syphilis are grouped together with those due to coronary arteriosclerosis. Since it is reasonable to suppose that the etiologic factor might modify the prognosis, the present paper includes for discussion only those cases in which coronary arteriosclerosis was considered the cause of angina or coronary occlusion. Also, many cases of arteriosclerotic heart disease are included in which no history of attacks of angina pectoris or coronary occlusion could be obtained, and certain cases with a history of angina in which the predominant feature was congestive failure. No doubt in many cases the myocardial failure depended on unrecognized coronary occlusion in the past but the exclusion of such instances would give an incomplete picture of arteriosclerotic heart disease. While the series included some cases presenting hypertension, cases in which the hypertensive heart disease clearly antedated the cardiosclerosis or dominated the picture were excluded. The attempt is made to present the prognosis of cases corresponding to the pathologic sequence of coronary sclerosis (with or without occlusion) and myocardial fibrosis. From some 400 cases diagnosed arteriosclerotic heart disease, 153 meeting the

Read before the Section on Practice of Medicine at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 15, 1934.

<sup>1</sup> Brooks, Harlow. Angina Pectoris. New York: Harper and Brothers, 1929.

<sup>2</sup> Sutton, D. C. and Lueth, Harold. Diseases of the Coronary Arteries. St. Louis: C. V. Mosby Company, 1932.

<sup>3</sup> Vaquez, Henri. Diseases of the Heart. American edition. Philadelphia: W. B. Saunders Company, 1924.

<sup>4</sup> Lewis, Thomas. Diseases of the Heart. New York: Macmillan Company, 1933.

<sup>5</sup> Eggleston, Cary. In Cecil's Textbook of Medicine. Philadelphia: W. B. Saunders Company, 1931.

<sup>6</sup> White, P. D. Prognosis of Angina Pectoris and of Coronary Thrombosis. J. A. M. A. 87: 1525 (Nov. 6) 1926.

requirements named and on which adequate follow-up data were obtainable were studied in an effort to evaluate the prognostic significance of certain symptoms and signs. I examined all the patients at least once, many were followed for as long as ten years.

The great majority of the patients were seen in private practice. The records in my charity hospital service were often inadequate or the follow-up data were too unsatisfactory to justify their inclusion. Of the 153 patients, seventy-six are dead and seventy-seven are living, permitting comparison and reexamination of the living patients to help clear up questionable points.

Certain patients are included who were first seen a short time before death or were seen only in the home, so that electrocardiographic and roentgen studies were not obtainable, such patients form a considerable part of the prognostic problem presented to the physician. The diagnostic criteria were those of the American Heart Association.<sup>7</sup>

The general composition of the series is shown in table 1. The series appeared reasonably representative of urban and rural populations, the sex and age distribution was the usual one. The high percentage in occupation of business and professions naturally resulted from the predominance of private practice cases.

TABLE 2—First Symptom and Cause or Type of Death

First Symptom	Total	Cause or Type of Death			
		Group A (28)	Group B (33)	Group C (15)	
		Anginal Syndrome	Congestive Failure	Cerebral Hemorrhage	Other Causes
Angina	20	16 (80%)	2 (10%)	0	2 (10%)
Dyspnea	27	4 (15%)	20 (74%)	2 (7%)	1 (4%)
Dyspnea and angina	7	4 (57%)	1 (14%)	2 (28%)	0
Dizziness, syncope and so on	8	3 (37%)	0	4 (50%)	1 (12%)
Other symptoms	14	1 (6%)	10 (73%)	0	3 (20%)

A study of the symptomatology of those patients who had died of heart disease showed that there had been a surprising tendency for the clinical picture to follow either the anginal syndrome or the syndrome of congestive failure. Though a few cases beginning with angina pectoris changed to the picture of chronic congestive failure and cessation of angina, usually congestive failure was a terminal event. Likewise a high percentage of those cases beginning with congestive failure presented this syndrome to death without apparent angina or coronary occlusion. In a high percentage of cases the first symptom pointed to the type of death (table 2). One half of the patients in whom dizziness, syncope or numbness of the extremities was the first symptom died not of heart disease but of cerebral hemorrhage. Hence it seemed to be advantageous to study the cases in separate groups according to cause or type of death.

I do not wish by the insertion of tables to over-emphasize the value of presenting data in the form of statistics. In this regard Raymond Pearl quotes Greenwood: "There is no intrinsic merit in numbers or percentages or in coefficients of correlation, their value is in aiding us to think clearly and in compelling us to express conclusions in a language which all may master if they choose." The correlations have been compared

with the probable errors from random sampling and in certain tables the frequency distribution has been compared with the standard deviation. This means of judging the significance of the figures was especially necessary in view of the small series of cases presented, which in turn resulted from the difficulty of securing a continuous clinical picture of such cases to death.

TABLE 3—Length of Life from Onset of Symptoms

Type of Death	Cumulative Percentage of Patients Dead at End of Period Named									
	6 Mos	Years								
		1	2	3	4	5	6	7	8	9
A Anginal syndrome	25	46	50	70	86	86	93	93	93	100
B Congestive failure	7	15	42	54	64	70	73	85	91	97
C Other causes	7	20	40	53	67	73	93	93	93	100

Also it is not intended to imply any certainty of the general applicability of the data obtained. Moreover, of the living patients presenting the anginal syndrome when first seen, 70 per cent still present a predominant anginal picture, similarly, of those showing at the onset symptoms of congestive failure, only 10 per cent have anginal symptoms at the present time.

LENGTH OF LIFE FROM ONSET

The average length of life of those who died was 3.5 years from the onset of symptoms, of the living patients, 4.3 years from onset to date. For those dying of the anginal syndrome the average length of life from the onset of any cardiac symptom was 3.2 years, for those dying of congestive failure it was 4.3 years. Such averages, however, hide as much information as they yield. It was more informative to note the number of patients dead at the end of successive periods from onset of symptoms.

Table 3 shows that, of the patients dying of the anginal syndrome, one fourth were dead within six months of the first symptom, nearly one half at the end of the first year, and three fourths by the end of the third year. Only 7 per cent lived after the sixth year. In contrast, of those dying of congestive failure, one fourteenth, one sixth and one half were dead at the same intervals. In the group who died of non-

TABLE 4—Length of Life from Onset According to Certain First Symptoms

First Symptom	Cumulative Percentage Dead at End of Interval Named									
	6 Mos	Years								
		1	2	3	4	5	6	7	8	9
Angina	35	50	50	65	75	80	85	85	90	100
Dyspnea	4	18	41	60	70	70	74	82	82	96
Dyspnea and angina	14	29	57	71	71	85	85	85	85	100
Other symptoms	4	18	41	59	68	77	86	86	95	100
All symptoms	13	28	45	62	71	76	82	88	92	98

cardiac causes the length of life was similar to those dying of congestive failure.

Since a life expectancy based on death data is hardly useful in prognosis, a similar table showing length of life was based on the first symptom (table 4). Of the patients showing angina (including coronary occlusion) as the first symptom, 35 per cent died within six months and 50 per cent died within a year. This contrasts greatly with the patients in whom dyspnea was the first symptom, 4 per cent and 18 per cent were dead

7. Baunt J. H., Levy R. L., Munly W. C. and Pardee H. E. B. Criteria for the Classification of Heart Disease. New York: Paul B. Hoeber, 1928.

# ARTERIOSCLEROTIC HEART DISEASE—VIKO

at the intervals stated After the first year the first symptom did not so materially affect the length of life

## CORRELATION OF VARIOUS FACTORS WITH LENGTH OF LIFE FROM ONSET

*Sex*—In White's series of cases of angina pectoris there did not seem to be an association between sex and length of life based on the patients living or dead at the end of the five year period In the present series, while the seventh year equalized the difference, men showed a distinctly greater tendency to die early than did women (table 5) Likewise the average length of life of the men was 33 years from onset as compared with 41 for females This fact may be related to occupation

*Occupation*—From the present series it would be unsafe to attempt precise conclusions regarding the possible effect of occupation on the length of life The series was too small to yield large enough numbers in the various occupational groups to present data on the percentage dead at successive intervals Also, because of age or disability, many of the patients had retired from active occupations prior to or during the period of heart symptoms Hence only the average length of life is considered (table 6) The figures suggest a shorter length of life for farmers and unskilled laborers

TABLE 5—Sex and Length of Life from Onset

	6 Mos	Cumulative Percentage Dead at End of Interval Named								
		Years								
Men	14	31	48	63	74	81	84	87	90	98
Women	7	14	29	36	57	57	71	93	100	
Total	13	28	45	62	71	71	81	88	92	98
Average length of life of men	33 years									
Average length of life of women	41 years									

*Age at Onset*—There was apparently a definite correlation between the age at onset of symptoms and the length of life after onset (table 7) Comparing the age at onset of the living and dead patients, it was apparent that the former were a younger group This may have explained their greater average length of life

## CORRELATION BETWEEN CERTAIN SYMPTOMS AND SIGNS AND LENGTH OF LIFE

In many cases, signs or symptoms had been present for varying lengths of time prior to my examination of the patients, but as the time of the onset could not be established accurately in many cases, the comparative length of life is dated from the examination

*Dyspnea at Rest*—Table 8 makes a comparison of the presence or absence of dyspnea at rest in the seventy-six patients who died and the three subgroups considered separately Only one (10 per cent) of the patients, dying later of the anginal syndrome (group A) and showing this symptom at the first examination lived over a year, and 73 per cent were dead within six months, while of those in this group showing no dyspnea at rest 18 per cent lived over a year and only 50 per cent died within six months Groups B and C present similar differences in length of life for those with and without this symptom In the whole group of seventy-six patients only two of those with dyspnea at rest lived over three years, none lived over four years, and 60 per cent were dead within six months

*Angina and Coronary Occlusion*—A similar comparison of the patients with and without attacks of anginal pain at the time of the first examination is shown in table 9 It seems to show that anginal attacks occurring only on exertion did not materially shorten the subsequent length of life but that angina at rest or definite coronary occlusion did markedly shorten it

TABLE 6—Average Length of Life from Onset and Occupation

	Dead Patients	Living Patients	Total
Business	26 years	53 years	38 years
Professions	21 years	54 years	43 years
Housewives	30 years	42 years	40 years
Skilled labor	46 years	28 years	40 years
Unskilled labor	04 years	30 years	25 years
Farmers	30 years	40 years	33 years
All others	43 years	36 years	38 years

No patient with attacks of angina decubitus at the time of examination lived over fifteen months and one half of such patients were dead within six months None of the patients with coronary occlusion lived over six months There was no apparent difference in the outlook for those with substernal and those with precordial pain

*Paroxysmal Dyspnea*—In studying the subsequent length of life of the dead patients, with and without attacks of paroxysmal dyspnea (cardiac asthma) at the time of the first examination, it was noted that except in those who also had attacks of angina there was no apparent shortening of life as compared with those patients without paroxysmal dyspnea In the patients, however, who had both anginal attacks and attacks of paroxysmal dyspnea, the length of life was considerably shorter than in those with paroxysmal dyspnea alone or in those with anginal attacks (including coronary occlusion) alone No patient with both types of attack lived over a year and 67 per cent were dead within six months (table 10) In the patients in whom paroxysmal dyspnea and a recent coronary occlusion were noted at the first examination, none lived over two months and 80 per cent were dead within one month

TABLE 7—Age at Onset and Length of Life from Onset

	6 Mos	Cumulative Percentage Dead at End of Period Named								
		Years								
Ages under 60	16	21	31	47	47	53	63	74	97	95
Ages 60 to 69	9	38	47	66	72	78	78	83	94	100
Ages 70 to 79	14	19	48	62	81	86	95	95	100	
Ages over 80	25	25	50	50	100					
All ages	13	28	45	62	71	71	81	88	92	98
Ages under 60										
Ages 60 to 70										
Ages 70 to 79										
Ages over 80										
All ages										
Over Length Life										
52 years										
31 years										
23 years										
23 years										
35 years										
Percentage of Cases										
25										
42										
27										
5										

*Heart Sounds*—If there was a correlation among those who died later between the character of the heart sounds at the first examination and the subsequent length of life, it seemed to indicate a longer life for those with poor heart sounds than those with good or increased sounds (table 11)

*Heart Murmurs*—Among the patients who died later, those with murmurs present at the first examination seemed to show a shorter subsequent length of

life, but since the opposite appeared among the living patients and since the differences were not great in either group, the presence of murmurs was considered of no prognostic significance, except in the case of those murmurs appearing after coronary occlusion

*Enlargement of the Heart*—Comparing the presence or absence of general enlargement of the heart in the

TABLE 8—Dyspnea at Rest and Subsequent Length of Life

		Cumulative Percentage Dead at End of Period Named					Average Length of Life
		6 Mos	1 Yr	2 Yrs	3 Yrs	4 Yrs	
Group A	With	73	90	90	90	100	0.5 year
	Without	50	82	94	94	94	1.0 year
Group B	With	56	81	94	94	100	0.8 year
	Without	13	20	47	53	53	3.5 years
Group C	With	33	33	100			1.5 years
	Without	33	37	50	50	70	2.5 years
Total	With	60	80	93	93	100	0.8 year
	Without	34	50	66	68	77	2.3 years

It is of interest to note that only seven (9 per cent) of the living patients presented this symptom at the time of the first examination as compared with 40 per cent of those now dead

dead patients, the subsequent length of life was somewhat shorter for those with general enlargement. This was true whether clinical signs or roentgen examination was used to judge heart enlargement. In table 12 the former is presented because of the large number of cases.

When, however, the comparison was made according to the degree of enlargement, the correlation was not very clear. This fact, and the fact that among the living patients with and without enlargement there was no significant difference, leads to the conclusion that not much prognostic weight should be given to this factor. There was a much more clear correlation between blood pressure and cardiac enlargement than between length of life and cardiac enlargement.

No correlation was apparent between subsequent length of life and the size of the aortic shadow at the time of the first examination.

*Blood Pressure*—There was no apparent correlation between the blood pressure level at the first examination and the subsequent length of life. Of course the drop-

TABLE 9—Attacks of Heart Pain and Subsequent Length of Life

		Cumulative Percentage Dead at End of Period Named					Average Length of Life
		6 Mos	1 Yr	2 Yrs	3 Yrs	4 Yrs	
Angina on exertion		33	52	66	66	86	2.0 years
Angina at rest		50	83	100			0.5 year
Coronary occlusion		100					3 days
No angina		38	52	70	76	81	2.0 years

Of the seventy-seven living patients five showed attacks of angina at rest and six had attacks of coronary occlusion at the time of the first examination. The average subsequent lengths of life were 1.1 years and 2.3 years respectively. However, only three have as yet lived over two years from that time and seven (60 per cent) have lived less than a year.

ping blood pressure following coronary occlusion and with myocardial failure carried a serious prognostic significance.

*Peripheral Arteriosclerosis*—There was no apparent correlation between the presence or degree of peripheral arteriosclerosis at the time of the first examination in either living or dead patients and the subsequent length of life. The exception to this lay in those patients dying of cerebral hemorrhage in whom the degree of

peripheral arteriosclerosis and the height of the blood pressure seemed related to the length of life.

*Premature Beats and Auricular Fibrillation*—Too few of the dead or living patients presented either of these disturbances of rhythm to justify evaluation of their prognostic significance.

*Peripheral Edema*—In the dead patients showing edema at the first examination, the subsequent length of life was definitely shorter than in those without edema (table 13). However, in the living patients the difference, though in the same direction, was slight and too great weight should not be given this factor. But of those dead patients showing both angina and edema at the first examination, none lived over eight and one-half months.

ELECTROCARDIOGRAMS

With the wide variety of electrocardiographic abnormalities and the still larger number of possible combinations thereof, no correlation was attempted between the results of electrocardiographic examinations and subsequent length of life. In general, the electrocardiogram seemed of greater value in diagnosis than in prognosis. Certain observations, however, seemed worth

TABLE 10—Paroxysmal Dyspnea and Subsequent Length of Life

		Cumulative Percentage Dead at End of Period Named						Average Length of Life
		1 Mo	6 Mos	1 Yr	2 Yrs	3 Yrs	4 Yrs	
Paroxysmal dyspnea with angina		33	67	100				0.4 year
Paroxysmal dyspnea without angina		0	0	40	60	80	100	2.2 years
No paroxysmal dyspnea		26	40	66	70	74	84	1.8 years
Angina without paroxysmal dyspnea		34	55	71	82	82	90	1.2 years

Of the four living patients with paroxysmal dyspnea and angina only one has as yet lived more than a year and that one is bedridden with anginal failure. Of the dead patients showing at the first examination both dyspnea at rest and attacks of paroxysmal dyspnea only one lived over a year whether or not angina was present.

noting. Only slurring or splintering of the QRS, inversion of T waves and abnormalities of the RT or ST interval seemed significant, among the dead patients these observations were noted only in those subsequently dying of coronary occlusion, angina pectoris or cerebral hemorrhage and not in those dying of congestive failure. In the living patients all such observations except T wave inversion occurred among those having the anginal syndrome.

The observations thus far presented pointed out the marked tendency for patients to follow from the onset to death either the anginal or the congestive syndrome except for these few patients dying of causes other than cardiac. It has been noted that the patient following the anginal syndrome had a shorter length of life than those with other syndromes. It has been suggested that for women the average length of life was about one and one-fourth longer than for men and the probability of dying within the first three years was about one-half as great, that hard physical labor reduced the life expectancy, and that there was a progressive diminution of life expectancy as the age at onset increased. It has been suggested that dyspnea at rest, angina at rest, coronary occlusion and paroxysmal dyspnea when associated with angina decreased the life expectancy. Of less weight but of possible significance in the same direction were enlargement of the heart and peripheral

edema In the electrocardiogram, QRS and ST changes pointed toward an anginal death

Table 14 is presented not as a formula for estimating the length of life in all cases of arteriosclerotic heart disease but as a summary of certain data in this particular series

In view of Mackenzie's<sup>8</sup> remark that statistical methods may be used to prove unreasonable associations

TABLE 11—Heart Sounds and Subsequent Length of Life

	Cumulative Percentage Dead at End of Period Named						Average Length of Life
	1 Mo	6 Mos	1 Yr	2 Yrs	3 Yrs	4 Yrs	
Poor sounds	20	37	50	70	72	82	1.8 years
Good or increased sounds	30	53	60	82	88	94	1.2 years

The living patients seemed to show the same correlation

of clinical phenomena, this question should be raised here. However, the correlations made seemed to be reasonable ones. Thus it is logical to suppose that age at onset, sex and occupation would modify the length of life in any patient with heart disease. Likewise it seems logical that such signs and symptoms of myocardial failure as dyspnea at rest, paroxysmal dyspnea

TABLE 12—Enlargement of the Heart and Subsequent Length of Life

	Cumulative Percentage Dead at End of Period Named						Average Length of Life
	1 Mo	6 Mos	1 Yr	2 Yrs	3 Yrs	4 Yrs	
Enlargement	21	48	61	82	88	91	1.4 years
No enlargement	20	39	59	61	64	77	2.2 years

and peripheral edema would be significant. Likewise in the absence of a satisfactory means of estimating the extent of coronary sclerosis, angina at rest and coronary occlusion may serve as one means of measurement.

Nevertheless, granting the significance of the comparisons made, figures on average length of life or even on the probability of death within a given period are none too helpful in the prognosis of a given case, unless the data presented coincide to a reasonable degree with that of the cases showing especially long or short duration of life. When the records of the individual patients, living and dead, were rechecked, it was found

TABLE 13—Edema and Subsequent Length of Life

	Cumulative Percentage Dead at End of Period Named						Average Length of Life
	1 Mo	6 Mos	1 Yr	2 Yrs	3 Yrs	4 Yrs	
Edema present	30	61	77	80	88	92	1.0 year
Edema absent	24	34	50	66	72	82	2.1 years

that very few of those with a long duration of life after the first examination showed at that time the serious prognostic symptoms or signs and that with the later appearance of such signs or symptoms, the subsequent course followed the prediction reasonably well. Likewise, the majority of the patients with a short length of life after the first examination showed

at that time one or more of the symptoms or signs stressed and usually the larger the number present, the shorter the duration. Obviously the correlation was far from absolute but it seemed sufficient to provide valuable prognostic data.

Generally speaking, the course of those cases showing the syndrome of congestive failure did not differ a great deal from that of congestive failure due to other etiologic factors except in its shorter duration.

Other factors, not susceptible of statistical evaluation, seemed to enter into prognosis, such as the degree of signs and symptoms, the cooperation with and response to treatment and the presence or absence of other diseases.

## PREDICTABILITY OF SUDDEN DEATH

Even more urgent a problem than the length of life of the average patient is the question to what extent the sudden deaths from coronary occlusion can be foreseen. Of my patients dying suddenly of coronary

TABLE 14—Summary of Certain Prognostic Data

	Over Length Life from Onset	Probability of Death Within Period Named				
		6 Mos	1 Yr	2 Yrs	3 Yrs	4 Yrs
Age onset						
Under 60 years	5.2 years	16	21	31	47	47
60 to 69 years	3.1 years	9	38	47	66	72
70 to 79 years	2.3 years	14	19	48	62	81
Over 80 years	2.3 years	20	25	50	50	100
Sex						
For women add 20%						
For men subtract		50%	50%	50%	50%	20%
Occupation						
For unskilled labor and farmers reduce expectancy 20 to 50%						
First symptom						
Angina*	30	50	50	65	75	
Dyspnea	4	18	41	60	70	
Angina and dyspnea	14	29	57	71	71	
Other	4	18	41	59	68	

## Length of Life from First Examination

	Average	Probability of Death Within Period Named				
		6 Mos	1 Yr	2 Yrs	3 Yrs	4 Yrs
Dyspnea at rest	0.6 years	60	80	93	93	100
Dyspnea at rest with angina	0.5 years	73	90	90	90	100
Angina at rest	0.5 years	50	93	100		
Paroxysmal dyspnea and angina	0.4 years	33	67	100		
Enlargement of heart	1.4 years	46	61	82	88	91
Edema present	1.0 year	61	77	80	88	92

\* Angina as first symptom makes an anginal death a 4 to 1 probability. Electrocardiographic changes in the QRS or the ST interval make anginal death probable.

occlusion, all except two gave clear histories of previous symptoms for four weeks to years preceding the fatal attack. The two patients with no such history were seen within twenty-four hours of death at a time when they were so ill that no careful history was possible. All of the patients in whom electrocardiograms were taken except one showed changes in the QRS or ST or both. No patient dying of coronary occlusion on whom a complete examination and history with electrocardiogram and roentgen study had been obtained prior to the occlusion failed to show at the examination a positive result in at least one field—a significant symptom, a physical sign or a positive instrumental observation.

The pathologist shows that the fatal coronary occlusion is not often the first occlusion or that there is usually a preceding extensive coronary sclerosis and myocardial fibrosis. Is it not possible that the apparent unpredictability of sudden deaths lies more in either

<sup>8</sup> Mackenzie, James. Principles of Diagnosis and Treatment of Heart Disease. London: Oxford University Press, 1918.



the failure of the patient to interpret the symptoms as sufficiently serious to warrant consultation with a physician or in the incompleteness of the average examination than in the insufficiency of the physician's prognostic armamentarium? Perhaps more should be done to educate the man over 50 years of age in the significance of certain symptoms and urge that at 50 a complete examination, including an electrocardiogram, dissociated from questions of insurance or employment, might at least show danger signals if it did not prolong life

#### SUMMARY

In the present paper I have attempted to evaluate certain prognostic data in arteriosclerotic heart disease. While the incompleteness of the data presented is recognized, a plea has been made against an undue attitude of hopelessness in approximating the outlook for this type of heart disease

Deseret Bank Building

#### ABSTRACT OF DISCUSSION

DR WALTER L. BIERRING, Des Moines, Iowa. Dr Viko's criteria with reference to prognostic significance seem to be based on two facts: the development of anginal symptoms and those of visceral congestion, both in a sense representative of a terminal stage. It is safe to assume that a rather long period of anatomic change has preceded the first recognition of these symptoms which makes it difficult to determine just when the process begins and what meaning can be placed on certain disturbances that occur during the course of so chronic a process. Arteriosclerotic heart disease, while accompanied frequently by coronary occlusion, does not appear to have the prognostic significance in later years that it might have when such an occlusion occurs in earlier life. It is generally thought that during the gradual narrowing of the arteries and the branches of the coronary there will be intermittent attacks of angina, but at the same time a gradual collateral circulation is brought about, which promotes a certain improvement in the coronary circulation. Thus one finds instances in arteriosclerotic heart disease in which the anginal attacks gradually become less, or at least less severe, indicating the difficulty to recognize and interpret anatomic changes in the myocardium and to what extent these may be developing. It is timely to refer to certain racial and vocational influences on the development of arteriosclerosis, which modify to a certain extent one's conception of the disease. The racial characteristic of the Negro toward arteriosclerosis is well known. Having lived for many years in a region rich in bituminous coal deposits, I have come to recognize arteriosclerosis at a much earlier age. There can be no doubt, and this seems to be confirmed by similar observations in the coal districts of Wales and northern England, of the greater tendency in coal miners toward thickening of the arteries in the young adult. Soon after a year's exposure to underground life, a thickening begins to manifest itself. In the Mississippi Valley, where coal deposits are extensive, it is frequently noted that the average coal miner at 55 looks as if he had finished his allotted three score and ten. The frequency of death in coal miners from arteriosclerotic heart disease after 55 is so common as to permit its consideration as an occupational disorder. This is thought to be largely due to the alteration of the atmosphere, particularly the content of carbon dioxide, and the absence of daylight. It is also interesting that at the International Conference on Geographic Pathology the latter part of July in Utrecht, Holland the main subject is arteriosclerosis showing that it is becoming recognized as peculiar to certain geographic areas. The difficulty of properly interpreting certain prognostic signs is becoming more evident.

DR R. WESLEY SCOTT, Cleveland. Although the term arteriosclerotic heart disease is gaining in popularity, certain objections to its use are apparent. A patient with vascular disease—arteriosclerosis—may or may not develop signs of

myocardial insufficiency. If he does, two factors appear, which singly or combined may ultimately lead to heart failure. These are hypertension and coronary disease. Why not then use the term hypertensive heart disease to designate that group of patients dying of heart failure whose clinical course is dominated by hypertension, and the term coronary disease for that group (with or without hypertension) whose heart failure is more clearly associated with muscle damage secondary to coronary artery sclerosis and whose clinical course is often characterized by angina pectoris, coronary thrombosis or both? Such a classification is more easily comprehended by students and more likely to lead to straighter thinking in the therapeutic management of patients. Dr Viko feels that prognosis in arteriosclerotic patients with cardiac symptoms is not so uncertain as many believe, but the average age of his series of 150 patients was 67.5 years. In other words, the majority of his patients survived seven and one-half years longer than the average American at the present time. Human arteriosclerosis is notoriously capricious in its distribution, and so long as there is no direct means of knowing the state of the coronary arteries, the prognosis will necessarily remain uncertain. Even in hypertensive cases the future, so far as the heart is concerned, is determined by the state of the coronary vessels in the majority of instances. In a large series of autopsies on patients dying of hypertension I have been impressed by the relation between the heart weight and the state of the coronary arteries. Patients who survive long with hypertension and develop heavy hearts (from 600 to 700 Gm.) are in the great majority those in whom the coronary vessels are less seriously diseased than those persons who succumb with a heart weight of from 400 to 500 Gm. It seems to me that the most certain feature of prognosis in so-called arteriosclerotic heart disease is its uncertainty.

DR LOUIS E. VIKO, Salt Lake City. I do not wish to overemphasize the value of presenting data in the form of statistics. As Raymond Pearl quotes Greenwood, "There is no intrinsic merit in numbers or percentages or in coefficients of correlation. Their value is in aiding us to think clearly and in compelling us to express conclusions in a language which all may master if they choose." The correlations have been compared with the probable errors from random sampling and in certain tables the frequency distribution compared with the standard deviation. This means of judging the significance of the figures was especially necessary in view of the small series of cases presented, which in turn resulted from the difficulty of securing a continuous clinical picture of such cases to death. Also it is not intended to imply any certainty of the general applicability of the data obtained. But even granting the significance of the comparisons made, figures on average length of life or even on the probability of death within a given period are none too helpful in the prognosis of a given case unless the data presented fit reasonably well the cases with especially long or short duration. When the records of the individual cases were rechecked, it was found that very few of the patients living or dead, with a long length of life after the first examination showed at that time the serious prognostic symptoms or signs noted, and that with the later appearance of such signs or symptoms the subsequent course followed reasonably well the prediction. Likewise, the majority of the cases showing a short length of life after the first examination presented at that time one or more of the symptoms or signs stressed, and usually the more such present, the shorter the duration. Obviously, the correlation was far from absolute but seemed sufficiently so to provide valuable prognostic data. It was particularly interesting to compare the cases in which death occurred from coronary occlusion with those cases in which attacks of coronary occlusion were apparently as severe and yet the patients lived, or with the patients dying of the anginal syndrome. Seven died sudden deaths from coronary occlusion. In varying degree, these were unexpected because of their almost instantaneous character. It is noticeable that all these patients except one had been having angina at rest without dyspnea for days to months before the final attack. Likewise, five of the seven had signs of myocardial failure, such as attacks of paroxysmal dyspnea, liver enlargement or edema previous to the attack.

## OVARIAN CYST

REPORT OF AN UNUSUAL CASE WITH RECOVERY  
FOLLOWING OPERATION

WILLIAM K. LLOYD, MD

A M SHOWALTER, MD

AND

J G DAVIS JR, MD

CHRISTIANSBURG, VA

During the past decade it has become rare to encounter cases of abdominal tumor weighing 50 pounds or more. Occasionally, in the past, enormous fibroids and other tumors of the female genital organs were seen, but progress in medicine and surgery has been such that now most cases are detected and treated before any tumor reaches the 50 pound stage. In a review of the literature we have been unable to find a case of ovarian cyst with recovery approximating the one reported here. The tumor weighed about 175 pounds (80 Kg). There have been two cases of cystic ovaries reported larger than this one, both during the nineteenth century. One occurred in Europe<sup>1</sup> in 1890 and the other<sup>2</sup> in Baltimore in 1834. However, the former patient died after operation and the latter was discovered only at necropsy.

### REPORT OF CASE

*History*—Mrs J H K, aged 47, was first seen at home, April 6, 1934. Until this date, no physician had seen her since

tive except that all members for two generations have been obese. She had never had a serious illness or operation of any kind. She had consistently refused to consult a physician until this date, and then only because she had suffered all night from shortness of breath.

The patient was in bed, lying on her right side. The respirations were labored. She declared she could not lie on her back.

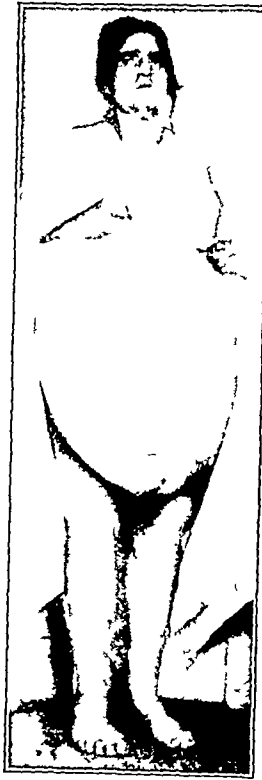


Fig 2—Front view. The lower end of the abdominal wall extended as low as the knee joints.



Fig 3—Just before operation four days after admission. The abdomen was pendulous after the removal of 16½ gallons of fluid.



Fig 1—Lateral view of patient on day of admission. Shrinkage of the skin of the thighs (the patient previously had very obese legs) and enlarged superficial abdominal vessels are shown.

and had not been able to do so for two years. She stated that she could lie on either side but that it had become necessary at night to have members of the family "lift her stomach" from one side to the other. When erect the patient had been able to move about freely and had performed almost all of her housework except washing, and said that she would have done that but couldn't get close enough to the tub.

There was a loud systolic murmur heard best at the apex. The blood pressure was 158 systolic, 112 diastolic. The menstrual history was normal until fourteen months before, when the menses ceased for nine months but had resumed and had been regular for the past three cycles.

The following day the patient was admitted to the hospital. Her chief complaint was shortness of breath. She had been unconscious of any enlargement of the abdomen until about five years before.

*Examination*—The patient weighed 295 pounds (134 Kg). The temperature was 100 F. The pulse rate was 100, the respiratory rate 28. The blood pressure was 170 systolic, 110 diastolic. Moist rales were heard at the base of both lungs. The heart beats were irregular and there was a loud systolic murmur. The abdomen was enormously distended and was flat on percussion. Bimanual examination was impossible. Large varicose veins on both legs and on the abdominal wall were noted.

The urine was amber colored, cloudy, and acid in reaction, the specific gravity was 1.020, it showed albumin, 3 plus, and was negative for sugar. The microscopic examination showed hyaline casts, 3 plus, occasional granular casts, epithelial cells, 3 plus, pus cells, 2 plus.

the birth of her only child twenty years previously. There were no miscarriages or abortions. The family history is negative.

<sup>1</sup> Buffet. Colossal Cyst of the Ovary. *Normandie med* 5 19 (May 19) 1890.  
<sup>2</sup> Heintze F E B. *N Am Arch M & S Sc* 1 3 1834 1835.

The blood examination showed hemoglobin 75 per cent, erythrocytes, 3,500,000, leukocytes, 8,000, small lymphocytes, 20 per cent, polymorphonuclear neutrophils, 80 per cent

A preoperative diagnosis of ovarian cyst was made. Ascites was considered but was ruled out by the absence of edema of the extremities

**Operation and Result**—Under local anesthesia a trocar was passed through the abdominal wall, a number 16 French catheter was inserted, the trocar was withdrawn, and the skin and fascia closed firmly around the catheter. This method permitted very little leakage. Two gallons of dark fluid was withdrawn, which on laboratory examination showed disintegrated blood cells, the tube was clamped. The lower portion of the chest and the upper part of the abdomen were taped with adhesive plaster. A firmly fitting abdominal binder was applied and carefully tightened after each withdrawal of fluid. April 10, a total of 16½ gallons of fluid, carefully weighed

from the hospital to a waiting car. At this time her weight was 132 pounds (60 Kg)

Five days later she returned for dressing of the wound and walked into the hospital unassisted. Both wounds had healed and there was a definite shrinkage of the excess skin. Her weight was 143 pounds (65 Kg). She stated that she would never consent to an operation for removal of the excess skin, saying "If they give me enough to eat, I'll need all of it." The urinalysis was negative and the systolic murmur had disappeared. May 16 she weighed 146 pounds (66 Kg). When last seen, May 24, she weighed 149 pounds (67.6 Kg)

#### COMMENT

This case is interesting because of the enormous size of the tumor and the unusual recovery. We feel that the gradual withdrawal of the fluid together with a compression binder was a life saving measure. The use of spinal anesthesia together with the excellent resistance of the patient played a part in the successful outcome.

115 West Main Street

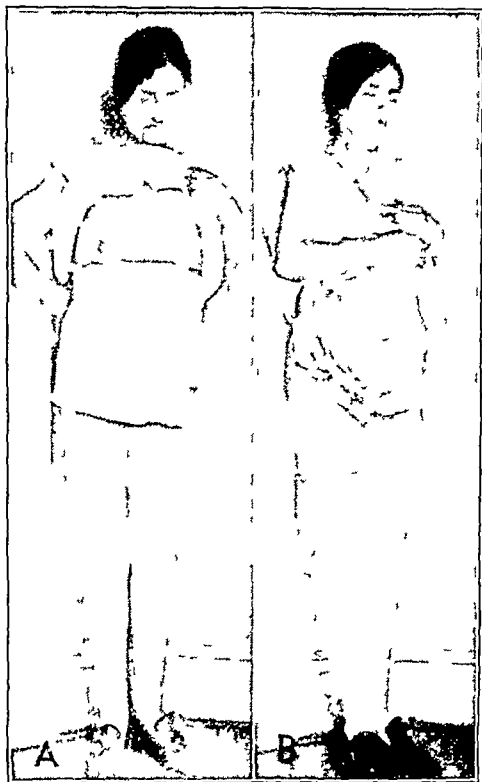


Fig 4—Front views of patient fourteen days after operation. A with binder, B without binder

and measured, had been withdrawn. April 12, under spinal anesthesia, the collapsed cyst was delivered through a 5 inch incision. It had originated from the right ovary, to which it was attached by a pedicle about 2 inches wide. The uterus was normal in size and was prolapsed. The left tube and ovary were normal. The cyst and approximately 2 quarts of free fluid in the peritoneal cavity were removed. Two small fibroid tumors on the anterior wall of the uterus were removed and the uterus was suspended.

The gallbladder was very much enlarged. A second incision was made over the gallbladder region. As it was deemed advisable to expedite the operative procedure, a simple drainage was instituted. Forty-one gallstones, about one-fourth inch in diameter, were removed.

The cyst wall weighed 27 pounds (12 Kg) and the patient's weight following operation was estimated to be 120 pounds (54.4 Kg). The patient was apparently entirely free from pain and shock during the operation. She had the general diet on the third postoperative day and noticeably began to increase in weight. The sutures and gallbladder drain were removed on the tenth day. She sat in the wheel chair on the eleventh day and on the fifteenth day with assistance walked

## ALLERGIC RESPONSE TO DUST OF INSECT ORIGIN

HOWELL RANDOLPH, M.D.

PHOENIX, ARIZ

This paper deals with a source of atopy in the group of insect emanations not hitherto demonstrated. The allergic response was observed in persons working on the control of the New Mexico range moth caterpillar and was acquired after contact with the eggs and parasite flies.

There have been a number of recent contributions to the subject of insect allergy. Insect dust sensitization was reported in 1928 by Vaughan,<sup>1</sup> who found an allergic response to moth dust contained in feather pillows. Parlato<sup>2</sup> in 1929 established the etiologic relation of caddis fly emanations in a patient with seasonal asthma and hay fever. The distressing symptoms occur when the patients go to the lake shore during the caddis fly season. Negative pollen reactions resulted in the search which revealed the excitant in the fine hairs and epithelia shed by the fly. Positive skin reactions and passive transference of sensitization together with successful hyposensitization were reported. One hundred and ninety-two known allergic cases were tested, with a positive reaction in 72 per cent. In a recent article he<sup>3</sup> reported thirty-two such cases treated, with good results.

Figley<sup>4</sup> in 1929 successfully treated one patient with asthma with an extract of the May fly, the preparation being made from the shed skins of the subimago stage.

Benson and Semenov<sup>5</sup> made a study of extracts of the bee's body and its sting on a bee keeper with hay fever and asthma. It was found to be (apparently) the exclusive cause of the symptoms, and they brought about relief of the asthma by increasing the patient's tolerance both to the dust as an inhalant and to the bee's sting.

1 Vaughan W T. Some Causes for Failure in Specific Treatment of Allergy. *J Lab & Clin Med* 13: 955 (July) 1928.

2 Parlato S J. Case of Coryza and Asthma Due to Sand Flies (Caddis Flies). *J Allergy* 1: 35 (Nov) 1929.

3 Parlato S J. Hypersensitiveness to the Emanations of Caddis Flies (Trichoptera). *J A M A* 102: 910 (March 24) 1934.

4 Figley K D. Asthma Due to the Mayfly, *Am J M Sc* 178: 338 (Sept) 1929.

5 Benson R L and Semenov H. Allergy in Its Relation to Bee Sting. *Allergy* 1: 105 (Jan) 1930.

Without investigation as to the exact nature of the phenomena, in 1915 Mr Caffrey<sup>6</sup> observed that continual contact with eggs and larvae of the New Mexico range moth had produced a tendency to violent attacks of coughing and severe wheezing, which sometimes lasted for several days. He also noted that coryza appeared in many helpers who had worked with the eggs and larvae for a few months and that the violence of the urticarial reaction produced by contact with the caterpillar spines became much more marked after handling them for succeeding seasons.

#### REPORT OF CASE

The case of bronchial asthma here reported was caused by daily contact with these products in the work of controlling the New Mexico range moth caterpillar. The patient had been working on the problem since 1930. The chief complaint was sneezing and coryza, nocturnal dyspnea and wheezing.

There was no history of allergic disease in the family.

The patient had had malaria in 1916 and typhoid during his youth. In July 1929 he was seen for an acute respiratory infection with a temperature of 102 F, chills, general malaise, and dry cough, no dyspnea and no sibilant rales were noted on physical examination. The blood showed moderate leukocytosis with 6 per cent eosinophilia. Fresh stool examination was negative for parasites.

#### Reactions to Dust Specimens Collected from Patient's Laboratory

Dust Specimen	Reaction
1 Freshly collected and killed fly <i>Anastatus semi flavus</i> Gahan (parasite fly)	Negative
2 Unparasitized eggs of the range moth <i>Hemileuca olivacea</i> , Cockerell	0.75 cm ++
3 Old dry wings of the New Mexico range moth	Negative
4 Dust from the floor of the laboratory	2 cm ++++
5 Dust from the floor of the incubation cages in which the parasitization process took place	1.8 cm ++++
6 Combined May fly extract furnished me by Parlato of Buffalo	1.8 cm ++++

Feb 2 1933, the patient was examined in the office because of coryza, wheezing, coughing and dyspnea. The coryza had been present to some extent since shortly after he began to work on the range caterpillar control problem but had been considerably worse during the last two years, the symptoms showing slight exacerbation during the winter months.

Nocturnal asthmatic breathing and cough had been present almost continuously since September 1932. During that month he had been working in the laboratory at Tempe, Ariz., but he had spent the month of October on the range in New Mexico, at an altitude of more than 5,000 feet gathering some eight million range moth eggs. He came back to Tempe, where he had spent several hours a day since November in the small poorly ventilated incubation room in which the eggs, larvae and parasite fly *Anastatus semiflavus* (Gahan) were housed, stringing eggs on wires and placing them in incubation cages with the parasite flies. The parasitized moth eggs are shipped to the range, where they are allowed to propagate the parasite fly.

The patient was exposed to inhalation of the fine dust from dried specimens of eggs in the various stages of parasitization and emergence and to the dust of the empty shells of eggs from which a few of the range moth larvae emerged. He handled very few of the range moths, as the only specimens in the laboratory were kept in tightly covered boxes. Sometimes a few of the larvae of the range moth were hatched but were destroyed. Many of the parasite flies were hatched, to be used in parasitizing other moth eggs. In transferring these tiny flies a suction bottle was used, the fly being drawn into the bottle by placing the opening of the tube in its vicinity, then drawing on the other tube. In this way he inhaled much dust from the floor of the incubation cages.

On physical examination the patient was tall and slender and not in robust health. The temperature was 98.6 F, pulse 80, height 6 feet 1 1/4 inches (186 cm), and weight 156 pounds (70.8 Kg). The nasal mucous membranes were markedly thickened and injected. The pharynx was normal. The heart sounds were clear and normal. The lungs showed numerous scattered sibilant rales over the bronchial areas both front and back. Fluoroscopic examination revealed no evidence of infiltrative lung changes. The heart shadows were normal. The abdomen and extremities were normal.

#### SKIN TESTS

The common pollens of this vicinity by both scratch and intradermal methods were found to be negative. Dust specimens were collected from the patient's laboratory, and Coca's solution extracts were prepared from material obtained as shown in the accompanying table.

Ventilation of the laboratory was through a small floor ventilator only, so that outside dust was kept at a minimum. In order to determine more conclusively the source of the atopy, skin tests were made with Coca's solution extract of larvae hatched in a cotton stoppered test tube and the empty egg shells after emergence of the larvae. These produced the strongest skin reactions.

February 27, 0.03 cc of a 1 to 500 by weight solution extract of combined larvae and egg shell dust with an equal dose of the combined fly atopy furnished by Parlato was given. Intracutaneous injections were continued three times a week for two weeks, the dose gradually being increased. After the third injection the patient had a reaction within an hour after the treatment, wheezing and coughing were similar to that which had occurred at night, and there was a more marked local reaction than usual. On two other occasions, mild reactions of a similar nature were experienced. After two weeks the patient received 0.15 cc of my extract about once a week. Each intradermal injection resulted in an urticarial welt about 3 cm in diameter and in swelling of the arm from 3 to 4 inches along the arm, and the thickening remained for a day or two. Within two weeks after these injections were begun the nocturnal wheezing and coughing ceased. There was very definite improvement in the rhinitis, although not complete relief. The patient has continued at the same work since February and has been practically free from symptoms. During the summer and fall the injections were given at intervals of three weeks. There was a slight return of wheezing during October for three or four nights. These symptoms were quickly controlled by increasing the frequency of the injections.

Passive transference was demonstrated by sensitizing a non-allergic skin with 0.1 cc of the patient's serum. One week later New Mexico range moth caterpillar extract gave a positive reaction at this site, whereas the control reaction was negative. Retesting this skin area one week later gave a negative reaction, showing rapid desensitization.

Of thirty hay fever patients tested to the extract, two were found to show a two plus reaction, the others a negative reaction. One individual in occasional contact with the laboratory was found to react negatively. One man who has been working for about two years under essentially the same conditions began to have slight hay fever symptoms shortly after beginning his work. He was found to give a four plus reaction to the extract. His symptoms were hardly distressing enough to bring him under treatment, but during October 1933, while he was collecting eggs and specimens, asthma developed.

#### CONCLUSIONS

This work demonstrates the presence of atopic substances in the coverings of the New Mexico range moth caterpillar, in the spines of the larvae and in the material left behind in the egg shells after emergence of the larvae, capable of producing hay fever and asthma in an entomologist whose work required con-

<sup>6</sup> Caffrey, D. J. *J. Econ. Entomol.* 11: 363 (Aug.) 1918.

tact with the offending substance. Successful hypo-sensitization therapy was carried out.

Few allergic individuals give a weak positive reaction to this substance.

1005 Professional Building

## Clinical Notes, Suggestions and New Instruments

### AUTOMOBILE JACK FOR FRACTURED SPINE

EDWIN W. RYERSON, M.D., CHICAGO  
Professor of Orthopedic Surgery, Northwestern University  
Medical School

This apparatus provides a cheap and remarkably efficient means of producing any desired degree of hyperextension of the dorsolumbar spine and makes easy the application of a

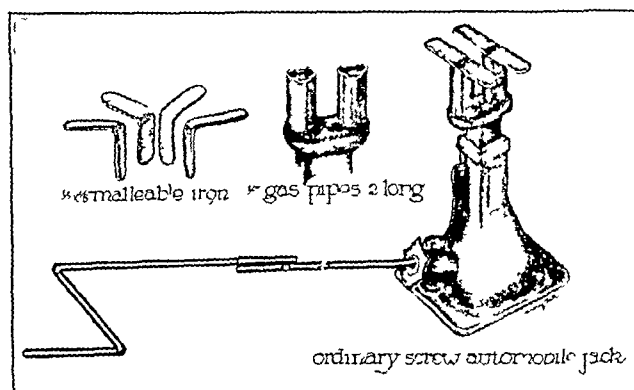


Fig 1—Materials for making apparatus

plaster-of-paris jacket in dorsal recumbency. It is particularly valuable in the forcible correction of compression fractures of the spine. It is a combination of an ordinary automobile screw-jack with a simple device that I<sup>1</sup> described in 1907. Two short pieces of half inch gas pipe, 2 inches long, are brazed vertically to the top of the jack, about an inch apart. Four flat strips of iron measuring  $\frac{1}{2}$  by  $\frac{1}{8}$  by 4 inches are bent at the middle to a right angle and two of them are slipped into each gas pipe (fig 1). This makes two T shaped supports on which will rest the kyphosis, protected by a thick piece of felt 4 or 5 inches square. The head and shoulders rest on

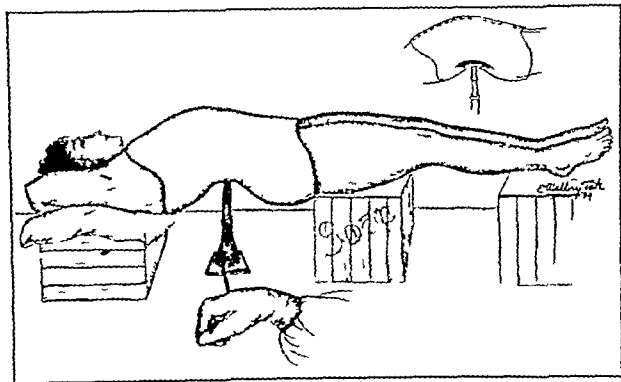


Fig 2—Patient supported by apparatus

boxes, and the buttocks and legs are similarly supported, padded with pillows or folded blankets (fig 2).

A stockinet undershirt has been previously applied and feet pads are placed over the anterosuperior spines of the ilium

An anesthetic, if necessary, is administered. The jack is now elevated as far as the operator desires and will produce any degree of hyperextension. A "dinner pad" is advisable over the epigastrium in cases in which extreme hyperextension is used and can be removed through a good sized window in the cast. Sheet wadding or other padding can be applied at the operator's discretion.

Plaster-of-paris bandages are now wound around in the ordinary way and reinforced by a couple of longitudinal folded strips or Soutter "ropes" in front and back. When the plaster has set, the patient is lifted up and placed face downward on a bed or cart (fig 3). The four small angle irons will be

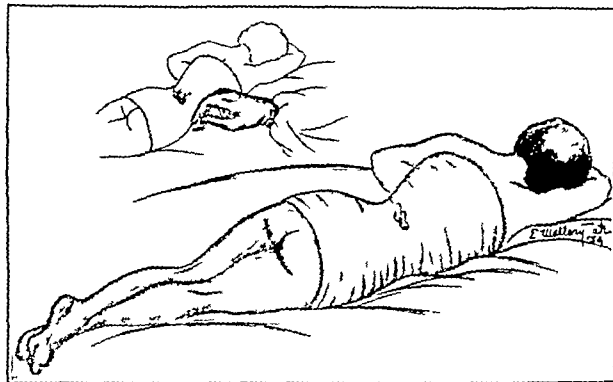


Fig 3—After plaster has set

found projecting through a hole in the back of the cast and can easily be pulled out.

This apparatus can be used equally well in cases of Pott's disease and for some cases of scoliosis.

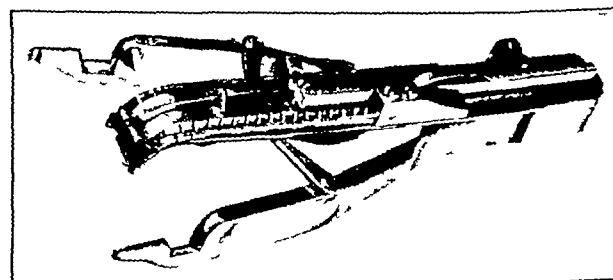
The cost was \$3 for the jack and \$1.50 for brazing on the pipes and making the angle irons.

122 South Michigan Avenue

### AN INSTRUMENT FOR HEMOSTASIS OF THE SCALP

PERCIVAL BAILEY, M.D., CHICAGO

Surgeons have long sought for a satisfactory method of securing hemostasis of incisions in the scalp. The one almost universally adopted in the United States employs hemostats,



Instrument for the rapid application of Michel clips

which are placed on the galea and curled backward over the scalp. This method is satisfactory for the outer margin of the incision of the ordinary osteoplastic craniotomy, but on the inner margin the hemostats are very much in the operator's way, fall into the wound and generally cause much nuisance and loss of time. Various types of clamps have been devised from time to time to replace the inner row of hemostats but have never been entirely satisfactory. The ordinary Michel clips work very well and do no damage to the edge of the skin but have heretofore been difficult and tedious to apply. I was therefore much pleased to find an instrument in use by Dr. Clovis Vincent of Paris which permitted the rapid application of Michel clips.

The instrument, which is manufactured by M. Haran, 40 rue St. Jacques, Paris, France, feeds a magazine of Michel

clips into the jaws of a thumb-forceps as rapidly as the surgeon can work his fingers. It worked perfectly for any incision on which the instrument could be held perpendicularly but failed to work well on incisions of the scalp, because the clips fed into the forceps by gravity. To obviate this defect, Mr. C. Ridel of the Yerkes Observatory devised a rider and ratchet, which is attached to the top of the instrument. The magazine kicks backward from under the rider, which retains its place by inertia and thus keeps the clips feeding into the jaws of the forceps when held in any position. The instrument is now quite satisfactory and rapid in action and the heavy hemostats no longer give trouble.

The instrument is shown in the accompanying illustration  
950 East Fifty-Ninth Street

#### THE ARTHUS PHENOMENON REPORT OF A CASE

FRED E. ROSS, M.D., ERIE, PA.

A local necrosis following infrequently repeated subcutaneous injections of horse serum was first noted by Arthus experimenting with rabbits, in 1903. He described the occurrence of a characteristic set of symptoms which has since been known as the Arthus phenomenon. The symptoms seem to be due to an anaphylactic reaction of antibodies with a specific antigen, which results in the formation of a toxic substance causing local necrosis in the tissues. The reaction is specific for the antigen used.

Since the publication of these and other studies, clinical instances of the Arthus phenomenon have been recorded in the literature with increasing frequency. The results of an exhaustive study of the clinical and serologic aspects of the condition have been reported by Tumpeter and Cope.<sup>1</sup> A case exhibiting this phenomenon is here reported.

A boy, aged 4½ years, had been given toxin-antitoxin for diphtheria immunization a year previously. November 22, he sustained a scalp injury and the attending physician administered a prophylactic injection of tetanus antitoxin. Three days later he had a temperature of 104 F, a generalized erythematous rash, vomiting and a sore throat with cervical adenitis. The symptoms so closely resembled those of scarlet fever that the physician administered a therapeutic injection of scarlet fever streptococcus antitoxin in the buttock. The efflorescence cleared up in a few hours, but the site of the injection immediately became indurated and erythematous and a lesion developed which spread with such fulminating intensity that when seen December 1, the skin and subcutaneous tissues of the entire thigh, hip and abdomen were involved in a huge necrotic sloughing mass. The patient died as the result of sepsis that evening. Permission for an autopsy was not obtained.

Clinical instances of this phenomenon demand attention and consideration for at least two reasons: first, they stress the importance of the use of toxoid, which contains no serum, instead of toxin-antitoxin as an agent for immunization against diphtheria and, second, they show that the greatest caution must be used in the administration of any type of serum to a patient showing symptoms that might possibly be manifestations of anaphylaxis.

1044 West Seventh Street

<sup>1</sup> Tumpeter, I. H., with the technical assistance of Cope, Elizabeth J., The Arthus Phenomenon. A Serologic Study in a Syphilitic Child with a Fatal Reaction to Transfusion. *Am. J. Dis. Child.* 45: 343 (Feb.) 1933.

**Scientific Methods a Modern Development**—Let me remind you that the general use of exact scientific methods in medicine is quite a modern development. It is hardly more than a hundred years ago that such simple methods as percussion and auscultation came into common use. Auenbrugger was alive at the beginning of the nineteenth century, and Laennec did not die until 1826. Even so simple an instrument as the clinical thermometer, occasionally used in a primitive form as early as the seventeenth century, did not come into general use until after the publication in 1868, of Carl Wunderlich's treatise on bodily heat in relation to disease.—Blumer, George. Some Discursive Remarks on Bedside Diagnosis, *Yale J. Biol. & Med.* 6: 571 (July) 1934.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
H. A. CARTER, Secretary

### ALTHERM EYE PAD ACCEPTABLE

The E. B. Meyrowitz Surgical Instruments Company, Inc., New York City, recommends the Altherm Eye Pad as a convenient device for applying heat to the eye.

The term "Altherm," according to the firm, is a coined name. The syllable "Al" was taken from its trade mark "ALPHA" (rubber products) and "Therm" to indicate its heating properties.

The mixture (heat-retaining element) used in the pad is nonirritating and nonflammable. When the pad is boiled for a short time, the contents liquefy. After removal from boiling water and in ordinary room temperatures the mixture gradually recrystallizes as it gives off heat. The action makes use of the latent heat of crystallization. The contents do not need renewing after each time the pad is used.

The total weight of the thermophoric mixture amounts to about 4 ounces avoirdupois, or approximately 112 Gm., of which the component parts are:

	Per Cent	Gm.
Sodium acetate	90.5	101.4
Glycerin	03.0	3.3
Sodium sulphate crystals	02.0	2.2
Sodium sulphate (anhydrous)	04.5	5.1
	100	112.0

The general shape of the pad is not unlike a tetrahedron, the three sides being made of heavy gage rubber to cut down on the radiation and the fourth side, the base, designed for applying heat directly to the eye, being made of thinner gage rubber, supported by a metal plate. This construction was designed to prevent pressure on the eyeball and so shaped as to rest on the bony rim of the orbit.



Altherm Eye Pad

During the process of manufacture, the heat retaining element is placed within the pad while liquid. After it crystallizes, the orifice through which the element is introduced is permanently sealed by a rubber patch vulcanized over the opening.

The pad is prepared for therapeutic use by placing it in boiling water and boiling it for not more than ten minutes. After this the element will be found to be partially liquefied, and during recrystallization it will give off heat at a comparatively even temperature for approximately forty-five minutes, after which the element will have solidified completely. The temperature will range from approximately 120 down to approximately 110 Fahrenheit. In a clinic acceptable to the Council, these manufacturer's claims were confirmed.

Other tests were made by the firm. After the pad had been boiled from fifteen to twenty minutes and removed from the water, the company found that the temperature would drop rapidly to the point desired for therapeutic use, i.e., 120 F. The company therefore decided to make its instructions read: "Boil for ten minutes, not more."

The company points out that the pads cannot be used until boiled, which automatically sterilizes the pads before each application.

The test made by the manufacturer was repeated by the Council. The pad was boiled for ten minutes and temperature readings were made with an ordinary mercury thermometer, the pad being placed on sand. At the beginning of the test the temperature was 127 F. and after thirty minutes it dropped to 110 F. The pad was boiled ten minutes daily for six days,



after which a second series of readings was made. The initial temperature was 120 F and after sixty minutes the temperature had dropped to 118 F. The pad was boiled and used daily for six more days and the second series of readings was recorded. The initial temperature was 116 and after sixty minutes the temperature was 112. The observations of the Council agree quite favorably with those recorded by the manufacturer.

The pad does not fit accurately over the orbital margin of all persons, but dry gauze or cotton can be applied under it to adapt it to various orbits. This method of applying heat seems practical and safe, therefore, the Council places the Altherm Eye Pad on its list of accepted devices.

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG Secretary

#### CELLU JUICE-PAK YELLOW CLING PEACHES

*Distributor*—The Chicago Dietetic Supply House, Inc., Chicago

*Packer*—Hunt Bros Packing Company, San Francisco

*Description*—Processed, halved, peeled and stoned yellow cling peaches packed in undiluted juice without added sugar.

*Manufacture*—Fully ripened yellow cling stone peaches are halved, pitted, peeled in peeling machines containing hot 1 per cent sodium hydroxide solution, washed with high pressure water sprays to remove peeling and alkali, blanched for one minute in hot water, chilled under pressure sprays, sorted, graded, and placed in cans to which is added undiluted, filtered juice expressed from off-size peaches. The treatment thereafter is essentially the same as for Cellu Juice-Pak Bartlett Pears (THE JOURNAL, Aug 4, 1934, page 341).

Analysis (submitted by distributor) —	per cent
Moisture	90.1
Ash	0.4
Fat (ether extract)	0.2
Protein (N $\times$ 6.25)	0.3
Reducing sugars as invert sugar	3.4
Sucrose	3.9
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	8.7

*Calories*—0.4 per gram 11 per ounce

*Claims of Manufacturer*—Packed in undiluted peach juice without added sugar.

- (1) FAUST BRAND CRYSTAL WHITE SYRUP
- (2) FAUST BRAND GOLDEN SYRUP
- (3) INDEX BRAND CRYSTAL WHITE SYRUP
- (4) INDEX BRAND GOLDEN TABLE SYRUP
- (5) MONEY BACK BRAND GOLDEN SYRUP
- (6) RED PLUME BRAND CRYSTAL WHITE TABLE SYRUP
- (7) PLATO CRYSTAL WHITE TABLE SYRUP
- (8) PLATO GOLDEN TABLE SYRUP

*Distributors*—(1) and (2) Sentney Wholesale Grocery Company, Hutchinson Kan (3) and (4) Elliott Grocery Company Logansport, Ind (5) and (6) The C Callahan Company La Fayette, Ind (7) and (8) Union Sales Corporation Columbus, Ind

*Manufacturer*—Union Starch and Refining Company Granite City Ill

*Description*—(1), (3), (6) and (7) Table syrup, corn syrup sweetened with sucrose, flavored with vanilla extract. Same as Silver Drip Brand Crystal White Syrup, THE JOURNAL, June 2, 1934, page 1851.

(2), (4), (5) and (8) Table syrup, corn syrup flavored with refiners' syrup. Same as Golden Drip Brand Golden Table Syrup, THE JOURNAL, May 26, 1934, page 1763.

*Claims of Manufacturer*—For table use and as a carbohydrate supplement for milk modification in infant feeding.

#### CELLU JUICE-PAK ROYAL ANNE CHERRIES

*Distributor*—The Chicago Dietetic Supply House, Inc., Chicago

*Packer*—Eugene Fruit Growers Association, Eugene, Ore.

*Description*—Processed, pitted or unpitted Royal Anne cherries packed in undiluted juice without added sugar.

*Manufacture*—Tree ripened cherries are stemmed under water spray by revolving rolls, graded, water sprayed, sorted according to size and all defective fruit is removed. If not pitted, the fruit is filled into the cans by count. Undiluted juice from off-size cherries is used to fill the cans. The treatment thereafter is essentially the same as for Cellu Juice-Pak Bartlett Pears (THE JOURNAL, Aug 4, 1934, page 341). If pitted, the fruit is boxed, pitted under a water spray, inspected, filled into cans to a standard weight and canned by the same procedure.

*Analysis* (submitted by distributor) —

	(pitted) per cent
Moisture	84.7
Ash	0.5
Fat (ether extract)	0.1
Protein (N $\times$ 6.25)	0.8
Reducing sugars as invert sugar	12.0
Sucrose	0.1
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	13.7

*Calories*—0.6 per gram 17 per ounce

*Claims of Manufacturer*—Packed in undiluted cherry juice without added sugar.

#### CALIFORNIA'S PURE PURITAS DRINKING WATER PURE DISTILLED H<sub>2</sub>O

*Distributor*—California Consolidated Water Company, Los Angeles

*Description*—Distilled water practically free of micro organisms.

*Manufacture*—Well water is run through a boiler operated at 175 C. The water vapor is condensed in double brass pipe condensers. The distillate is bottled in cleaned demijohns as described for Arrowhead Soft Spring Water (THE JOURNAL, July 28, 1934, p 261).

*Analysis* (submitted by manufacturer) —

Sanitary Analysis	Parts per million
Turbidity	none
Color	none
Odor	none
Oxygen consumed	none
Oxygen dissolved	8.9
Free carbon dioxide (CO <sub>2</sub> )	3.9
Nitrogen as	
Ammonia nitrogen	none
Albuminoid nitrogen	none
Nitrite nitrogen	none
Nitrate nitrogen	none

#### Chemical Analysis

Residue on evaporation	2.0
Loss on ignition	1.2
Carbonic acid (H <sub>2</sub> CO <sub>3</sub> )	2.9
Negative tests for metals and acid radicals	

*Micro-Organisms*—Bacterial examination shows the presence of none or very few bacteria per cubic centimeter and no Bacillus coli.

# MEDICAL EDUCATION IN THE UNITED STATES AND CANADA

ANNUAL PRESENTATION OF EDUCATIONAL DATA FOR 1933-1934 BY THE  
COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Notable developments in the teaching of medicine, no less than in other fields of education, have taken place in the decade and a half since the war. In order to evaluate these changes and consolidate the gains that have been made, the Council on Medical Education and Hospitals determined, in the fall of 1933, to undertake a comprehensive resurvey of the medical schools of the United States and Canada. To increase the effectiveness of this study the cooperation of the Association of American Medical Colleges and the Federation of State Medical Boards was secured. In order that the visitation of medical schools might be completed within a reasonably short time, the Council obtained the services of Dr. Herman G. Weiskotten, dean of the School of Medicine of Syracuse University. The general character of the undertaking is a fact-finding study. It is intended to collect and record such information as is pertinent regarding each institution that is included in the survey. Schools that are not now approved will be visited only on request. The necessary data will be secured partly by correspondence and partly from the personal observation and inquiry of the Council's representative. The purpose of the Council and its allied organizations will be achieved in such measure as faculties and administrative officers contribute their own enthusiastic support to the enterprise.

## BLUE PRINT COMMITTEE

While the survey is engaged in finding out what medical education is, the Council is also concerned with what it ought to be. To reappraise the aims and methods of medical teaching, a special committee has been created to act with the Council in the formulation of standards and policies. Its function will be to prepare a plan, or blue print, for the guidance of those who are molding our educational processes. As already announced, its personnel consists of Dr. Reginald Fitz, chairman, Dr. Waller S. Leathers, Dr. Dean Lewis, Dr. Willard C. Rappleye, Dr. Harold Rypins, Rev. Alphonse M. Schwitalla, S. J., and, ex officio, Dr. Ray Lyman Wilbur, chairman of the Council, and Dr. William D. Cutter, secretary.

## PREMEDICAL TRAINING

The minimum standard of premedical education for approved schools of medicine was raised from one year of college work to two years, including courses in physics, chemistry and biology, Jan. 1, 1918. In June 1933, for the sake of uniformity, the following statement from the By-Laws<sup>1</sup> of the Association of American Medical Colleges was adopted by the Council as its own premedical standard. In substance it does not differ from the previous requirement of the Council. The organizations interested in the improvement of medical education do not attempt to outline courses that should be taken in the secondary school.

Sec. 4—Requirements for Admission. Admission to medical schools and medical colleges in membership in the Association may be by

(1) Satisfactory completion of a minimum of collegiate instruction as provided below in Subsection I, or by

(2) Examination as provided in Subsection II.

Subsection I<sup>2</sup> The minimum of collegiate credit required for entrance to medical schools and colleges in membership in the Association shall be not less than two full academic years which shall include English, theoretical and practical courses in physics and biology, and in general and organic chemistry, completed in institutions approved by the accrediting agencies acceptable to the Executive Council of the Association. Exception may be made under this section in that any member may admit applicants who have fulfilled the requirement in American and Canadian institutions not approved by such accrediting agencies, provided that all admissions so made be reported to the Executive Council and shall be published in the next Annual Report of the Council.

All collegiate instruction given in satisfaction of this requirement must be based on the same entrance requirements and

TABLE 1—State Requirements of Premedical Training

Two Years of College	Effective Date	Two Years of College	Effective Date
Alabama	1919	New Hampshire	1919
Arizona	1922	New Jersey	1921
Arkansas	1922	New Mexico	1922
Colorado	1914	New York	1922
District of Columbia	1929	North Carolina	1922
Florida	1922	North Dakota	1912
Georgia	1922	Oklahoma	1921
Idaho	1938	Oregon	1924
Illinois	1923	Rhode Island	1922
Indiana	1915	South Carolina	1922
Iowa	1915	South Dakota	1915
Kansas	1922	Tennessee	1922
Kentucky	1922	Texas	1930
Louisiana	1922	Utah	1926
Maine	1920	Vermont	1922
Maryland	1922	Virginia	1922
Michigan	1922	Washington	1922
Minnesota	1912	West Virginia	1922
Montana	1922	Wisconsin	1919
Nevada	1922	Wyoming	1922

One Year of College	Effective Date
California	1924
Connecticut	1919
Mississippi	1919
Pennsylvania	1918

High School Graduation or Its Equivalent
Delaware
Massachusetts
Missouri
Nebraska
Ohio

must be of the same quality and standard of instruction as that required for a baccalaureate degree in the institution in which the candidate receives his preparation.

Subsection II Admission to medical schools and medical colleges in the Association may be by examination.

Examinations for the purpose of admission by this method shall be conducted by institutions acceptable to the Executive Council of the Association, under the following conditions:

(a) Candidates who have completed two years of collegiate instruction and present evidence of general scholarship of high order, but who lack credits in not more than two of the required subjects, may be admitted on passing examinations in these subjects.

(b) Candidates who have completed three years of collegiate instruction and present evidence of having accomplished work

(Continued on page 570)

<sup>1</sup> Constitution and By-Laws of the Association of American Medical Colleges amended Nov. 15, 1932.

<sup>2</sup> Since many schools have admission requirements differing from those given in this section it is important that intending students of medicine at an early date inform themselves as to the exact requirements of that school in which they expect to matriculate.

TABLE 2—Statistics of Approved or Class A Medical Schools in the United States and Canada

Marginal No	Name and Location of School	Premedical Requirement By Years or Semester	Length of Course (Academic Years)	Students by Classes Session 1933 1934					Graduates since July 1 1933	Session 1934 1935		Applications to the 1st Year VIII	Until Received	Executive Officer	Marginal No
				1st Year	2d Year	3d Year	4th Year	5th Year or Intern Year		Totals	Begins 1934				
1	ALABAMA University of Alabama School of Medicine, University (Tuscaloosa)	70 s h	2	73	51				124	Sept 12	May 28	Sept	Stuart Graves M D Dean	1	
2	ARKANSAS University of Arkansas School of Medicine Little Rock	2	4	59	46	45	50		200	Sept 19	June 3	Sept	Frank Vinsonbaler M D Dean	2	
3	CALIFORNIA University of California Medical School, Berkeley San Francisco	64 s h	5	61	56	55	54	56	226	Aug 20 <sup>1</sup>	May 18	April	Langle Porter M D Dean	3	
4	College of Medical Evangelists Loma Linda Los Angeles	64 s h	5	129	94	98	85	90	406	July 2	June 16	May	E H Risley M D, Dean, Loma Linda A E	4	
5	University of Southern California School of Medicine Los Angeles	3	5	56	47	33	35	30	171	Sept 24	June 12	May	Coyne M D, Dean, Los Angeles	5	
6	Stanford University School of Medicine San Francisco	3	5	60	63	50	47	41	210	Oct 2 <sup>1</sup>	June 12	March	Paul S McKibben, Ph D Dean	6	
7	COLORADO University of Colorado School of Medicine, Denver	21	4	53	48	49	51		206	Sept 24 <sup>1</sup>	June 10	May	Loren R Chandler M D Dean	7	
8	CONNECTICUT Yale University School of Medicine New Haven	3	4	53	63	49	44		209	Sept 24	June 12	Sept	Maurice H Rees M D, Dean	8	
9	DISTRICT OF COLUMBIA Georgetown University School of Medicine Washington	3	4	123	147	119	157		546	Sept 10	June 10	Sept	Milton C Winternitz M D Dean	9	
10	GEORGIA George Washington University School of Medicine, Washington	2	4	78	71	73	72		294	Sept 19	June 1	Sept	William Gerry Morgan M D Dean	10	
11	GEORGIA Howard University College of Medicine Washington	2	4	53	46	57	49		205	Sept 24	June 7	July	Earl B McKinley M D Dean	11	
12	ILLINOIS Emory University School of Medicine Atlanta	2	4	64	45	56	60		225	Oct 1	June 10	June	Numa P G Adams M D Dean	12	
13	ILLINOIS University of Georgia School of Medicine, Augusta*	2	4	35	35	42			153	Sept 24	June 10	June	Russell H Oppenheimer M D Dean	13	
14	ILLINOIS Loyola University School of Medicine Chicago	2	5	153	115	88	99		460	Sept 24	June 13	Sept	G Lombard Kelly M D Vice Dean	14	
15	INDIANA Northwestern University Medical School Chicago	3	5	125	119	144	160		548	Oct 2 <sup>1</sup>	June 17	May	Louis D Moorhead M D, Dean	15	
16	INDIANA University of Chicago Rush Medical College	3	5	134	107	123	127		496	Oct 1 <sup>1</sup>	June 11	April	Irving S Cutter M D Dean	16	
17	INDIANA University of Chicago The School of Medicine of the Division of the Biological Sciences	3	5	138	105	138	150		324	Oct 1 <sup>1</sup>	June 12	April	Ernest E Irons, M D, Dean	17	
18	INDIANA University of Illinois College of Medicine, Chicago	2	5	187	165	138	150		640	Oct 1	June 7	July	B C H Harvey M D, Dean of Med Students	18	
19	IOWA Indiana University School of Medicine, Bloomington Indianapolis	2	4	140	107	100	118		463	Sept 18	June 17	Feb	David J Davis M D, Dean	19	
20	KANSAS State University of Iowa College of Medicine Iowa City	2	4	102	109	70	72		353	Sept 24	June 3	July	Burton D Myers M D Dean	20	
21	KANSAS University of Kansas School of Medicine Lawrence Kansas City	2	4	84	79	70	67		300	Sept 20	June 10	June	Willis D Gatch, M D, Dean, Indianapolis	21	
22	KENTUCKY University of Louisville School of Medicine Louisville	2	4	93	77	81	93		348	Sept 13	June 1	May	John T McClintock M D Chairman, Administrative Committee	22	
23	LOUISIANA Louisiana State University Medical Center New Orleans	2	5	93	42	52	21		210	Sept 19	June 1	July	H R Wahl, M D Dean Kansas City	23	
24	LOUISIANA Tulane University of Louisiana School of Medicine New Orleans	2	4	134	107	123	127		496	Sept 23	June 12	July	John Walker Moore M D Dean	24	
25	MARYLAND Johns Hopkins University School of Medicine Baltimore	Degree	4	72	68	70	74		284	Oct 2	June 11	June	Arthur Vidrine M D Dean	25	
26	MASSACHUSETTS University of Maryland School of Medicine and College of Physicians and Surgeons Baltimore	2	4	137	96	106	103		444	Sept 21	June 1	June	Charles C Bass M D, Dean	26	
27	MASSACHUSETTS Boston University School of Medicine Boston	3	4	70	65	58	53		246	Sept 20	June 10	May	Alan M Chesney, M D Dean	27	
28	MASSACHUSETTS Harvard University Medical School, Boston	Degree	4	125	122	133	130		510	Sept 24	June 20	March	J M H Rowland M D Dean	28	
29	MASSACHUSETTS Tufts College Medical School Boston	Degree	4	130	120	116	102		468	Sept 26	June 17	April	Alexander S Beggs, M D, Dean	29	
30	MICHIGAN University of Michigan Medical School Ann Arbor	30 s h	4	119	121	108	103		451	Sept 24 <sup>1</sup>	June 17	March	David L Edsall M D Dean	30	
31	MINNESOTA Wayne University College of Medicine Detroit	30 s h	5	90	92	73	69		324	Sept 27 <sup>1</sup>	June 21	March	Warren Stearns M D, Dean	31	
32	MINNESOTA University of Minnesota Medical School Minneapolis	2	5	148	141	117	108		514	Oct 1 <sup>1</sup>	June 17	June	F G Novy M D Dean	32	
33	MISSISSIPPI University of Mississippi School of Medicine, University*	21	2	23	23				51	Sept 21	June 3	June	W H MacCracken M D, Dean	33	
34	MISSOURI University of Missouri School of Medicine Columbia	30 s h	2	40	40				80	Sept 21	June 5	August	Ellas P Lyon Ph D Dean	34	
35	MISSOURI St Louis University School of Medicine, St Louis	2	4	163	126	114	112		515	Sept 19	June 1	March	P L Mull, M D Dean	35	
36	MISSOURI Washington University School of Medicine St Louis	4	4	85	72	95	91		343	Sept 27	June 11	Sept	Dudley S Conley M D Dean	36	
37	NEBRASKA Creighton University School of Medicine Omaha	2	4	84	76	71	67		298	Sept 20	June 6	March	Alphouse M Schwitalla S J Ph D, Dean	37	
38	NEBRASKA University of Nebraska College of Medicine Omaha	65 s h	4	59	70	77	85		340	Sept 24	June 10	June	W McKim Marriott M D Dean	38	
39	NEW HAMPSHIRE Dartmouth Medical School Hanover	3	2	21	20				41	Sept 20	June 13	June	Bryan M Riley M D Dean	39	
40	NEW YORK Albany Medical College Albany	3	4	34	25	30	20		109	Sept 24	June 10	July	O W M Poynter M D, Dean	40	
41	NEW YORK Long Island College of Medicine Brooklyn	72 s h	2	107	112	99	113		431	Oct 1	June 4	Sept	John Pollard Bowler M D Dean	41	
42	NEW YORK University of Buffalo School of Medicine Buffalo	2	4	77	72	68	67		284	Oct 1	June 12	Sept	Thomas Orday M D Dean	42	

17	Columbia University College of Physicians and Surgeons New York	3 & Degree	4	112	105	69	08	414	30	Sept 26	June 4	April	Willard O Rappleye M D Dean	43
44	Cornell University Medical College Ithaca New York	3	4	85	61	70	55	371	50	Sept 23	June 6	March	G Canby Robinson M D Director	44
45	New York Homoeopathic Medical College and Flower Hospital New York	2	4	97	87	70	72	326	72	Sept 17	June 4		Claude A Burrett M D Dean	45
46	New York University School of Medicine	3 & Degree	4	168	118	134	112	522	108	Sept 12	June 12	March	John Wyckoff M D Dean	46
47	University of Rochester School of Medicine	3	4	40	40	40	40	181	46	Sept 17	June 17	May	George Hoyt Whipple M D Dean	47
48	Syracuse University School of Medicine	2	4	50	51	48	52	201	52	Sept 27	June 3	May	H G Welskotten M D Dean	48
49	University of North Carolina School of Medicine Chapel Hill	70 s h	2	34	32			66	33	Sept 20	June 11	July	O S Mangum M D Dean	49
50	University of North Carolina School of Medicine Wake Forest	60 s h	6	35	27			104	62	Oct 1	Aug 31	May	Wilbur C Davidson M D Dean	50
51	University of North Carolina School of Medicine Grand Forks	2	2	42	27			63		Sept 11	May 30	May	Thurman D Kitchin M D Dean	51
52	Western Reserve University School of Medicine Cincinnati	2	4	81	65	71	56	273	53	Sept 18	June 11	Sept	H E French M D Dean	52
53	Ohio State University School of Medicine Cleveland	2	4	101	80	85	80	264	58	Sept 13	June 12	Feb	Arthur C Bachmeyer M D Dean	53
54	University of Oklahoma School of Medicine Oklahoma City	2	4	63	61	56	61	243	61	Oct 2	June 10	Sept	Torald Sollmann M D Dean	54
55	University of Oregon Medical School Portland	2	4	64	61	53	52	230	56	Sept 17	June 3	July	J H J Upham M D Dean	55
56	Hahnemann Medical College and Hospital Philadelphia	3	4	155	117	103	94	470	63	Oct 1	June 17	July	Lewis Jefferson Moorman M D Dean	56
57	Temple University School of Philadelphia	3	4	133	124	142	143	567	143	Sept 24	June 13	October	Richard B Dillehunt M D Dean	57
58	Woman's Medical College of Pennsylvania Philadelphia	2	4	130	123	133	133	547	118	Sept 26	June 13	October	William A Pearson Ph C Dean	58
59	University of Pittsburgh School of Medicine Philadelphia	2	4	30	33	33	18	324	133	Sept 24	June 19	Sept	Ros V Patterson M D Dean	59
60	Medical College of the State of South Carolina Charleston	2	4	67	65	66	65	122	10	Sept 20	June 12	Sept	William N Parkinson M D Dean	60
61	University of South Dakota School of Medicine Vermillion	2	4	42	42	42	42	263	63	Sept 24	June 5	May	William Pepper M D Dean	61
62	University of Tennessee College of Medicine Nashville	2	4	42	42	42	42	169	31	Sept 27	June 6	July	Martha Tracy M D Dean	62
63	Vanderbilt University School of Medicine Memphis	2	4	30	27			57		Sept 19	June 10	August	R R Huggins M D Dean	63
64	Baylor University School of Medicine Dallas	2	4	146	110	69	87	412	86	July 11	June 8	October	Robert Wilson M D Dean	64
65	University of Texas School of Medicine Galveston	2	4	40	40	40	40	178	38	Oct 1	May 30	October	Joseph C Ohlmacher M D Dean	65
66	University of Utah School of Medicine Salt Lake City	2	4	124	91	81	64	194	50	Sept 26	June 12	May	O W Hyman Ph D Dean	66
67	University of Vermont College of Medicine Burlington	2	4	111	90	83	70	300	64	Oct 1	May 27	Sept	John J Mullooney M D, President	67
68	University of Virginia Department of Medicine Charlottesville	2	4	34	36			340	70	Oct 1	May 31	July	Waller S Leathers M D Dean	68
69	West Virginia University School of Medicine Charleston	2	4	57	43	37	33	70		Sept 24	June 1	April	Walter H Moursund M D Dean	69
70	University of Wisconsin Medical School Madison	2	4	71	54	54	57	170	33	Sept 21	June 24	Sept	George E Bethel M D, Dean	70
71	Marquette University School of Medicine Milwaukee	2	4	62	60	80	80	236	52	Sept 12	June 11	Sept	L L Daines M D Dean	71
72	University of Alberta Faculty of Medicine Edmonton	2	4	103	110	54	50	339	93	Sept 11	May 28	July	James N Jenne M D Dean	72
73	University of Manitoba Faculty of Medicine Winnipeg	2	4	68	76	63	66	138		Sept 17	June 11	Sept	J Carroll Flippin M D Dean	73
74	University of Western Ontario Medical School London	2	4	19	47	35	25	317	40	Sept 19	June 17	Sept	Lee E Sutton Jr M D Dean	74
75	University of Toronto Faculty of Medicine Kingston	2	4	23	23	23	23	548	53	Oct 1	June 12	Sept	John N Simpson M D Dean	75
76	University of Montreal Faculty of Medicine Montreal	2	4	33	33	33	33	180	24	Sept 27	May 15	Sept	C R Burdick M D Dean	76
77	Laval University Faculty of Medicine Quebec	2	4	40	40	40	40	183	72	Sept 21	May 24	Sept	Eben J Carey M D Dean	77
78	University of Saskatchewan School of Medicine Saskatoon	2	4	138	154	145	133	326	44	Sept 11	May 14	Sept	Allen O Rankin M D, Dean	78
79		1	5	97	100	100	111	339	24	Sept 27	May 22	Sept	A T Mathers M D Dean	79
80		1	5	40	62	70	40	324	24	Sept 25	June 5	Sept	H G Grant M D Dean	80
81		2	2	42	40	41	47	267	43	Sept 26	May 18	Sept	F Frederick Ehrhington M D Dean	81
82		2	2	42	40	41	47	267	43	Sept 26	May 18	Sept	A B Macallum M D, Dean	82
83		2	2	42	40	41	47	267	43	Sept 26	May 18	Sept	I G Fitzgerald M D, Dean	83
84		2	2	42	40	41	47	267	43	Sept 26	May 18	Sept	Charles F Martin M D Dean	84
85		2	2	42	40	41	47	267	43	Sept 26	May 18	Sept	Telephore Parizeau M D Dean	85
86		2	2	42	40	41	47	267	43	Sept 26	May 18	Sept	Calte Dagnanu, M D, Dean	86
87		2	2	42	40	41	47	267	43	Sept 26	May 18	Sept	W S Linday M B Dean	87

Note—Action of the Council on Medical Education and Hospitals, Sept 22, 1933 Resolved, That the University of Mississippi School of Medicine be placed on probation until July 1, 1934 and that the freshmen enrolled for the session 1933-1934 be recognized as Enrolment not on above table for the session 1934-1935.  
 § Five year (University) enrolment not included in the total column

\* Note—Action of the Council on Medical Education and Hospitals, Feb 11, 1934 Resolved That approval of the University provision that this decision will be withdrawn at this time with the students now enrolled to Class A medical schools at the end of the college session.  
 Action of the Council June 10, 1934 Resolved That in the resolution adopted in February 1934 the provision regarding transfer of students be amended so as to include those enrolled for the session of 1934-1935

# Sixth year enrolment Alberta, 24 Queen's 45 Toronto 107  
 1 Students admitted at different times of the year North  
 western, March and June Michigan February 11 Minnesota  
 January 7 Tennessee, September 27 1934 January 2 and March  
 21 1935 Students admitted to advanced standing California  
 January, 14 Stanford January 5 Colorado January 2 and  
 March 23, Rush April 1 Division of the Biological Sciences  
 beginning of each quarter



[illegible]



(Continued from page 565)

of distinction in one or more fields of learning, but who lack credit in any or all of the required subjects, may be admitted on passing examinations in these subjects

At the present time, thirty-seven of the seventy-seven approved medical schools in the United States have adopted admission requirements in excess of this minimum, four require a college degree, while three admit students with three years of college work with the stipulation that the baccalaureate be conferred at the end of the first year of medicine. The medical schools of Canada vary with regard to the premedical requirement. Four have a two year requirement, two require one year, one requires three years, and three schools have a six year medical course including pre-medical subjects.

Since 1915 the Council has published annually a list of approved colleges of arts and sciences as a guide to medical schools in the selection of students. This list was a compilation of those colleges approved by the following agencies:

Association of American Universities  
Middle States Association of Colleges and Secondary Schools  
New England Association of Colleges and Secondary Schools  
North Central Association of Colleges and Secondary Schools  
Northwest Association of Secondary and Higher Schools  
Southern Association of Colleges and Secondary Schools

In 1932 this list was discontinued, because the same information was being distributed by the Office of Education in the Department of the Interior at Washington. The data, included in their publications, however, proved to be not readily accessible and the Council has therefore deemed it advisable to resume the publication of its own list. A new edition will be available in October. The Association of American Medical Colleges endorses the lists of evaluating agencies included in the Council's publication but in addition recognizes also the colleges approved by a state university. The constitution of the Association of American Medical Colleges provides that any medical school may accept a student coming from an unapproved arts college but requires that it send a record of that fact to the office of the Association. The Council approves of this arrangement. Prospective medical students do well, however, to secure their premedical training in colleges that are included in the Council's publications. Otherwise they may find it difficult or impossible to enter the medical school of their choice, for, while there is no inviolable rule excluding applicants from unaccredited colleges, officials, in selecting from so large a number, give the preference to those whose preparation has been received in institutions that are known to conform to accepted standards. Many schools will not admit a student from an unaccredited college. In 1931 the Association of American Medical Colleges passed a resolution recommending the use of aptitude tests as an additional guide in the selection of students. These tests include (1) comprehension and retention, (2) visual memory, (3) memory for content, (4) logical reasoning, (5) scientific vocabulary, (6) ability to follow directions and (7) understanding of printed material. This recommendation likewise meets with the approval of the Council. Accordingly, the majority of schools in the selection of students employ the test scores along with college grades, letters from instructors and personal interviews. The aptitude test in the fall

of 1933 was administered to 9,398 students in 546 colleges. The results of the test are made available to admitting officers in February.

While the premedical requirement of this Council and the College Association is two years, statistics compiled by the latter organization indicated that, in 1932, 28.6 per cent presented an A B degree for entrance, 20.5 per cent a B S degree, 26.6 per cent three and three plus years, 16.5 per cent two and two plus years, 4.1 per cent four years or more, and 3.4 per cent were listed under "others." The preliminary requirements of the individual schools will be found in table 2.

No attempt has been made to outline the admission requirements of the approved schools, since they vary considerably. It is essential that each applicant secure from the school he desires to enter an official statement of its requirements.

Although, for sixteen years, two years of premedical college training has been required by every approved medical school, there are still nine states that have failed to adopt this standard as a legal requirement. However, these states do not admit to licensure other than graduates of recognized medical schools, all of which have a requirement of at least two years of college work. These states should take measures to amend their laws to conform with universally accepted standards. Statutory requirements are shown in table 1 with the dates at which each became effective.

#### ACKNOWLEDGMENT

Statistics are presented herewith based on official reports from the approved, or class A, medical schools of the United States and Canada, from the medical schools of other countries, and from the thirteenth edition of the American Medical Directory. There are also included lists of hospitals approved for intern training and residencies by the Council based on reports received directly from the institutions, and a list of institutions offering graduate courses for physicians. Acknowledgment is here given for the prompt response and the kind cooperation of the officers of the schools and hospitals who have made the presentation of these statistics possible.

#### LENGTH OF MEDICAL COURSE

The medical course in the United States in general covers four calendar years. A few schools, namely, the medical schools of the University of Minnesota, Duke and Tennessee, operate on the quarter system permitting the student by utilizing the summer months to decrease the length of time necessary to obtain his degree. The two medical schools of the University of Chicago also operate on the quarter system but in addition have instituted the individualized plan of instruction whereby a student progresses as rapidly as his ability permits. Fourteen medical schools require a year of internship or research as a part of the medical course, thereby lengthening the course to five years. Duke University requires a two year internship. Ten schools offer only the work of the first two years. Five of the medical schools of Canada offer a five year course, including one, two or three years of premedical studies, three have a six year course with two years of premedical studies, one a four year course with two years of premedical education, and the University of Saskatchewan has a two year premedical requirement and offers only the first two years of the medical course. These data are included in table 2.

## CURRICULUM

The Council recognizes as the standard curriculum that provided in the By-Laws<sup>1</sup> of the Association of American Medical Colleges, which is as follows

Sec 5 Curriculum. The entire course of four years shall consist of from 3,600 to 4,400 hours, distributed as from 900 to 1,100 hours per year, and shall be grouped as set forth in the following schedule, each group to be allotted approximately the percentage of hours of the whole number of hours in the courses as stated

	Hours	Per Cent
1 Anatomy including embryology and histology	14	18.5
2 Physiology	4.5	6
3 Biochemistry	3.5	4.5
4 Pathology bacteriology and immunology	10	13
5 Pharmacology	4	5
6 Hygiene and sanitation	3	4
7 General medicine	20	26.5
Neurology and psychiatry		
Pediatrics		
Dermatology and syphilis		
8 General surgery	13	17.5
Orthopedic surgery		
Urology		
Ophthalmology		
Otolaryngology		
Röntgenology		
9 Obstetrics and gynecology	4	5
Total	76	100
Electives	24	0

When the teaching conditions demand it, a subject may be transferred from one division to another

## STATISTICS OF MEDICAL SCHOOLS

Table 2, pages 566 and 567, lists the approved medical schools that were in session during 1933-1934 and contains data regarding the premedical requirement, length of course, enrolment by classes, graduates, dates of the beginning and ending of the forthcoming session, the name of the executive officer and the month until when applications for admission to the freshman class are received. Changes in the classifications that have taken place since the publication of the educational statistics in 1933<sup>3</sup> can be noted in the footnotes at the bottom of the table. Also contained in the footnotes are references to those institutions which have raised their premedical requirement for the coming session and those which admit students at varying times during the year. The data here presented constitute the basis also for several of the subsequent tabulations. Beginning on page 580 are given the essential facts concerning all approved medical colleges arranged by states.

This table differs slightly from that published in previous years. No tabulation has been made of the tuition fees or of the graduates with baccalaureate degrees, nor is there included the population of the cities wherein medical schools are located.

The figures indicate that there were 6,457 freshman students enrolled, 5,571 sophomores, 4,988 juniors and 4,937 seniors, during the session just ended. The students enrolled in the two medical schools of the University of Chicago and Duke University are not classified by years. In these three schools there were 846 students enrolled, a total of 22,799 students in the seventy-seven approved medical schools in the United States. This figure is exclusive of Canada, wherein there were 2,742 students enrolled as follows: first year, 622, second year, 595, third year, 529, fourth year, 500, fifth year, 320, and sixth year, 176. Altogether, 25,541 students were studying medicine, exclusive of those interning as a requirement for the degree, during the session just closed, of which 5,038 graduated from American schools and 476 from nine Canadian schools. There were enrolled seventy-five part time, 249 special and 787 graduate students.

## HOME STATES OF STUDENTS

Table 3, pages 568 and 569, shows from what states the students came who were in attendance at each medical school during the past session. The states having medical colleges contributed larger numbers of students than those which have no medical colleges. The state furnishing the greatest number of students this year was New York, 3,413, followed by Pennsylvania with 2,162, Illinois with 1,548, and Ohio with 1,346. Of the twelve states that do not have medical schools, five furnished more than 100 students, these being New Jersey, 943, Washington, 211, Rhode Island, 165, Florida, 134, and Maine, 124. Of the noncollege states, Montana had 65, Idaho 48, Delaware 43, Arizona 42, New Mexico 31, Nevada 16 and Wyoming 14. There were 108 students who came from the government possessions and 2,690 from foreign countries. The greater portion of this number, however, were Canadians enrolled in the medical schools of Canada.

## SCHOOLS, STUDENTS AND GRADUATES BY STATES

The number of schools, students and graduates for each state are given in table 4. New York, with nine schools, the largest number, naturally had the largest number of students and graduates, 2,739 and 627, respectively. Pennsylvania, with six schools, was second with 2,403 students and 573 graduates. Illinois, with five schools, had 2,301 students and 537 graduates, and

TABLE 4—Schools, Students and Graduates by States

State	Schools	Students	Graduates
Alabama	1	124	
Arkansas	1	200	50
California	4	1,013	215
Colorado	1	206	51
Connecticut	1	209	40
District of Columbia	3	1,045	271
Georgia	2	378	89
Illinois	5	2,301	537
Indiana	1	465	116
Iowa	1	3-3	72
Kansas	1	300	68
Kentucky	1	348	94
Louisiana	2	706	101
Maryland	2	728	176
Massachusetts	3	1,230	286
Michigan	2	775	164
Minnesota	1	614	114
Mississippi	1	61	
Missouri	3	941	109
Nebraska	2	638	154
New Hampshire	1	41	
New York	9	2,739	627
North Carolina	3	321	33
North Dakota	1	69	
Ohio	3	946	212
Oklahoma	1	243	61
Oregon	1	230	56
Pennsylvania	6	2,403	573
South Carolina	1	159	31
South Dakota	1	57	
Tennessee	3	784	174
Texas	2	710	134
Utah	1	70	
Vermont	1	170	33
Virginia	2	575	140
West Virginia	1	138	
Wisconsin	2	619	102
Totals	77	22,799	5,038

California, with four schools, had 1,013 students and 215 graduates. The District of Columbia and Massachusetts, each with three schools, had more students and graduates than California. Included among the number of students are the figures for ten institutions that offer only the preclinical courses.

## REQUIRED INTERNSHIPS

Tables 5 and 6 show the state licensing boards and medical schools now requiring internships for licensure and the M.D. degree respectively. There is also

included the effective date of the requirement. The requirement became effective in Vermont during the current year and also at Louisiana State University Medical Center. While some of the boards may have

TABLE 5—*Internship Required by Licensing Boards*

Pennsylvania	1914	South Dakota	1925
New Jersey	1916	Utah	1926
Alaska	1917	Wisconsin	1927
Rhode Island	1917	District of Columbia	1930
North Dakota	1918	Wyoming	1931
Washington	1919	West Virginia	1932
Michigan	1922	Oklahoma	1933
Illinois	1923	Oregon	1933
Delaware	1924	Vermont	1934
Iowa	1924		

TABLE 6—*Hospital Internship Required by Medical Schools*

	Effective Date
<b>UNITED STATES</b>	
University of Minnesota Medical School	1915
Stanford University School of Medicine	1919
University of Chicago, Rush Medical College	1919
University of California School of Medicine	1919
Marquette University School of Medicine	1920
Northwestern University Medical School	1920
University of Illinois College of Medicine	1922
Loyola University School of Medicine	1924
Wayne University College of Medicine	1926
University of Cincinnati College of Medicine	1927
College of Medical Evangelists	
University of Chicago, The School of Medicine of the Division of the Biological Sciences	1930
Duke University School of Medicine*	1932
University of Southern California School of Medicine	1933
Louisiana State University Medical Center	1934
<b>CANADA</b>	
University of Manitoba Faculty of Medicine	
Dalhousie University Faculty of Medicine	
University of Montreal Faculty of Medicine	

\* Requires a two year internship

their own lists of hospitals recommended for intern training, generally the Council's list of hospitals approved for internships is followed. This list in a revised form will be found beginning on page 588.

#### STUDENT INTERNS

Fifteen medical schools in the United States and three in Canada require a year's internship in a hospital or other acceptable clinical work as a prerequisite for

TABLE 7—*Students Serving Internships During the Session 1933-1934 as a Prerequisite for Graduation*

University of California Medical School	56
College of Medical Evangelists	40
University of Southern California School of Medicine	30
Stanford University School of Medicine	41
Loyola University School of Medicine	102
Northwestern University Medical School	146
University of Chicago, Rush Medical College	148
University of Chicago, The School of Medicine of the Division of the Biological Sciences	19
University of Illinois College of Medicine	148
Louisiana State University Medical Center	28
Wayne University College of Medicine	72
University of Minnesota Medical School	146
Duke University School of Medicine	31*
University of Cincinnati College of Medicine	72
Marquette University School of Medicine	54
University of Manitoba Faculty of Medicine	70
Dalhousie University Faculty of Medicine	33
University of Montreal Faculty of Medicine	51
<b>Total</b>	<b>1,337</b>

\* Degrees are awarded prior to internship

the M.D. degree. Duke University School of Medicine grants the degree after the completion of the senior year, but all graduates are required to spend at least two years in hospital or laboratory work after graduation. These schools and the number of students interning during 1933-1934 are contained in table 7. There were

1,337 such individuals, 113 more than in the previous session. Of these 1,337 interns, 154 were Canadian students, the majority of whom completed their internship in Canadian hospitals, leaving 1,183 United States students.

#### MEDICAL GRADUATION AND INTERNSHIP

Table 8 indicates the present relationship between the number of graduates of medical colleges in the United States and Canada and the number serving internships.

TABLE 8—*Graduates of 1933 and Fifth Year Students Who Have Served or Are Serving Internships*

School	Number of Graduates	Number Interning
University of Arkansas	40	41
University of California	*	52
College of Medical Evangelists	*	89
University of Southern California	*	30
Stanford University	*	41
University of Colorado	46	46
Yale University	38	38
Georgetown University	132	132
George Washington University	63	57
Howard University	42	42
Emory University	52	50
University of Georgia	38	38
Loyola University	*	102
Northwestern University	*	157
Rush Medical College	*	148
Division of Biological Sciences	*	13
University of Illinois	*	148
Indiana University	103	101
State University of Iowa	93	92
University of Kansas	58	56
University of Louisville	80	79
Louisiana State University	*	28
Tulane University	103	102
Johns Hopkins University	72	67
University of Maryland	84	81
Boston University	53	52
Harvard University	129	129
Tufts College	118	100
University of Michigan	135	134
Wayne University	*	72
University of Minnesota	*	111
St. Louis University	114	112
Washington University	93	90
Creighton University	72	66
University of Nebraska	74	73
Albany Medical College	30	30
Long Island College	99	98
University of Buffalo	64	61
Columbia University	91	88
Cornell University	57	57
New York Homeopathic Medical College	69	69
University and Bellevue Hosp. Medical College	121	110
University of Rochester	37	37
Syracuse University	40	40
Duke University	39†	39
University of Cincinnati	*	72
Western Reserve University	61	61
Ohio State University	88	80
University of Oklahoma	56	56
University of Oregon	51	51
Hahnemann Medical College	108	108
Jefferson Medical College	140	140
Temple University	112	111
University of Pennsylvania	138	133
Woman's Medical College	27	24
University of Pittsburgh	62	62
Medical College of South Carolina	30	34
University of Tennessee	100	100
Marberry Medical College	36	36
Vanderbilt University	42	42
Baylor University	75	69
University of Texas	70	68
University of Vermont	38	38
University of Virginia	59	59
Medical College of Virginia	87	82
University of Wisconsin	50	50
Marquette University	*	54
University of Alberta	15	13
University of Manitoba	*	70
Dalhousie University	*	33
Queen's University	48	40
University of Western Ontario	57	32
University of Toronto	120	107
McGill University	84	84
University of Montreal	*	51
Laval University	49	12
<b>Totals</b>	<b>4,282</b>	<b>5,975</b>

\* An internship or other acceptable clinical work is a requirement for graduation.

† Two year internship requirement after graduation.

The data refer to graduates of 1933 and fifth year students who have served or were serving internships at the time the data was requested of medical schools,

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which was in July of this year. There are 1,183 students of the United States and 154 of Canada serving internships as a requirement for the degree, a total of 1,337, included in this table. The figure for

where list only those graduated since July 1, 1933. The second column, however, includes those serving internships as a requirement for the degree. With the exception of one in Canada, every school in the list has more than 90 per cent of its graduates serving internships, and in twenty-three schools 100 per cent interned. Excluding those schools that require the internship for graduation, 94 per cent of all graduates here listed have this added experience. It is a known fact that there is a scarcity of internships and it may be that of the 6 per cent who have not been reported as interning many have found it difficult to secure internships in approved hospitals.

## DISTRIBUTION BY SEX

Students and graduates classified by sex are shown in table 9. There were seventy-five schools which had both men and women students in the United States and Canada, of which sixty had women graduates. Altogether there were 24,402 men and 1,139 women students, and 5,284 men and 230 women graduates. There is one medical college for women, the Woman's Medical College of Pennsylvania, which had 122 students and 19 graduates, leaving 1,017 women students pursuing their medical education and 211 who completed the course in coeducational institutions.

TABLE 10—Women in Medicine in the United States

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1905	1,078	4.1	219	4.0
1910	907	4.0	116	2.6
1915	592	4.0	92	2.6
1920	818	5.8	122	4.0
1925	910	5.0	204	5.1
1926	935	5.0	212	5.4
1927	904	4.9	189	4.7
1928	929	4.5	207	4.9
1929	925	4.4	214	4.8
1930	955	4.4	204	4.6
1931	990	4.5	217	4.6
1932	955	4.3	208	4.2
1933	1,040	4.7	214	4.4
1934	1,020	4.5	211	4.2

During the past year there were 1,020 women studying medicine in the United States, 36 more than last year. The percentage of women to all medical students this year is 4.5 as compared with 4.7 in 1933. There were 211 graduates, three fewer than last year. Of all the women matriculants, 122 students were in attendance at the one medical college for women, the Woman's Medical College of Pennsylvania, while 898 were matriculated in 67 coeducational schools. From the Woman's Medical College, 19 were graduated while 192 secured their degrees from coeducational institutions. As shown in table 10, the number of women students has been quite constant since 1920, although there has been an increase in the four years preceding 1934.

## MEDICAL SCHOOLS STUDENTS AND GRADUATES IN THE UNITED STATES 1905-1934

The number of medical schools students and graduates in the United States for each five year period from 1905 to 1920, and for each year since, is shown in table 11. The total number of undergraduate medical students for the college session 1933-1934 was 22,799, an increase of 333 over the previous session. This is the largest number of students enrolled since 1905, when 26,147 were in attendance at the 160 medical schools then existing. Also included are figures covering the number of students enrolled in schools offering only the preclinical courses. Not included in the total number of students for 1934 are 75 part time, 249

TABLE 9—Distribution by Sex

	Students		Graduates	
	Men	Women	Men	Women
University of Alabama	121	3		
University of Arkansas	101	0	47	3
University of California	191	30	47	9
College of Medical Evangelists	30	30	83	6
University of Southern California	160	0	20	5
Stanford University	108	12	37	4
University of Colorado	107	9	40	2
Yale University	101	18	37	3
Georgetown University	546		154	
George Washington University	269	20	65	5
Howard University	108	7	46	1
Emory University	225		60	
University of Georgia	151	2	39	
Loyola University	440	20	89	
Northwestern University	533	15	162	4
Rush Medical College	306	12	110	13
Division of the Biological Sciences	293	32	18	1
University of Illinois	618	22	113	2
Indiana University	448	17	110	0
State University of Iowa	341	12	71	1
University of Kansas	268	12	63	5
University of Louisville	338	10	91	3
Louisiana State University	203	7	27	1
Tulane University	483	13	170	3
Johns Hopkins University	200	34	60	8
University of Maryland	438	6	101	2
Boston University	230	16	51	2
Harvard University	516		132	
Tufts College	444	24	97	4
University of Michigan	419	32	89	9
Wayne University	316	8	64	2
University of Minnesota	490	24	109	5
University of Mississippi	51			
University of Missouri	77	3		
St. Louis University	518		108	
Washington University	325	18	84	7
Creighton University	294	4	67	2
University of Nebraska	332	8	81	4
Dartmouth Medical School	41			
Albany Medical College	107	2	20	
Long Island College	419	12	108	3
University of Buffalo	269	15	61	2
Columbia University	309	35	94	5
Cornell University	242	29	46	10
New York Homeopathic Medical College	314	12	72	
University and Bellevue Medical College	500	22	100	3
University of Rochester	171	10	40	1
Syracuse University	185	6	52	
University of North Carolina	62	4		
Duke University	190	3	32	1
Wake Forest College	62			
University of North Dakota	68	1		
University of Cincinnati	297	12	67	4
Western Reserve University	262	11	51	2
Ohio State University	303	11	80	3
University of Oklahoma	232	11	61	
University of Oregon	214	16	54	2
Hahnemann Medical College	410		90	
Jefferson Medical College	567		143	
Temple University	442	15	110	3
University of Pennsylvania	507	17	130	3
Woman's Medical College		122		19
University of Pittsburgh	202	11	61	4
Medical College of South Carolina	150	4	31	
University of South Dakota	55	2		
University of Tennessee	308	14	83	3
Meharry Medical College	175	3	36	2
Vanderbilt University	180	14	48	2
Baylor University	301	9	61	3
University of Texas	330	20	68	2
University of Utah	67	3		
University of Vermont	162	8	30	3
University of Virginia	209	7	51	1
Medical College of Virginia	309	10	91	2
West Virginia University	132	6		
University of Wisconsin	290	27	45	4
Marquette University	297	5	50	3
University of Alberta	167	13	20	4
University of Manitoba	177	21	69	3
Dalhousie University	145	3	31	1
Queen's University	296		44	
University of Western Ontario	130	9	23	1
University of Toronto	732	62	97	9
McGill University	483	8	79	1
University of Montreal	185	1	51	
Laval University	263		43	
University of Saskatchewan	40	2		
Totals	24,402	1,139	5,284	230

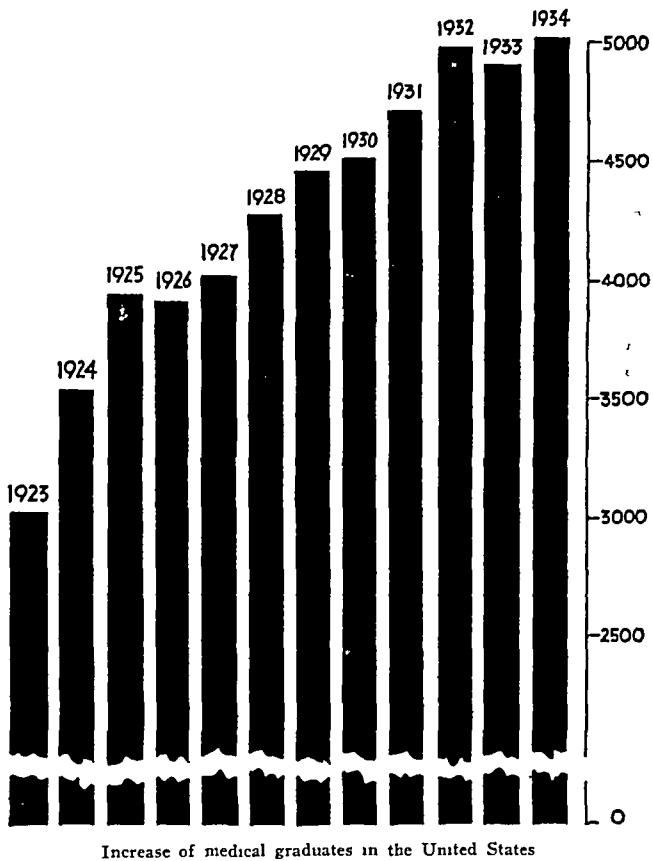
the graduates differs from that mentioned elsewhere in these statistics because those interning as a requirement for the degree are omitted and all graduates of the year 1933 are included, while the statistics else-

special and 787 graduate students majoring in the medical school but not working for M D degrees

The largest number of medical colleges existed in 1906, when there were 162

Again referring to table 11, it will be noted that the total number of graduates was 5,038, an increase of 143 over the preceding session With the exception of the slight decrease in the number of graduates in 1933, as compared with previous years, there has been a gradual increase since 1925, which is shown graphically in the chart As will be noted, there were noticeable increases in 1924 and 1925 While there was a decrease in the number of graduates in 1933, there was an increase in the number of students

In this connection it is interesting to note the number enrolled in the various classes in the United States for each session from 1929-1930 to 1933-1934 inclusive,



as shown in table 12 The total attendance for the first year for the session 1933-1934 was 6,457, or 31 more than the number enrolled for the session 1932-1933 The figure, however, is 197 more than were enrolled during 1931-1932 The total attendance for the remainder of the classes was, respectively, 5,571, 4,988 and 4,937 The two medical schools of the University of Chicago are not operated under the promotion by class system but on an individual plan It is not possible, therefore to group them into the figures given This is likewise true of the enrolment at Duke University School of Medicine They are, however, included in the totals There were 193 students enrolled at Duke, 325 at the School of Medicine of the Biological Sciences of the University of Chicago and 328 at Rush Medical College, a total of 846 There were 1,202 more students enrolled than in 1929-1930 Only one new medical school has opened since that session, namely,

the Louisiana State University Medical Center, which had an enrolment of 210 for the session of 1933-1934 Excluding the students of this university, there were 992 more students enrolled during the past college session in the seventy-six medical schools that existed in 1930

The Association of American Medical Colleges<sup>4</sup> reports that there were 29,940 (includes figures from several Canadian schools) applications for admission

TABLE 11—Schools, Students and Graduates in the United States

Year	No Schools	Students*	Graduates
1906	160	26 147	5 606
1910	181	21 526	4 440
1915	98	14 891	3 536
1920	85	13 798	3 047
1921	83	14 466	3 166
1922	81	15 635	2 520
1923	80	16 960	3 120
1924	79	17 728	3 562
1925	80	18 200	3 974
1926	79	18 840	3 962
1927	80	19 662	4 035
1928	80	20 545	4 262
1929	76	20 878	4 446
1930	76	21 597	4 565
1931	76	21,982	4 735
1932	76	22,135	4 938
1933	77	22,466	4 895
1934	77	22 799	5 038

\* Includes figures for schools offering preclinical courses also

to the freshman class, representing 12,128 applicants, and of these 7,578 (includes figures from several Canadian schools) were accepted and 4,585 refused However, as already indicated, only 6,457 actually enrolled for the freshman year, exclusive of the University of Chicago and Duke University enrolment It may be noted that over 700 students were accepted by medical schools who did not matriculate in a medical school in 1933-1934

NEGROES IN MEDICAL SCHOOLS

The Negro medical students for the session 1933-1934 are recorded by classes in table 13 The totals for 1932-1933 are shown for comparison There were 424 students and 100 graduates, a decrease of four and nine, respectively, over the figure for the previous

TABLE 12—Students in the United States Shown by Classes—1929-1934

	1st Year	2d Year	3d Year	4th Year	Total
1929 1930	6 457	5 496	4 931	4 713	21 597
1930 1931	6 456	5 538	5 080	4 908	21 982
1931 1932	6 260*	5 462*	4 932*	4 680*	22 130
1932 1933	6 426*	5 419*	5 017*	4 948*	22 466
1933 1934	6 467†	5 511†	4 988†	4 937†	22 799

\* Enrolment for the two medical schools of the University of Chicago not included

† Enrolment for the two medical schools of the University of Chicago and Duke University not included

year Meharry Medical College was organized in 1876 as a medical college for Negro youth, and at Howard University College of Medicine, organized in 1869, they compose a majority of those in attendance These two schools graduated the majority of the Negro students All other schools enrolled less than five

TUITION AND OTHER FEES

In table 14, the eighty-seven medical colleges of the United States and Canada have been grouped according to the amount of fees charged To arrive at the figures listed, an average was compiled of the fees for each

school Three colleges have fees of less than \$100 a year These were the State University of Louisiana, North Dakota and Oklahoma They, however, charge an additional fee of \$300, \$90 and \$200, respectively, for nonresidents The eleven colleges having fees over \$500 are Yale, George Washington, Johns Hopkins, Columbia, Cornell, Long Island, New York Homeopathic, Syracuse, University and Bellevue, Buffalo and Pennsylvania There were thirty-two universities which made an additional charge for nonresidents, ranging from \$50 by the Universities of Mississippi, Missouri, Cincinnati (nonresidents of Cincinnati), Tennessee and Virginia to \$300 exacted by the Universities of California and Louisiana State The lowest nonresident fee was charged by the University of Oregon, \$20, followed by the University of Utah, \$35, and the University of Vermont, \$45 (\$20 for the senior year) All other schools had a nonresident fee of \$50 or more The fees are not listed in these statistics by individual schools other than in the descriptions beginning on page 580 Though the total annual fees in some instances seem somewhat large, they do not by any means cover the cost of the instruction that is given No medical school at the present time can maintain extensive laboratories, pay the essential salaries to teachers and properly teach modern medicine without an income larger than that derived from students' fees Medical schools, along with other institutions of higher learning, have been affected by the

Forty-six medical schools report that they have funds available for scholarships and fifty-seven have loan funds The students who received assistance by either of these methods during the last college session number 2,373

The Federal Emergency Relief Administration has adopted a plan of part time employment of college students during the college year 1934-1935 Students may be assigned to extension, adult education, recreation and other activities that increase the usefulness of the college to the community, in addition to clerical, library and research work The salary earned shall be

TABLE 14—Fees 1933-1934—United States and Canada \*

	Schools
Under \$100	3
\$100 to \$200	13
200 to 300	23
300 to 400	17
400 to 500	20
500 or over	11
Total	87

\* Based on fees charged resident students

not more than \$20 per calendar month per student and shall be earned by socially desirable work Any school desiring should apply for such aid for its students to the State Federal Emergency Relief Administration and refer to Forms E-15 dated Feb 2, 1934, E-29 dated July 3, 1934 and E-29L dated July 5 Students should apply directly to the medical school for admission under this plan It is planned to provide aid for about 100,000

TABLE 13—Negro Students and Graduates

Name of School	Enrolment by Classes During 1933-1934				Totals	Graduates
	1st Year	2d Year	3d Year	4th Year		
University of California Medical School						2
College of Medical Evangelists	1				1	
Howard University College of Medicine	52	44	50	48	194	46
Loyola University School of Medicine						1
The School of Medicine of the Division of the Biological Sciences	1	3			4	
University of Illinois College of Medicine	1	1		1	3	
Indiana University School of Medicine		2		1	3	1
State University of Iowa College of Medicine				1	1	1
University of Kansas School of Medicine	1				1	
Tufts College Medical School			1		1	1
University of Michigan Medical School	1			2	3	2
Wayne University College of Medicine				1	1	
Long Island College of Medicine		1			1	
Columbia Univ College of Phys and Surgs		1		2	3	2
New York Homeopathic Medical College	1		1		2	
University and Bellevue Hosp Medical College			1		1	
Syracuse University College of Medicine	1				1	
University of Cincinnati College of Medicine			1		1	
Western Reserve University School of Medicine			1	1	2	1
Ohio State University College of Medicine	2	1		1	4	1
Temple University School of Medicine	1				1	
University of Pennsylvania School of Medicine	2			1	3	1
Woman's Medical College of Pennsylvania	1				1	
Meharry Medical College	45	49	44	40	178	38
Dalhousie University Faculty of Medicine						1
McGill University Faculty of Medicine	1	2	2		5	1
University of Montreal Faculty of Medicine		1			1	
Totals during 1933-1933	111	105	108	100	424	100
	120	110	94	99	423	91

CITIZENS OF THE UNITED STATES REPORTED  
ENROLLED IN MEDICAL FACULTIES ABROAD

In 1931, in view of the reported exodus of citizens of the United States to foreign medical schools, inquiries were sent to all schools This study has been carried on since and the results for the year 1933-1934 are shown in table 15 There were 1,428 American students and 86 graduates in the eighty-four institutions reporting

In February 1933, the Federation of State Medical Boards adopted the following resolution

1 That no American student matriculating in a European medical school subsequent to the academic year 1932-1933 will be admitted to any state medical licensing examination who does not, before beginning such medical study, secure from a state board of medical examiners or other competent state authority a certificate endorsed by the Association of American Medical Colleges or the Council on Medical Education and Hospitals of the American Medical Association showing that he has met the premedical educational requirements prescribed by the aforementioned associations

2 That no student either American or European matriculating in a European medical school subsequent to the academic year 1932-1933 will be admitted to any state medical licensing examination who does not present satisfactory evidence of premedical education equivalent to the requirements of the Association of American Medical Colleges, and the Council on Medical Education and Hospitals of the American Medical Association, and graduation from a European medical school after a medical course of at least four academic years, and submit evidence of having satisfactorily passed the examination to obtain a license to practice medicine in the country in which the medical school from which he is graduated is located

This policy of the federation has been translated into action by some of the states For the purpose of keeping closely in touch with developments in other countries, a joint committee was appointed representing

economic situation Almost without exception income has been reduced and, in order to balance the budget, fees have been increased In addition to student fees, many of the schools received donations from various sources throughout the session such as gifts, bequests and endowments, as well as their usual appropriations from state and private enterprises Provision, however, has been made for scholarships and loan funds for the benefit of deserving students



the Council on Medical Education and Hospitals of the American Medical Association, the Federation of State Medical Boards of the United States, the New York Board of Regents, the National Board of Medical Examiners, and the Association of American Medical Colleges

The governments of many European countries have already taken cognizance of the situation and sent representatives to this country to discuss appropriate measures for dealing with students from the United States. In some universities, entrance requirements have been raised, in some, student enrolment has been

the maintenance of high educational and professional standards, physicians who are victims of racial and religious persecution in Germany be permitted the privilege of practicing medicine in the United States

2 That the voluntary method of selecting in this country students for admission to Italian medical schools serve as a model for similar agreements with other European countries and that a committee be appointed to advise and assist European authorities in reference to the selection of American students

3 That the committee be continued with authority to carry on further negotiations with the various European authorities looking toward a proper selection and restriction of American students in Europe

TABLE 15—Citizens of the United States Enrolled in Medical Facilities Abroad

	Students Academic Year 1933 1934					Students Academic Year 1933 1934			
	Totals		Enrolled	Completed Course		Totals		Enrolled	Completed Course
Austria	22	1	11	1	Hungary	23	1		
Karl Franzens Universität Graz			11	0	Magyar Királyi Pázmány Petrus Tudományegyetem Budapest			15	1
Leopold Franzens Universität, Innsbruck	11	0	8	0	Magyar Királyi Erzsébet Tudományegyetem Pécs			2	0
Belgium			3	0	Magyar Királyi Ferencz József Tudományegyetem, Szeged			6	0
Université Libre de Bruxelles			1	0	Ireland	4	1		
Université Catholique de Louvain	1	0	1	0	Queen's University, Belfast			1	0
Brazil			1	0	National University of Ireland				
Faculdade de Medicina do Paraná, Curitiba	15	0	1	0	University College, Dublin			1	1
China			14	0	University of Dublin School of Physic			2	0
Peking Union Medical College			1	0	Italy	169	17		
Pennsylvania Medical School, Shanghai	1	0	1	0	Regia Università di Benito Mussolini di Bari			4	0
Colombia			1	0	Regia Università di Cagliari			1	0
Universidad Nacional, Bogotá			1	0	Regia Università di Firenze			3	0
England	64	2	3	0	Regia Università di Milano			1	0
University of Birmingham			5	0	Regia Università di Padova			4	0
University of Bristol			7	0	Regia Università di Palermo			4	0
University of Durham			9	0	Regia Università di Pavia			1	0
University of London			1	0	Regia Università di Roma			144	14
Charing Cross Hospital Medical School			1	0	Regia Università di Sassari			2	0
Guy's Hospital Medical School			1	0	Regia Università di Sanna			1	1
King's College Hospital Medical School			1	0	Regia Università di Torino			4	2
London Hospital Medical College			2	0	Netherlands	1	0		
London (Royal Free Hospital) School of Medicine for Women			1	0	Genceskundige Hoogeschool, Batavia			1	0
Middlesex Hospital Medical School			18	0	Netherlands	1	0		
St Bartholomew's Hospital Medical College			2	0	Rijks Universiteit te Leiden			1	0
St Mary's Hospital Medical School			1	0	Philippine Islands	2	0		
St Thomas's Hospital Medical School			4	0	University of Santo Tomas Manila			2	0
Westminster Hospital Medical School			2	0	Poland	10	2		
University of Oxford			7	2	Uniwersytet Jagielloński Cracow			3	1
University of Sheffield			2	0	Uniwersytet Jana Kazimierza, Lwów			3	1
France	86	2	5	0	Uniwersytet Warszawski			2	0
Université de Bordeaux			10	0	Uniwersytet Stefana Batorego, Wilno			2	0
Université de Lyon			3	0	Portugal	1	0		
Université de Montpellier			62	2	Universidade do Porto			1	0
Université de Nancy			3	0	Scotland	333	42		
Université de Paris			1	0	University of Aberdeen			11	1
Université de Strasbourg			1	0	School of Medicine of the Royal Colleges Edinburgh			30	0
Université de Toulouse			113	1	University of Edinburgh			43	4
Germany	317	8	38	0	Anderson College of Medicine Glasgow			64	0
Friedrich Wilhelms Universität Berlin			2	0	St Mungo's College Medical School Glasgow			50	0
Rheinische Friedrich Wilhelms-Universität, Bonn			6	0	University of Glasgow			47	1
Schlesische Friedrich Wilhelms Universität Breslau			20	0	University of St Andrews			83	26
Friedrich Alexanders Universität Erlangen			10	0	Switzerland	351	8		
Johann Wolfgang Goethe Universität Frankfurt am Main			13	0	Universität Basel			81	0
Keele'sche Ludwigs Universität Gießen			34	1	Universität Bern			118	4
Verenigten Friedrichs Universität Halle-Wittenberg			1	0	Université de Genève			49	4
Universität Heidelberg			11	0	Université de Lausanne			31	0
Thüringische Landesuniversität Jena			26	2	Universität Zurich			72	0
Universität Köln			23	4	Syria	11	2		
Universität Leipzig			8	0	American University of Beirut			11	2
Ludwig Maximilians Universität München			3	0	Yugoslavia	5	0		
Westfälische Wilhelms Universität Münster			4	0	Zagrebaskog Universiteta			5	0
Universität Rostock			4	0	Totals by countries	1428*	86		
Eberhard Karls Universität Tübingen									

\* It is believed this figure should be larger inasmuch as the following schools reported large numbers of American students in 1933 and have not replied to the 1934 request Vienna Austria Karlovy, Prague Czechoslovakia Hamburg and Königsburg Germany, Bologna and Naples, Italy

limited. In all cases, credentials will be carefully scrutinized

The Committee on Foreign Medical Students published its report<sup>5</sup> in November 1933, which was adopted by the Federation in February 1934 and reported its adoption by all its constituent licensing boards. Its recommendations were as follows

1 That no action be taken in reference to the admission of native-born Europeans for admission to American medical licensing examinations and that, so far as is consistent with

In further considering the problem, the federation at its February 1934 meeting passed the following resolution in order that an influx of American students to countries other than Europe might be curtailed if possible

WHEREAS It has been brought to the attention of the Federation of State Medical Boards of the United States that an unknown number of American students are studying medicine in foreign medical schools where adequate information concerning standards of medical education is not available therefore be it

Resolved That the Federation of State Medical Boards of the United States recommend to its constituent state boards and to the National Board of Medical Examiners that until adequate information is available

able these boards deny graduates of foreign medical schools admission to the various medical licensure examinations, and be it further

*Resolved* That a copy of these resolutions be transmitted to the Council on Medical Education and Hospitals of the American Medical Association and to the Association of American Medical Colleges with the request that full and adequate publicity be given to this resolution

It is believed that a better understanding has been achieved and a noticeable decrease is indicated in the number at present enrolled and it is believed that the figure will steadily decrease

TABLE 16—*Citizens of the United States Reported Enrolled in Medical Faculties Abroad—1933-1934*

	Students 19 0 1931		Students 19 11 1932		Students 19 2 1933		Students 19 33 1934	
	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course
Austria	114	1	175	6	271	3	22	1
Belgium	3	0	4	1	10	1	11	0
Brazil							1	0
China					12	0	15	0
Colombia							1	0
Czechoslovakia	2	0	4	0	10	0		
England	62	2	61	4	57	1	64	2
Finland	1	0						
France	23	2	62	6	78	5	86	2
Germany	72	1	189	5	439	41	317	8
Greece					4	1		
Hungary	9	1	15	2	13	1	23	1
Ireland	14	1	21	0	20	0	4	1
Italy	78	11	155	4	282	14	169	17
Japan			1	0				
Lithuania			4	0	4	0		
Mexico	1	0	1	1				
Netherlands India					1	0	1	0
Netherlands							1	0
Philippine Islands					2	0	2	0
Poland	2	0	1	0	9	0	10	2
Portugal							1	0
Scotland	256	10	257	25	416	9	333	42
South Africa Union of			1	0				
Switzerland	65	4	214	1	405	10	351	8
Syria	16	2	8	0	7	0	11	2
Yugoslavia			2	1	5	1	5	0
Totals	710	46	1 175	56	2 054	87	1 423	86

\* See footnote to table 15

The number of students studying in the various countries during the four years in which the study has been carried on is indicated in table 16. It can readily be seen that the largest numbers were enrolled in Germany, Scotland, Switzerland and Italy. While in the beginning Scotland had the greatest number, this country was one of the first to curtail admission of such students. Thereafter, large numbers enrolled in Germany and Italy and lastly in Switzerland. There were, however, fewer admitted to the study of medicine in all European countries in 1933-1934 than formerly. The figures given represent largely those previously enrolled.

With the cooperation of the State Department at Washington, an investigation is being made of medical education and licensure in Latin America. The information that is being obtained includes name and location of all existing professional schools with the year in which they were organized, preliminary training required for admission, requirements for degree of Doctor of Medicine, including length of course, subjects of the curriculum, time devoted to individual laboratory work, size and character of teaching hospitals, number of students enrolled and requirements for practice by citizens of the United States.

#### HOSPITAL FACILITIES

Fifty-seven of the eighty-seven medical schools of the United States and Canada report that they maintain their own hospital or outpatient clinic, five report they have hospital affiliations and, seventeen that they do not

maintain their own hospital or clinic, while eight did not answer.

Fifty-eight replied that indigent patients are accepted, one stated they are not and the remainder did not reply. In forty-nine, patients are accepted who are able to pay a part of the cost of their care, seven replied that they are not able, and the remainder did not comment. Thirty-four accept patients able to pay the full cost of their care, including a physicians' fee, nineteen do not, and others did not report.

#### RATIO OF PHYSICIANS TO POPULATION

The ratio of physicians to population in the United States based on physicians listed in the thirteenth edition of the American Medical Directory, which has just been issued, and the estimated census of July 1, 1933, is shown in table 17. These figures have been

TABLE 17—*Ratio of Physicians to Population in the United States*

	Estimated Population as of July 1 1933	Physicians Listed in 1934 Directory†	Ratio
Alabama	2 697 000	2 051	1,315
Arizona	453 000	425	1 066
Arkansas	1 812 000	1 809	1 035
California	6 062 000	9 489	639
Colorado	1 012 000	1 760	588
Connecticut	1 646 000	2 178	756
Delaware	24 000	232	825
District of Columbia	495 000	1 704	290
Florida	1 554 000	1 592	9 6
Georgia	2 911 000	2 721	1,010
Idaho	447 000	308	1 215
Illinois	7 876 000	11 110	704
Indiana	3 29 000	3 814	850
Iowa	2 452 000	3 023	821
Kansas	1 900 000	2 066	924
Kentucky	2 648 000	2 107	978
Louisiana	2 113 000	2 065	1 043
Maine	802 000	922	870
Maryland	1 665 000	2 510	663
Massachusetts	4 318 000	6 704	644
Michigan	5 043 000	5 483	919
Minnesota	2 594 000	3 069	845
Mississippi	2 041 000	1 411	1 411
Missouri	3 668 000	5 364	684
Montana	531 600*	471	1 141
Nebraska	1 392 000	1 719	810
Nevada	93 000	131	710
New Hampshire	469 000	555	845
New Jersey	4 193 000	4 720	888
New Mexico	434 000	366	1 166
New York	12 965 000	22 180	585
North Carolina	3 275 000	2 385	1 373
North Dakota	685 000	512	1 369
Ohio	6 798 000	8 413	804
Oklahoma	2 410 000	2 314	1 033
Oregon	983 000	1 233	797
Pennsylvania	9 781 000	12 160	805
Rhode Island	702 000	869	808
South Carolina	1 748 000	1 275	1,371
South Dakota	702 000	560	1 254
Tennessee	2 664 000	2 835	940
Texas	6 023 000	6 414	939
Utah	518 000	512	1 012
Vermont	301 000	483	740
Virginia	2 441 000	2 563	952
Washington	1 559 000	1 902	841
West Virginia	1 714 000	1 729	1 026
Wisconsin	2 992 000	3 200	935
Wyoming	231 000	227	1 018
Totals	125 692 606	154 495	814

\* No estimate available

† Excluding those listed as retired or not in practice

corrected by the omission of 6 866 names listed as "retired" or "not in practice." Hence the ratios given represent, it is believed, the nearest approximation that can be made to the number of physicians actually engaged in practice. In the entire country the ratio is one physician to 814 people. In seventeen states the ratio is over 1,000 and in practically all others it ranges above 500. The lowest ratio is that for the District of Columbia (290), but this is accounted for by the fact that many physicians are in the government service.

New York is next with 585, while in Colorado the ratio is 598 The state having the highest ratio is Mississippi, 1,411

AMERICAN MEDICAL DIRECTORY

The number of physicians listed in the 1931 and 1934 editions of the American Medical Directory, indicating whether the medical profession has been added to or

TABLE 18—Physicians Listed 1931 and 1934 Editions American Medical Directory

	No of Physicians*		Difference	Percentage	
	1931	1934		Gain	Loss
Alabama	2,207	2 120	-78	3 5	
Arizona	494	468	-26	5 3	
Arkansas	1,977	1 890	-87	4 4	
California	10,109	10 490	+381	3 6	
Colorado	1,896	1 874	-24	1 3	
Connecticut	2,131	2 312	+181	7 8	
Delaware	218	301	+23	7 6	
District of Columbia	1,827	1 851	+24	1 3	
Florida	1 702	1 840	+78	4 2	
Georgia	2 888	2 811	-77	2 7	
Idaho	383	388	+5	1 3	
Illinois	11 382	11 505	+123	1 1	
Indiana	4 073	4 040	-24	0 6	
Iowa	3 120	3 141	+16	0 5	
Kansas	2 108	2 153	+10	0 7	
Kentucky	2 867	2 808	-59	2 1	
Louisiana	2 076	2 127	+51	2 4	
Maine	080	084	+4	0 5	
Maryland	2 480	2 617	+137	5 2	
Massachusetts	6 500	7 012	+417	6 9	
Michigan	5 589	5 678	+89	1 6	
Minnesota	3 075	3 174	+99	3 1	
Mississippi	1 567	1 520	-42	2 7	
Missouri	5 640	5,570	-70	1 2	
Montana	484	480	-4	0 8	
Nebraska	1 780	1 772	-13	0 7	
Nevada	131	139	+8	5 8	
New Hampshire	067	602	+30	5 8	
New Jersey	4 307	4 015	+558	11 4	
New Mexico	374	393	+10	4 8	
New York	21 008	22 816	+1 808	7 9	
North Carolina	2 312	2 460	+88	3 6	
North Dakota	515	511	-4	0 8	
Ohio	8 653	8 769	+116	1 3	
Oklahoma	2 484	2 409	-70	3 0	
Oregon	1 275	1 308	+33	2 5	
Pennsylvania	12 001	12,608	+557	4 4	
Rhode Island	844	907	+63	6 9	
South Carolina	1 202	1,329	+37	2 8	
South Dakota	580	583	+2	0 3	
Tennessee	2 062	2 970	+8	0 3	
Texas	6 470	6 679	+204	3 1	
Utah	489	521	+32	6 1	
Vermont	419	517	+18	3 5	
Virginia	2 084	2 609	+75	2 8	
Washington	1 920	1 999	+79	4 0	
West Virginia	1 782	1 770	-13	0 2	
Wisconsin	3 104	3 302	+198	6 0	
Wyoming	234	237	+3	1 3	
Totals	156 406	161 361	+4 955	3 1	
Geographic Divisions					
New England	11 620	12 334	+709	5 7	
Maine New Hampshire Ver mont Massachusetts Rhode Island, Connecticut					
Middle Atlantic	37 416	40 339	+2 923	7 2	
New York New Jersey Penn sylvania					
East North Central	32,801	33 303	+502	1 5	
Ohio Indiana Illinois Mich igan Wisconsin					
West North Central	16 893	16 904	+11	0 1	
Minnesota Iowa Missou ri North Dakota South Da kota Nebraska Kansas					
South Atlantic	17 260	17 647	+382	2 2	
Delaware Maryland District of Columbia Virginia West Virginia North Carolina South Carolina Georgia, Florida					
East South Central	9 603	9 432	-171	1 8	
Kentucky Tennessee Ala bama Mississippi					
West South Central	13 012	13 105	+93	0 7	
Arkansas Louisiana Okla homa Texas					
Mountain	4 487	4 000	-487	0 3	
Montana Idaho Wyoming Colorado New Mexico Ari zona Utah Nevada					
Pacific	13 304	13 797	+493	3 6	
Washington Oregon Call ifornia					
Totals	106 406	161 361	+4 955	3 1	

\* Including those listed as retired and not in practice

decreased, is included in table 18 The state showing the largest gain was New York with 1,808, 7 9 per cent In New York 1,118 of those listed in 1931 were removed by death, 3,062 were new additions to the profession and 1,026 moved to New York from other states, while 1,162 residents of New York left the state, leaving a gain of 1,808 The greatest loss was in Arkansas, eighty-seven, or 4 4 per cent For this state it might be noted that 191 were removed by death, 124 were new physicians and 80 moved to Arkansas from other states, while 100 left the state

For the entire country there was a gain of 4,955, or 3 1 per cent In this table no correction has been made for those retired or not in practice

At the bottom of the table the states are divided into geographic divisions All divisions but the East South Central showed a gain, the most noticeable being in the Middle Atlantic, 7 2 per cent, and the New England, 5 7 per cent, groups The lowest gain was in the West North Central division, 0 1 per cent, while the loss in the East South Central group was 1 8 per cent

PHYSICIANS AND SPECIALTIES

In table 19 are recorded figures showing the number of physicians who have reported that they limit their practice or declare an interest in a specialty This

TABLE 19—Physicians Reported as Limiting Their Practice or Declaring a Special Interest in a Specialty as Published in 1934 Edition of American Medical Directory

Specialty	Limit Practice	Declare a Special Interest	Totals
Anesthesia	159	384	543
Bacteriology	34	27	61
Clinical pathology	286	148	434
Dermatology	700	300	1 055
Industrial surgery	232	870	1 102
Internal medicine	4 402		4 452
Orthopedic surgery	722	319	1 041
Pathology	332	151	483
Pediatrics	1,734	2 155	3 889
Proctology	218	391	609
Public health	836		836
Röntgenology, radiology	1,169	754	1 923
Surgery	4 337	8 854	13 191
Tuberculosis	526	541	1 067
Urology	1 425	906	2 331
Gynecology	216	1 032	1 248
Obstetrics	306	2 001	2 307
Obstetrics and gynecology	1 119	1,774	2,893
Ophthalmology	1,177	323	1 500
Ophthalmology, otology laryngology, rhinology	4 010	948	4 958
Otology laryngology rhinology	1 110	809	1 919
Neurology	107	127	234
Neurology and psychiatry	088	307	1 385
Psychiatry	506	216	722
Totals	26 706	23 577	50 333

information forms a part of their biographic record in the thirteenth edition of the American Medical Directory Twenty-four specialties are included and are listed alphabetically with the exception of the three groups given at the end of the list, each of which includes two or more closely related specialties The largest number limiting their practice to a specialty is found in internal medicine, 4,452, followed by surgery with 4,337 and ophthalmology, otology, laryngology and rhinology with 4,010 The smallest number limiting their practice are the bacteriologists, 34 A total of 26,756 indicate that they limit their practice to a specialty

Of the 23,577 who declare a special interest in a specialty, the largest group is represented by surgery, 8,854, followed by pediatrics, 2,155, obstetrics, 2,001,

obstetrics and gynecology, 1,774, and gynecology, 1,032. In other fields the number does not exceed 1,000.

Altogether, 50,333 of the 161,361 physicians listed in the United States, or 154,495 eliminating the 6,866 reported as retired or not in practice, 32.6 per cent, report that they limit their practice or declare a special interest in a specialty. Those who limit their practice constitute 17.3 per cent, and those who declare a special interest, 15.3 per cent of the profession.

The House of Delegates of the American Medical Association at its annual session in 1933 passed the following resolution:

*Resolved* That the Council on Medical Education and Hospitals is hereby authorized to express its approval of such examining boards in medical specialties as conform to the standards of administration formulated by the Council and be it further

*Resolved* That the Board of Trustees of the American Medical Association be urged to use the machinery of the American Medical Association including the publication of its directory in furthering the work of such examining boards as may be accredited by the Council.

The following Essentials for Examining Boards in Specialties were approved by the House of Delegates at its 1934 session:

## ESSENTIALS FOR EXAMINING BOARDS IN SPECIALTIES

By THE COUNCIL ON MEDICAL EDUCATION AND  
HOSPITALS OF THE AMERICAN MEDICAL  
ASSOCIATION, CHICAGO

### I ORGANIZATION

1 A special examining board to be approved by the Council should represent a well recognized and distinct specialty of medicine.

2 It should be composed of representatives of the national organizations of that specialty including the related section of the American Medical Association.

3 It should be incorporated.

4 A special board should:

- (a) Determine whether candidates have received adequate preparation as defined by the board.
- (b) Provide a comprehensive test of the ability and fitness of such candidates.
- (c) Certify to the competence of those physicians who have satisfied the requirements of the board.

### II DEFINITION OF SPECIAL FIELDS

The following branches of medicine at present are recognized as suitable fields for the certification of specialists:

- |                             |                               |
|-----------------------------|-------------------------------|
| 1 Internal medicine         | 7 Dermatology and syphilology |
| 2 Surgery                   | 8 Neurology and psychiatry    |
| 3 Pediatrics                | 9 Urology                     |
| 4 Obstetrics and gynecology | 10 Orthopedic surgery         |
| 5 Ophthalmology             | 11 Radiology                  |
| 6 Otolaryngology            | 12 Pathology                  |

### III QUALIFICATION OF CANDIDATES

Each applicant for admission to the examination should be required to present evidence that he has met the following standards:

#### A General Qualifications<sup>1</sup>

- 1 Satisfactory moral and ethical standing in the profession.
- 2 A license to practice medicine.
- 3 Membership in the American Medical Association or by courtesy membership in such Canadian medical societies as are approved by the Council on Medical Education and Hospitals of the American Medical Association. Membership in other societies should not be required.

#### B Professional Education<sup>1</sup>

- 1 Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association.
- 2 Completion of an internship of not less than one year in a hospital approved by the same Council.

#### C Special Training<sup>1</sup> (to be effective not later than Jan 1, 1938)

- 1 A period of study after the internship of not less than three calendar years in clinics, dispensaries, hospitals or laboratories recognized by the same Council as competent to provide a satisfactory training in the special field of study.
- 2 This period of specialized preparation shall include:
  - (a) intensive graduate training in anatomy, physiology, pathology and the other basic medical sciences which are necessary to the proper understanding of the disorders and treatment involved in the specialty in question,
  - (b) an active experience of not less than eighteen months in hospitals, clinics, dispensaries or diagnostic laboratories recognized by the Council as competent in the specialty,
  - (c) examinations in the basic medical sciences of a specialty as well as in the medical laboratory and public health aspects.
- 3 An additional period of not less than two years of practice.

### IV WITHDRAWAL

For reasons which are deemed sufficient, in the judgment of the Council on Medical Education and Hospitals, the recognition extended by the American Medical Association to holders of certificates from special examining boards may be withdrawn.

### INTERNSHIPS AND RESIDENCIES

This issue of the Educational Number presents in a new form lists of hospitals approved for the training of interns and residents. The Council desires to make available to candidates for these positions more comprehensive and pertinent information. The data for the most part were obtained from the regular annual reports from all hospitals approved by the Council, supplemented by inspection reports and personal knowledge of the staff.

Under the heading "Classification of Patients," the data given will enable the prospective intern to know whether an institution serves predominantly private or charity patients.

TABLE 20—Approved Internship Hospitals

	Beds and Bathrooms	Admissions	Interns
Fifty teaching hospitals	30,671	511,237	1,221
Fifty government hospitals	29,903	410,047	908
Fifty church hospitals	13,105	190,648	266
Fifty independent hospitals	12,780	218,930	392
Teaching hospitals: one intern to 25 beds to 418 admissions			
Government hospitals: one intern to 33 beds, to 402 admissions			
Church hospitals: one intern to 40 beds to 716 admissions			
Independent hospitals: one intern to 33 beds to 503 admissions			

Additional information is presented also in the column headed "Type of Internship," for it is recognized that desirable internships do not all necessarily follow the same pattern.

A "straight service" is one in which the intern spends his entire time in one clinical department.

A "rotating service" includes experience in each of the following branches: medicine, surgery, obstetrics, pediatrics, radiology and pathology. This type of service usually satisfies those state boards which have an intern requirement.

The "mixed internship," intermediate between the other two, offers training in more than one, but less than six, of the fields comprised in the full rotating service. A mixed internship may often be supplemented by special training in one or two fields in order to fulfill state board requirements.

Formerly the Council expressed the opinion that a hospital should employ interns in the ratio of one to each thirty beds. It has become evident however that, owing to fluctuations in the percentage of occupancy,

<sup>1</sup> In case of an applicant whose training has been received outside the United States and Canada the credentials must be satisfactory to the Advisory Board.

this standard is not entirely satisfactory. It has been suggested that there should be a definite ratio of interns to the number of patients shown in the average daily

TABLE 21—Approved Internship Hospitals with Highest Necropsy Percentages, 1933

	Control	Deaths	Necropsies	Necropsy Percentage
1 St. Luke's Hospital Kansas City Mo	Church	121	105	86.8
2 Bell Memorial Hosp Kansas City Kan	State	238	173	83.2
3 Colorado General Hospital, Denver	State	198	102	81.8
4 Columbus Hospital Chicago	Church	43	30	81.4
5 St. Joseph Hospital, Kansas City Mo	Church	194	166	80.4
6 Research & Educational Hosp., Chicago	State	192	152	76.4
7 University of Chicago Clinics Chicago	Indep	195	149	70.4
8 Kansas City General Hospital No. 1, Kansas City Mo	City	704	529	75.1
9 University of Nebraska Hosp Omaha	State	160	118	73.8
10 Mount Sinai Hospital Philadelphia	Indep	100	139	73.2
11 St. Elizabeths Hospital, Washington D C	Fed	275	200	72.7
12 State of Wisconsin Gen Hosp, Madison	State	392	281	71.7
13 University Hospitals, Minneapolis	State	399	285	71.4
14 St. Josephs Hospital, Reading, Pa	Church	233	165	70.8
15 Reading Hospital Reading Pa	Indep	233	155	69.5
16 Santa Fe Coast Lines Hospital Los Angeles	Indus	62	43	69.4
17 University of California Hospital San Francisco	State	189	131	69.3
18 St. Margaret's Hospital Kansas City, Kan	Church	220	151	68.6
19 Albany Hospital Albany N Y	Indep	409	28	68.0
20 Grasslands Hospital, Valhalla, N Y	County	439	296	67.4

Indep—Independent Fed—Federal Indus—Industrial

census. This proposal has the weakness that some hospitals have a very slow turnover, and that the interns' experience would therefore be less satisfactory

than the census would indicate. The Council has therefore made a brief analysis of the ratio of interns to admissions in four types of institutions, each group being represented by a sample of fifty hospitals. The results are given in table 20.

Experience shows that hospitals employing fewer than four interns have difficulty in providing a well balanced service. There is a tendency to overemphasis on surgery, especially operations and routine history writing, with inadequate attention to physical examination and diagnosis. With few exceptions this type of service is undesirable.

The publication of figures showing the percentage of necropsies performed should be most helpful to prospective interns, for it is well known that an alert and efficient staff will maintain a creditable postmortem rate. Failure to satisfy the Council's requirement will necessarily lead to suspension from the approved list.

There is included a list of the twenty approved internship hospitals most successful in necropsy performance during 1933. Attention is called not only to the excellence of the figures but also to the fact that nearly every kind of hospital according to type of control is included. In the governmentally controlled group there are representatives of federal, state, county and city hospitals, in the voluntary group are to be found Jewish, Catholic, Protestant, independent and industrial hospitals. There is also the widest possible geographic distribution. The conclusion seems justified that any kind of hospital can readily exceed the minimum requirements if the staff is sufficiently interested in procuring necropsies.

## DESCRIPTION OF MEDICAL COLLEGES

### ALABAMA

#### University

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE—Organized in 1859 at Mobile as the Medical College of Alabama. Classes graduated in 1861 and subsequent years excepting 1862 to 1863 inclusive. Reorganized in 1897 as the medical department of the University of Alabama. Present title assumed in 1907 when all property was transferred to the University of Alabama. In 1920 clinical teaching was suspended and the medical school was removed to the university campus near Tuscaloosa. Coeducational since 1920. Minimum entrance requirements are seventy semester hours of collegiate work. The course of study covers two years of thirty-six weeks each. The faculty includes 13 professors and 10 instructors, assistants, etc. a total of 23. The tuition fees are \$271 each year. Total registration for 1933-1934 was 124. The sixty-ninth session begins Sept. 12, 1934 and ends May 28, 1935. The Dean is Stuart Graves, M.D.

### ARKANSAS

#### Little Rock

UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE 300 West Markham Street—Organized in 1879 as the Medical Department of Arkansas Industrial University. Present title in 1899. In 1911 the College of Physicians and Surgeons united with it and it became an integral part of the University of Arkansas. The first class was graduated in 1880. Clinical teaching was suspended in 1918 but resumed in 1923. Coeducational since organization. The faculty consists of 35 professors and 55 lecturers and assistants total 90. The curriculum covers four years of nine months each. Entrance requirements are two years of collegiate work in addition to a four-year high school course. The fees for the four years respectively for residents of Arkansas are \$200 \$200 \$200 and \$200 nonresidents are charged \$150 additional each year. The total registration for 1933-1934 was 200 graduates 50. The fifty-sixth session begins Sept. 19, 1934 and ends June 3, 1935. The Dean is Frank Vinsonhaler, M.D.

### CALIFORNIA

#### Berkeley-San Francisco

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL University Campus, Berkeley Third and Parnassus avenues San Francisco—Organized in 1862 as the Toland Medical College. The first class graduated in 1864. In 1872 it became the Medical Department of the University of California. In 1909 by legislative enactment the College of Medicine of the University of Southern California at Los Angeles became a clinical department but was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged and elective chairs in homeopathic materia medica and therapeutics were provided.

Coeducational since organization. Three years of collegiate work is required for admission. The work of the first year is given at Berkeley and that of the last three years at San Francisco. The faculty is composed of 132 professors and 225 associates and assistants, a total of 357. The course covers four years of eight months each and an additional fifth year consisting of an internship in a hospital or of special work in a department of the medical school. Fees for the four years respectively for residents of California are \$277, \$235, \$235 and \$235 nonresidents are charged \$300 additional each year. Total registration for 1933-1934 was 226 graduates, 56. The sixty-second session begins Aug. 20, 1934 and ends May 18, 1935. The Dean is Langley Porter, M.D., San Francisco.

#### Loma Linda-Los Angeles

COLLEGE OF MEDICAL EVANGELISTS—Organized in 1909. The first class graduated in 1914. The laboratory departments are at Loma Linda the clinical departments at Los Angeles. Coeducational since organization. The faculty is composed of 58 professors and 196 associates, assistants and instructors a total of 254. The course covers a period of five years including one year of internship. During the first and second years the students are in school twelve months each year. This is accomplished by means of the cooperative plan, the student spending alternate months in an approved hospital in practical lines of medical training. Sixty-four semester hours of collegiate work is required for admission. The total fees for the four years respectively are \$385 \$375, \$480 and \$440. The total registration for 1933-1934 was 406 graduates 88. The twenty-sixth session begins July 2, 1934 and ends June 16, 1935. The Dean of the Loma Linda Division is E. H. Risley, M.D., and the Dean of the Los Angeles Division is Arthur E. Coyne, M.D.

#### Los Angeles

UNIVERSITY OF SOUTHERN CALIFORNIA SCHOOL OF MEDICINE 3551 University Avenue—Organized in 1885 as the University of Southern California College of Medicine. First class graduated in 1888. In 1908 it became the Medical Department of the University of California in Los Angeles. In 1909 the College of Physicians and Surgeons established in 1904 became the Medical Department of the University of Southern California. Its activities were suspended in 1920, reorganized in May 1928 under present title. The faculty consists of 129 professors and 113 instructors assistants and others a total of 242. A fifth intern year is required. Three years of collegiate work is required for admission. Coeducational since organization. Annual fees amount to \$450. The total registration for 1933-1934 was 171 graduates, 30. The next session begins Sept. 24, 1934 and ends June 12, 1935. The Dean is Paul S. McKibben, Ph.D.

#### San Francisco

STANFORD UNIVERSITY SCHOOL OF MEDICINE 2398 Sacramento Street San Francisco—Organized in 1908 when by agreement the interests of Cooper Medical College were taken over. The first class was graduated in

1913 Coeducational since organization The faculty consists of 107 professors and 142 lecturers assistants and others a total of 249 Three years of collegiate work is required for admission The course covers four years of eight and one half months each, plus a fifth year of intern work The fees for the four years respectively, are \$467 \$444, \$361 and \$361 The total registration for 1933 1934 was 210 graduates, 41 The twenty fifth session begins Oct 2 1934, and ends June 12, 1935 The Dean is Loren Roscoe Chandler, M D

## COLORADO

### Denver

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE 4200 East Ninth Avenue—Organized in 1883 Classes were graduated in 1885 and in all subsequent years except 1898 and 1899 Denver and Gross College of Medicine was merged Jan 1, 1911 Coeducational since organization The faculty is composed of 57 professors and 130 lecturers instructors and assistants, a total of 187 The course covers four years of nine months each The entrance requirements are three years of collegiate work The fees for residents of Colorado for each of the four years are respectively, \$211 \$231 \$181 and \$191 Nonresidents are charged \$132 additional each year The total registration for 1933 1934 was 206 graduates, 51 The fifty third session begins Sept 24, 1934 and ends June 10 1935 The Dean is Maurice H Rees M D

## CONNECTICUT

### New Haven

YALE UNIVERSITY SCHOOL OF MEDICINE 333 Cedar Street—Chartered in 1810 as the Medical Institution of Yale College Organized in 1812, instruction began in 1813 first class graduated in 1814 A new charter in 1879 changed the name to the Medical Department of Yale College In 1884 the Connecticut Medical Society surrendered such authority as had been granted by the first charter In 1887 Yale College became Yale University Coeducational since 1916 The faculty consists of 108 professors and 174 lecturers and assistants a total of 282 The requirements for admission are three years of collegiate work plus completion of courses in physics, inorganic chemistry qualitative analysis general biology, organic chemistry and physical chemistry or laboratory physics all equivalent to the courses in these subjects in Yale University The student also must have two years of French or German The course covers four years of nine months each The fees for the four years, respectively are \$505 \$500 \$500 and \$520 The total registration for 1933 1934 was 209 graduates 40 The one hundred and twenty second session begins Sept 24 1934, and ends June 12, 1935 The Dean is Milton C Winternitz M D

## DISTRICT OF COLUMBIA

### Washington

GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE 3900 Reservoir Road NW—Organized 1851 First class graduated in 1852 The faculty is composed of 50 professors, 165 instructors and assistants total 215 Three years of collegiate work is required for entrance The course of study covers four terms of eight and one half months each The present fees for each of the four sessions respectively are \$465 \$460 \$410 and \$410 The total registration for 1933 1934 was 546 graduates 154 The eighty fourth session begins Sept 10 1934 and ends June 10 1935 The Dean is William Gerry Morgan, M D

GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE 1335 H Street NW—Organized in 1825 as the Medical Department of Columbian College Also authorized to use the name National Medical College Classes were graduated in 1826 and in all subsequent years except 1834 to 1838 and 1861 to 1863 inclusive The original title was changed to Medical Department of Columbian University in 1873 In 1903 it absorbed the National University Medical Department In 1904 by an act of Congress the title of George Washington University was granted to the institution Coeducational since 1884 The faculty is composed of 50 professors and 108 instructors demonstrators and assistants a total of 158 Two years of collegiate work is required for admission The course covers four years of thirty two weeks each The fees for the four years respectively are \$500 each year The total registration for 1933 1934 was 294 graduates 70 The one hundred and tenth session begins Sept 19 1934 and ends June 1 1935 The Dean is Earl B McKinley M D

HOWARD UNIVERSITY COLLEGE OF MEDICINE Fifth and W streets NW—Chartered in 1867 Organized in 1869 The first class graduated in 1871 Coeducational since organization Negro students compose a majority of those in attendance The faculty comprises 30 professors and 63 lecturers and assistants 93 in all The admission requirements are at least two years of collegiate work including physics chemistry, botany and zoology English and French or German The course covers four years of thirty three weeks each The fees for each of the four sessions respectively are \$269 \$269 \$259 and \$266 Registration for 1933 1934 was 205 graduates 47 The sixty seventh session begins Sept 24, 1934, and ends June 7, 1935 The Dean is Numa P G Adams M D

## GEORGIA

### Atlanta

EMORY UNIVERSITY SCHOOL OF MEDICINE 50 Armstrong Street and Druid Hills—Organized in 1854 as the Atlanta School of Medicine Classes graduated 1855 to 1861 when it suspended Reorganized in 1865 A class graduated in 1865 and each subsequent year except 1874 In 1898 it merged with the Southern Medical College (organized in 1878) taking the name of Atlanta College of Physicians and Surgeons In 1913 it merged with the Atlanta School of Medicine (organized in 1905) reassuming the name of Atlanta Medical College Became the

Medical Department of Emory University in 1915 assumed present title in 1917 Two years of collegiate work is required for admission The faculty consists of 19 professors and 168 associates and assistants a total of 187 The course of study is four years of thirty two weeks each The fees for each of the four years are \$300 Total registration for 1933 1934 was 225, graduates, 60 The next session begins Oct 1, 1934 and ends June 10 1935 The Dean is Russell H Oppenheimer, M D

## Augusta

UNIVERSITY OF GEORGIA SCHOOL OF MEDICINE University Place—Organized in 1828 as the Medical Academy of Georgia the name being changed to the Medical College of Georgia in 1829 Since 1873 it has been known as the Medical Department of the University of Georgia the name being changed July 1, 1933, to University of Georgia School of Medicine Property transferred to university in 1911 Classes were graduated in 1833 and all subsequent years except 1862 and 1863 Coeducation was begun in 1920 The faculty includes 41 professors and 26 assistants 67 in all Two years of collegiate work is required for admission The course is four years of thirty four weeks each The fees for each of the four years are \$185 for residents of Georgia and \$365 each year for nonresidents The total registration for 1933 1934 was 153 graduates 39 The one hundred and sixth session begins Sept 24, 1934 and ends June 10 1935 The Vice Dean is G Lombard Kelly M D

NOTE—Action of the Council on Medical Education and Hospitals Feb 11 1934 Resolved That approval of the University of Georgia School of Medicine be withdrawn at this time with the provision that this decision will not prejudice the transfer of the students now enrolled to class A medical schools at the end of the college session

Action of the Council June 10 1934 Resolved That in the resolution adopted in February 1934 the provision regarding transfer of students be amended so as to include those enrolled for the session of 1934 1935

## ILLINOIS

### Chicago

LOYOLA UNIVERSITY SCHOOL OF MEDICINE, 706 South Lincoln Street—Incorporated in 1915 as the Bennett Medical College and operated as an organic part of Loyola University by virtue of an agreement entered into with the trustees of Bennett Medical College Present title assumed in 1917 The Chicago College of Medicine and Surgery was purchased in 1917 The first class graduated in 1916 Coeducational Two years of collegiate work is required for admission The course of study is five years including an internship in a hospital The faculty is composed of 55 professors and 235 assistants lecturers instructors and others a total of 290 The fees for each year are \$371, \$407 \$334 and \$298 respectively The total enrollment for 1933 1934 was 460 graduates 89 The next session begins Sept 24 1934, and ends June 15, 1935 The Dean is Louis D Moorhead M D

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, 303 East Chicago Avenue—Organized in 1859 as the Medical Department of Lind University First class graduated in 1860 In 1864 it became independent as the Chicago Medical College It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891 when the present title was taken Became an integral part of Northwestern University in 1905 Coeducational since 1926 The faculty comprises 127 professors and 283 lecturers and assistants a total of 410 The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University plus three years of collegiate work, including courses in physics chemistry biology and a foreign language The course covers four years of eight months each and a fifth year spent in an approved hospital as an intern or in other practical work The total fees are \$365 each year The total registration for 1933 1934 was 548 graduates, 166 The seventy sixth session begins Oct 2 1934 and ends June 17 1935 The Dean is Irving S Cutler M D

UNIVERSITY OF CHICAGO RUSH MEDICAL COLLEGE 1758 West Harrison Street—Chartered in 1837 held first class in 1843 First class graduated in 1844 In 1887 the college became the medical department of Lake Forest University retaining however its self government This relation was dissolved in April 1898 and in the same month affiliation with the University of Chicago was established Coeducational since 1898 Since that time the work of the first two years has been given on the University Quadrangles In May, 1924, by a new contract the University of Chicago took over the work of Rush Medical College as a department of the university Thereafter only clinical work has been offered by Rush Medical College Since 1914 the course has included a fifth year consisting of a hospital internship or of a fellowship in one of the departments Three years of collegiate work is required for admission The year is divided into four quarters of twelve weeks each the completion of the work of three of these quarters gives credit for a college year The faculty is composed of 130 professors 148 associates instructors and others a total of 278 The fee for the third year is \$391 and for the fourth \$411 Total registration for 1933 1934 was 328 graduates 148 The nineteenth session begins Oct 1 1934, and ends June 11 1935 The school is in session all year except the month of September The Dean is Ernest C Irons, M D

UNIVERSITY OF CHICAGO THE SCHOOL OF MEDICINE OF THE DIVISION OF THE BIOLOGICAL SCIENCES Fifty Eighth Street and Ellis Avenue—Organized in 1924 The work of the first two years of the medical course has been given on the Quadrangles since 1899 in cooperation with Rush Medical College and that of the third and fourth clinical years was added in 1924 with the organization of this medical school and the construction on the Quadrangles of the university hospitals and clinics Coeducational A fifth year spent in successful internship in an approved hospital or in advanced work in some branch of medical science is required for the degree of M D The faculty is composed of 98 professors 132 associates, instructors and others a total of 230 The requirements for admission are three years of collegiate work The year is divided into four quar



# MEDICAL EDUCATION

Jour A M A  
Aug 25 1934

## LOUISIANA New Orleans

**LOUISIANA STATE UNIVERSITY MEDICAL CENTER** 1532 Tulane Avenue—Organized January 1931 Coeducational First session October 1931 with students of first and third years Faculty comprises 32 professors and 117 assistant professors instructors and assistants a total of 149 Course covers four years of no less than 32 weeks each and one year of general rotation or laboratory internship in approved hospital A minimum of two years collegiate work is required for admission Begin with the session 1935 1936 a minimum of three years collegiate work will be required for admission Total fees \$92 each year for residents of Louisiana additional tuition of \$300 each year for nonresidents Total registration for 1933 1934 was 210 The fourth session begins Sept 19 1934 and ends June 1 1935 The Dean is Arthur Vidrine MD

**TULANE UNIVERSITY OF LOUISIANA SCHOOL OF MEDICINE** 1430 Tulane Avenue—Organized in 1834 as the Medical College of Louisiana Classes were graduated in 1835 and in all subsequent years except 1863 1865 inclusive It was transferred to the Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University of Louisiana in 1884 Present title in 1913 Coeducational since 1915 The faculty comprises 35 professors and 125 associate and assistant professors instructors and assistants a total of 160 The course covers four years of thirty-two weeks each Two years of collegiate work is required for admission Total fees for each of the four years respectively are \$350 \$340 \$325 and \$355 The total registration for 1933 1934 was 496 graduates 123 The one hundred and one session begins Sept 28 1934 and ends June 12 1935 The Dean is Charles Cassidy Bass MD

## MARYLAND Baltimore

**JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE** Washington and Monument streets—Organized in 1887 Offered preliminary course only until 1893 The first class graduated in 1897 Coeducational since organization The faculty consists of 70 professors and 304 instructors assistants and others a total of 374 The requirements for admission demand that the applicant possess a collegiate degree and have a knowledge of French and German (two years each of college instruction) physics and biology such as may be obtained from a year's course and a two years course in chemistry The course extends over four years of eight and one half months each The total fees for each year are respectively \$611 \$610 \$610 and \$610 Total registration for 1933 1934 was 284 graduates 73 The forty second session begins Oct 2 1934 and ends June 11 1935 The Dean is Alan M Chesney MD

**UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND COLLEGE OF PHYSICIANS AND SURGEONS** Lombard and Greene streets—Organized in 1807 as the College of Medicine of Maryland The first class graduated in 1810 In 1812 it became the University of Maryland School of Medicine Baltimore Medical College was merged into it in 1913 In 1915 the College of Physicians and Surgeons of Baltimore School of Medicine and the present name assumed Coeducational since 1918 The faculty consists of 101 professors and 150 instructors and assistants a total of 251 Two years of collegiate work is required for admission The course covers four years of eight months each The fees for the four years respectively are \$410 \$400 \$400 and \$415 for residents of the state for nonresidents the fees are \$175 additional each year Total registration for 1933 1934 was 444 graduates 103 The one hundred and twenty seventh session begins Sept 21 1934 and ends June 1 1935 The Dean is J M H Rowland MD

## MASSACHUSETTS Boston

**BOSTON UNIVERSITY SCHOOL OF MEDICINE** 80 East Concord Street—Organized in 1873 as a homeopathic institution In 1874 the New England Female Medical College founded in 1848 was merged into it The first class was graduated in 1874 Became nonsectarian in 1911 Coeducational since organization Three years of collegiate work is required for admission The faculty includes 22 professors 153 associate and others a total of 175 The course covers four years Total fees for each of the four years respectively are \$426 \$421 \$421 and \$406 Total registration for 1933 1934 was 246 graduates 53 The sixty second session begins Sept 20 1934 and ends June 10 1935 The Dean is Alexander S Begg MD

**HARVARD UNIVERSITY MEDICAL SCHOOL** 25 Shattuck Street—Organized in 1782 The first class graduated in 1788 It has a faculty of 136 professors and 359 other instructors and assistants a total of 495 Candidates for admission must present a college degree The college work must include a year of physics biology general chemistry organic chemistry and a reading knowledge of French or German The college work for each of the four years is \$400 plus \$5 the first year for matriculation The total registration for 1933 1934 was 516 graduates 132 The one hundred and fifty second session begins Sept 24 1934 and ends June 20 1935 The Dean is David L Edsall MD

**TUFTS COLLEGE MEDICAL SCHOOL** 416 Huntington Avenue—Organized in 1893 as the Medical Department of Tufts College The first class graduated in 1894 Coeducational since 1894 It has a faculty of 65 professors and 240 assistant lecturers and others a total of 305 A bachelor's degree is required for admission The course covers four years of eight months each The total fees for each of the four years are \$412 \$407 \$407 and \$417 Total registration for 1933 1934 was 468 graduates 101 The thirty ninth session begins Sept 26 1934 and ends June 17 1935 The Dean is A. Warren Stearns MD

ters of twelve weeks each the completion of the work of three of these quarters gives credit for a college year Students are admitted at the beginning of the autumn quarter The tuition fees for each of the four years are \$375 Total registration for 1933 1934 was 325 graduates 19 The next session begins Oct 1 1934 and ends June 12 1935 The Dean of Medical Students is B C H Harvey MD

**UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE** 1853 West Polk Street—Organized in 1882 as the College of Physicians and Surgeons The first class graduated in 1883 It became the Medical Department of the University of Illinois by affiliation in 1897 Relationship with the university was canceled in June 1912 and was restored in March 1913 when the present title was assumed Coeducational since 1898 Two years of collegiate work is required for admission The curriculum covers four years of thirty-two weeks each and a year of internship in an approved hospital The faculty is composed of 112 of professional rank and 250 assistants and instructors a total of 362 The tuition is \$200 a year for students who are residents of Illinois \$300 a year for nonresident students The total registration for 1933 1934 was 640 graduates 115 The fifty third session begins Oct 1 1934 and ends June 7 1935 The Dean is David John Davis MD

## INDIANA

### Bloomington-Indianapolis

**INDIANA UNIVERSITY SCHOOL OF MEDICINE**—Organized in 1903 but did not give all the work of the first two years of the medical course until 1905 In 1907 by union with the State College of Physicians and Surgeons the complete course in medicine was offered In 1908 the Indiana Medical College which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878) the Central College of Physicians and Surgeons (organized in 1879) and the Fort Wayne College of Medicine (organized in 1879) merged into it The first class was graduated in 1908 Coeducational since organization The faculty consists of 270 professors lecturers associates and assistants Two years of collegiate work is required for admission The work of the first year is given at Bloomington and the work of the next three years at Indianapolis The regular fee for the medical course at Bloomington is \$205 a year for residents of Indiana \$410 for nonresidents The regular fee for the medical course at Indianapolis for students now enrolled and in residence is \$175 a year for residents of Indiana and \$350 for nonresidents The total registration for 1933 1934 was 465 graduates 116 The next session begins Sept 18 1934 and ends June 17 1935 The Dean at Bloomington is Burton D Myers MD and the Dean at Indianapolis is Willis Dew Gatch MD

## IOWA

### Iowa City

**STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE** University Campus—Organized in 1869 First session began in 1870 First class graduated in 1871 Absorbed Drake University College of Medicine in 1913 Coeducational since 1870 The faculty is made up of 46 professors 63 lecturers demonstrators and assistants a total of 109 Two years of collegiate work including courses in physics chemistry biology German and English is required for admission The course of study covers four years of thirty-four weeks each The tuition fee is \$192 each year for residents of Iowa and \$456 for nonresidents Total registration for 1933 1934 was 353 graduates 72 The sixty fifth session begins Sept 24 1934 and ends June 3 1935 The Chairman of the Administrative Committee is John Thomas McClintock MD

## KANSAS

### Lawrence-Kansas City

**UNIVERSITY OF KANSAS SCHOOL OF MEDICINE**—Organized in 1880 It offered only the first two years of the medical course until 1905 when it merged with the Kansas City (Mo) Medical College founded in 1869 the College of Physicians and Surgeons founded in 1894 and the Medico Chirurgical College founded in 1897 Absorbed Kansas Medical College in 1913 First class graduated in 1906 The clinical courses are given at Kansas City Coeducational since 1880 The faculty includes 56 professors and 130 instructors assistants and others a total of 186 The requirement for admission is two years of collegiate work The course covers four years of nine months each The total fees for residents of the state for each of the four years are respectively \$147 \$139 \$117.50 and \$120 For nonresidents the fees are \$212 \$204 \$205 and \$207 The total registration for 1933 1934 was 300 graduates 68 The fifty fifth session begins Sept 20 1934 and ends June 10 1935 The Dean is H R Wahl MD Kansas City

## KENTUCKY

### Louisville

**UNIVERSITY OF LOUISVILLE SCHOOL OF MEDICINE** First and Chestnut streets—Organized in 1837 as Louisville Medical Institute The first class graduated in 1838 and a class graduated each subsequent year except 1863 In 1846 the name was changed to University of Louisville Medical Department In 1907 it absorbed the Kentucky University Medical Department in 1908 the Louisville Medical College the Hospital College of Medicine and the Kentucky School of Medicine In 1922 it changed its name to the University of Louisville School of Medicine Coeducational since organization Two years of collegiate work is required for admission The faculty numbers 67 professors and 77 assistants instructors and others a total of 144 Course covers four years of thirty-two weeks each exclusive of vacations and examinations Fees for four years are respectively \$369 \$369 \$374 and \$384 Total registration for 1933 1934 was 348 graduates 94 Next session begins Sept 13 1934 and ends June 1 1935 The Dean is John Walker Moore MD

## MICHIGAN

### Ann Arbor

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. Coeducational since 1870. It has a faculty of 26 professors, 13 associate professors, 28 assistant professors, 152 assistants, instructors and lecturers, a total of 219. The entrance requirements are ninety semester hours. The curriculum covers four years of nine months each. The total fees for Michigan students are \$200 \$205 \$205 and \$202 for each of the four years respectively, plus a matriculation fee of \$10 for nonresidents \$100 a year additional. The matriculation fee for nonresidents is \$25. The total registration for 1933 1934 was 451 graduates 98. The eighty-fifth session begins Sept 24 1934 and ends June 17 1935. The Dean is F G NOVY M D.

### Detroit

WAYNE UNIVERSITY COLLEGE OF MEDICINE 1516 St Antoine Street.—Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College organized in 1868 and the Michigan College of Medicine organized in 1880. Reorganized with the title of Detroit College of Medicine and Surgery in 1913. The first class graduated in 1886. In 1918 it became a municipal institution under the control of the Detroit Board of Education. In 1934 the name was changed by the action of the Detroit Board of Education to Wayne University College of Medicine as a part of the program of consolidation of the Detroit City Colleges into a university system. Coeducational since 1917. Entrance requirement is an academic degree or 90 semester hours of academic credit with combined degree guaranteed by school of arts and sciences. The faculty consists of 33 professors 101 lecturers and others, a total of 134. The course covers four years of nine months each and a fifth hospital intern year. The total fees for each of the first four years are for Detroit residents \$283 for nonresidents who reside in Michigan \$383 and for nonresidents from outside the state \$408. For the fifth or intern year the resident student fee is \$50 the nonresident fee is \$85. The total registration for 1933 1934 was 324 graduates 66. The fiftieth session begins Sept 27 1934, and ends June 21, 1935. The Dean is W H McCracken M D.

## MINNESOTA

### Minneapolis

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery reorganized in 1888 by absorption of St Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons organized in 1883 was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. Coeducational since organization. The faculty includes 87 professors and 216 instructors, a total of 303. The curriculum covers four years of nine months each and a year's internship in an approved hospital. The school is operated on the four-quarter plan. The entrance requirements are two years of university work, which must include six semester credits of rhetoric eight semester credits of physics thirteen credits of general chemistry qualitative and quantitative analysis and organic chemistry eight credits of zoology and a reading knowledge of scientific German with a 'C' average in all subjects and in the sciences. Students are required to meet the requirements for a degree of BS or BA before receiving the degree of Bachelor of Medicine (M B) which is granted at the end of the four year course. The M D degree is conferred after a year of intern work of advanced laboratory work or of public health work has been completed. Students are graduated at the end of any quarter in which work is completed and examinations passed. Most students graduate in March or June. Total fees are \$243 for residents and \$318 for nonresidents each year of three quarters. The total registration for 1933 1934 was 514 graduates 114. The forty-sixth session begins Oct 1 1934 and ends June 17 1935. The Dean is Elias P Lyon Ph D, Dean of Medical Sciences Richard E Scammon Ph D.

## MISSISSIPPI

### University

UNIVERSITY OF MISSISSIPPI SCHOOL OF MEDICINE.—Organized in 1903. Coeducational since organization. Gives only the first two years of the medical course. A clinical department was established at Vicksburg in 1908 but was discontinued in 1910 after graduating one class. The session extends over eight and one-half months. Entrance requirement is three years of collegiate work. The faculty members eight professors one assistant professor and nine instructors assistants and others, a total of eighteen. The total fees for the first year are \$304 and for the second year, \$311. The nonresident fee is \$50 additional per year. The total registration for 1933 1934 was 51. The thirty-second session begins Sept 21 1934 and ends June 3 1935. The Dean is P L MULL M D.

NOTE.—Action of the Council on Medical Education and Hospitals, Sept 22 1933. Resolved That the University of Mississippi School of Medicine be placed on probation until July 1 1934 and that the freshmen enrolled for the session 1933 1934 be recognized.

## MISSOURI

### Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE.—Organized at St Louis in 1845 was discontinued in 1855 but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. Coeducational since 1872. The faculty includes 13 professors and 13 assistant professors lecturers and others, a total of 26. The entrance requirements are 90 semester hours of collegiate work including French or German 8 hours general zoology 8 hours physics 8 hours inorganic

chemistry, 8 hours organic chemistry 5 hours and general bacteriology, 3 hours. Total fees for the first year are \$177 for the second \$200. Nonresidents of the state pay \$25 per semester extra. Total registration for 1933 1934 was 80. The next session begins Sept 10 1934 and ends June 5 1935. The Dean is Dudley S Conley M D.

### St Louis

ST LOUIS UNIVERSITY SCHOOL OF MEDICINE, 1402 South Grand Boulevard.—Organized in 1901 as the Marion Sims Beaumont Medical College by union of Marion Sims Medical College organized in 1890 and Beaumont Hospital Medical College organized in 1886. First class graduated in 1902. It became the Medical School of St Louis University in 1903. The faculty is composed of 80 professors and 232 instructors and assistants, a total of 312. The requirement for admission is a qualitative standard of two years of collegiate study in the customary subjects but applicants presenting meritorious credit in excess of the two year minimum are accepted by preference. The curriculum covers four years of thirty-two weeks each. The summer is optional and offers courses academically equivalent to those in the regular session. The total fees for the four years respectively are \$405, \$400, \$400 and \$435. The total registration for 1933 1934 was 518 graduates 108. The next session begins Sept 19 1934 and ends June 1, 1935. The Dean is Alphonse M Schwitala SJ Ph D.

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE Kingshighway and Euclid Avenue.—Organized in 1842 as the Medical Department of St Louis University. The first class graduated in 1843. In 1855 it was chartered as an independent institution under the name of St Louis Medical College. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. Coeducational since 1918. The faculty comprises 107 professors and 188 lecturers instructors and others, a total of 295. Four years of collegiate work is required for admission, including courses in English physics, chemistry and biology and a reading knowledge of German or French. The course is four years of eight months each. The total fees for the four years are respectively, \$424, \$419, \$419 and \$424. The total registration for 1933 1934 was 343 graduates 91. The next session begins Sept 27 1934 and ends June 11 1935. The Dean is W McKim Marriott M D.

## NEBRASKA

### Omaha

CREIGHTON UNIVERSITY SCHOOL OF MEDICINE 306 North Fourteenth Street.—Organized in 1892 as the John A Creighton Medical College. The first class graduated in 1893. Present title in 1921. Coeducational since organization. It has a faculty of 66 professors and 73 instructors lecturers and assistants, a total of 139. Two years of collegiate work is required for admission. The curriculum covers four years of eight months each. The total fees each year for the four years are respectively \$393, \$393, \$348 and \$356. Total registration for 1933 1934 was 298 graduates 69. The fifty-third session begins Sept 20 1934, and ends June 6 1935. The Dean is Bryan M Riley M D.

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE Forty Second Street and Dewey Avenue.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska with the present title. The instruction of the first two years was given at Lincoln and of the last two at Omaha until 1913 when the work of all four years was transferred to Omaha. Coeducational since 1882. The faculty is composed of 63 professors and 54 lecturers and instructors, a total of 117. Sixty-five semester hours of collegiate work is required for admission including courses in physics chemistry and zoology. The fees for each of the four years respectively, are \$219 \$214 \$214 and \$214. Total registration for 1934 1935 was 340 graduates 85. The next session begins Sept 24 1934 and ends June 10, 1935. The Dean is C W M Poynter M D.

## NEW HAMPSHIRE

### Hanover

DARTMOUTH MEDICAL SCHOOL.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Clinical teaching was discontinued in 1914. The faculty consists of 15 professors and 10 instructors, a total of 25. Three years of collegiate work is required for admission. The course covers nine calendar months in each year, or eight months of actual teaching. Candidates for the A B degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department. The fees for the first year are \$410 and \$400 for the second year. The total registration for 1933 1934 was 41. The next session begins Sept 20 1934, and ends June 18 1935. The Dean is John P Bowler, M D.

## NEW YORK

### Albany

ALBANY MEDICAL COLLEGE 47 New Scotland Avenue.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed educational control. Coeducational since 1915. The faculty is composed of 27 professors and 124 instructors, assistants and others, a total of 151. Three years of collegiate work including college courses in physics chemistry (including inorganic organic and analytic) biology English and a modern foreign language is required for admission. The curriculum covers four years of eight months each. The total fees for the four years, respectively are \$430 \$405 \$405 and \$405. The total registration for 1933 1934 was 109 graduates 20. The one hundred and fourth session begins Sept 24 1934 and ends June 10 1935. The Dean is Thomas Ordway M D.

**Brooklyn**

**LONG ISLAND COLLEGE OF MEDICINE** 350 Henry Street—Organized in 1858 as the Long Island College Hospital. The first class graduated in 1860 and the last class in 1930. Reorganized with a new charter in 1930 as the present institution. The first class graduated in 1931. Coeducational. It has a faculty of 119 professors and 175 assistants, instructors and others, a total of 294. Seventy-two semester hours of collegiate work including college courses in physics, chemistry and biology, is required for admission. The course covers four years of eight months each. The total fees for each of the four years are respectively, \$535 \$545 \$525 and \$555. Total registration for 1933 1934 was 431 graduates 111. The fourth session begins Oct 1 1934, and ends June 4 1935. The Dean is Adam M. Miller A.M.

**Buffalo**

**UNIVERSITY OF BUFFALO SCHOOL OF MEDICINE** 24 High Street—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. Coeducational since organization. The faculty is composed of 85 professors and 153 associates, assistants and others, a total of 238. Two years of collegiate work including college courses in physics chemistry biology English and French or German is required for admission. The course covers four years of eight months each. The total fees for each of the four years are respectively \$530 \$525, \$520 and \$530. Total registration for 1933 1934 was 284 graduates 63. The eightyninth session begins Oct 1, 1934, and ends June 12, 1935. The Dean is Edward W. Koch, M.D.

**New York**

**COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS** 630 West One Hundred and Sixty Eighth Street—The medical faculty of Columbia College then known as Kings College was organized in 1767. Instruction was interrupted by the War of the Revolution. The faculty was reestablished in 1792 and merged in 1814 with the College of Physicians and Surgeons which had received an independent charter in 1807. In 1860 the College of Physicians and Surgeons became the Medical Department of Columbia College. This merger became permanent by legislative enactment in 1891. Columbia College became Columbia University in 1896. The medical school has been coeducational since 1917. The faculty is composed of 189 professors and 526 instructors demonstrators and others a total of 715. Three years of collegiate work including courses in physics chemistry biology and English constitutes the minimum requirement for admission. The work covers four years of eight months each. The total fees for the four years respectively, are \$545, \$530, \$530 and \$550. Total registration for 1933 1934 was 414 graduates 99. The one hundred and twenty seventh session begins Sept 26, 1934, and ends June 4, 1935. The Dean is Willard C. Rappleye M.D.

**CORNELL UNIVERSITY MEDICAL COLLEGE** York Avenue and Sixty Ninth Street—Organized in 1898. The work of the first year may be taken either in Ithaca or New York. Coeducational since organization. The faculty is composed of 118 professors and 267 assistants, lecturers instructors and others a total of 385. All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges that will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the bachelor degree on the completion of the first year's work. The candidate must also have a knowledge of physics, chemistry biology, English and a modern language. The fees for each of the four years are respectively \$510 \$500, \$510 and \$525. Total registration for 1933 1934 was 271, graduates 56. The thirty seventh session begins Sept 24 1934 and ends June 6, 1935. The Director is G. Canby Robinson, M.D.

**NEW YORK HOMEOPATHIC MEDICAL COLLEGE AND FLOWER HOSPITAL** 450 East Sixty Fourth Street—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title New York Homeopathic Medical College was assumed in 1869 present title in 1908. The first class graduated in 1861. Coeducational since 1919. Two years of collegiate work is required for admission. The course covers four years of eight months each. It has a faculty of 53 professors and associate professors 17 assistant professors and 121 lecturers and assistants a total of 191. The total fees for the four years are respectively \$540 \$530 \$530 and \$560. Total registration for 1933 1934 was 326 graduates 72. The seventy fifth session begins Sept 17, 1934 and ends June 4, 1935. The Dean is Claude A. Burrett M.D.

**NEW YORK UNIVERSITY UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE** 477 First Avenue—Organized in 1841 by the union of the New York University Medical College organized in 1841 and the Bellevue Hospital Medical College organized in 1861. It is the Medical Department of New York University. First class graduated in 1899. Coeducational since 1919. The faculty is composed of 123 professors associate, assistant clinical and assistant clinical professors and 272 lecturers instructors and others a total of 395. The course covers four years. Entrance requirements are that all candidates must be graduates of approved colleges or scientific schools or seniors in good standing in approved colleges or scientific schools on condition that their faculty will permit them to substitute the first year in University and Bellevue Hospital Medical College for the fourth year of their college course and will confer the bachelor's degree on the satisfactory completion of the year's work. The fees for the four years respectively are \$547 \$538 \$527 and \$565. Total registration for 1933 1934 was 522 graduates, 108. The next session begins Sept 12 1934 and ends June 12 1935. The Dean is John Wyckoff M.D.

**Rochester**

**UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE** Elmwood Avenue and Crittenden Boulevard—Organized in 1925 as the Medical Department of the University of Rochester. Coeducational since organization.

The faculty is composed of 49 professors, 158 lecturers assistants instructors and others a total of 207. The work embraces a graded course of four years of nine months each. Three years of collegiate work is required for admission. The total fees for each year are \$400. The total registration for 1933 1934 was 181 graduates, 46. The tenth session begins Sept 17 1934 and ends June 17 1935. The Dean is George Hoyt Whipple, M.D.

**Syracuse**

**SYRACUSE UNIVERSITY COLLEGE OF MEDICINE** 309 311 South McBride Street—Organized in 1872, when the Geneva Medical College chartered in 1834, was removed to Syracuse under the title 'The College of Physicians and Surgeons of Syracuse University'. Present title assumed in 1875 when a compulsory three year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Coeducational since organization. The faculty is composed of 43 professors and 138 associate and assistant professors lecturers and instructors a total of 181. Two years of a recognized college course is required for admission. The course covers four years of thirty four weeks each. The fee for each of the first three years is \$500 for the fourth year \$510. The total enrollment for 1933 1934 was 201 graduates 52. The sixty fourth session begins Sept 27 1934, and ends June 3, 1935. The Dean is H. G. Weiskotten M.D.

**NORTH CAROLINA****Chapel Hill**

**UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE**—Organized in 1890. Until 1902 this school gave only the work of the first two years when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year including 1910 when the clinical department at Raleigh was discontinued. Coeducational since 1914. Two years of collegiate work is required for admission. The faculty is composed of 12 professors and 4 instructors, a total of 16. The fees for each year are \$250 for residents nonresidents, an additional fee of \$100. The total registration for 1933 1934 was 66. The forty ninth session begins Sept 20, 1934 and ends June 11, 1935. The Dean is C. S. Mangum M.D.

**Durham**

**DUKE UNIVERSITY SCHOOL OF MEDICINE**—Organized in 1925. The first class was admitted Oct 1, 1930. Coeducational. The faculty is composed of 10 professors and 60 associate and assistant professors lecturers instructors and assistants, a total of 70. The entrance requirements are seventy hours of collegiate work including two years each of chemistry and English and one year each of biology, physics and mathematics. The academic year consists of four quarters of eleven weeks each. Students may either study four quarters each year, and if satisfactory will receive the M.D. certificate after three calendar years or three quarters in each year and if satisfactory be graduated after four calendar years. The object of utilizing the summer quarters is to provide more time for longer postgraduate intern training. Duke University will grant the degree of Bachelor of Science to students who have completed satisfactorily seventy semester hours in Duke University or some other approved university six quarters in the Duke University School of Medicine creditable extra work and have written an acceptable thesis. Students are urged to spend three years in hospital or laboratory work after graduation and must give assurance satisfactory to the executive committee that they will spend at least two years. The fees are \$450 for each year of three quarters. Total registration for 1933 1934 was 193 graduates 33. The fifth session begins Oct 1 1934, and ends Aug 31, 1935. The Dean is Wilburt C. Davison, M.D.

**Wake Forest**

**WAKE FOREST COLLEGE SCHOOL OF MEDICINE**—Organized in 1902. The faculty numbers 6 professors and 8 assistants a total of 14. Sixty semester hours of collegiate work is required for admission. Only the first two years of the medical course is offered. After the completion of freshman and sophomore college work and two years of medicine a certificate will be given. The B.S. degree in medicine will be given only after completion of three years of college work and two years of medicine. Each annual course extends over nine months. The fees for the first year are \$220 and \$225 for the second year. The total registration for 1933 1934 was 62. The thirty third session begins Sept 11 1934 and ends May 30 1935. The Dean is Thurman D. Kitchin M.D.

**NORTH DAKOTA****Grand Forks**

**UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE**—Organized in 1905. Offers only the first two years of the medical course. Coeducational since organization. Three years work in a college of liberal arts is required for admission. The faculty consists of 5 professors and 8 instructors a total of 13. The fees are \$75 each year for resident students and \$165 for nonresidents. The total registration for 1933 1934 was 69. The twenty ninth session begins Sept 18 1934 and ends June 11 1935. The Dean is H. E. French M.D.

**OHIO****Cincinnati**

**UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE** Eden and Bethesda avenues—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement March 2 1909 the Miami Medical College also merged into the University when the title of Ohio-Miami Medical College of the University of

Cincinnati was taken Present title assumed in 1915 Coeducational since organization Commencing in 1934, candidates for admission to the freshman class must present three years of college preparation of not less than ninety hours (completed in a college of satisfactory standing) The faculty consists of 117 professors and 196 associates assistants, etc a total of 313 The course covers four years of eight months each A year's internship in an approved hospital is also required The total fees for the four years are respectively \$360 \$370, \$360 and \$380 and if not legal citizens of Cincinnati \$50 additional The total registration for 1933 1934 was 309 graduates 71 The next session begins Sept 24 1934 and ends June 7 1935 The Dean is Arthur C Bachmeyer, M D Alfred Friedlander, M D will assume deanship Sept 15, 1934

### Cleveland

WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE 2109 Adelbert Road—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1844 It assumed the present title in 1881 In 1910 the Cleveland College of Physicians and Surgeons was merged Coeducational since 1919 The faculty includes 64 professors and 163 lecturers assistants and others a total of 227 The curriculum covers three years of eight and one half months each and one year of nine months Graduation from an approved college or scientific school or equivalent following completion of a course of at least three collegiate years, is required for admission The total fees for each of the four years are, respectively \$442 \$435 \$415 and \$425 The total registration for 1933 1934 was 273 graduates 53 The ninety second session begins Sept 13, 1934 and ends June 12, 1935 The Dean is Torald Sollmann M D

### Columbus

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE Neil and Eleventh avenues—Organized in 1907 as the Starling Ohio Medical College by the union of Starling Medical College (organized in 1847 by charter granted by the State Legislature changing the name from Willoughby Medical College which was chartered March 3, 1834) with the Ohio Medical University (organized 1890) In 1914 it became an integral part of the Ohio State University with its present title Coeducational since organization The faculty consists of 49 professors and assistant professors 66 lecturers, instructors, demonstrators and others a total of 115 Three years of collegiate work is required for admission The course covers four years of thirty four weeks each Tuition fees are \$246, \$231, \$231 and \$241 each year respectively for residents of Ohio and \$150 additional for nonresidents The total registration for 1933 1934 was 364 graduates 88 The next session begins Oct 2 1934 and ends June 10 1935 The Dean is J H J Upham M D

## OKLAHOMA

### Oklahoma City

UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE—Organized in 1900 Gave only the first two years of the medical course at Norman until 1910 when a clinical department was established at Oklahoma City The first class graduated in 1911 Coeducational since organization Since September, 1928, the entire course has been given at Oklahoma City It has a faculty of 28 professors 44 associate and assistant professors and 64 instructors a total of 136 Two years of collegiate work is required for admission The course covers four years of nine months each An optional course of six years is offered for the degree of BS and M D The total fees for the four years are respectively \$128 \$95 \$23 and \$25 For students residing outside the state of Oklahoma there is an additional fee of \$200 a year The total registration for 1933 1934 was 243 graduates 61 The thirty fourth session begins Sept 17 1934 and ends June 3 1935 The Dean is Lewis Jefferson Moorman M D

## OREGON

### Portland

UNIVERSITY OF OREGON MEDICAL SCHOOL Marquam Hill—Organized in 1887 The first class graduated in 1888 and a class graduated each subsequent year except 1898 The Willamette University Medical Department was merged in 1913 Coeducational since organization It has a faculty of 71 professors and 190 lecturers assistants and others a total of 261 Entrance requirements are three years of collegiate work or its equivalent The course is four years of thirty three weeks each The total fees for the four years are respectively \$260 \$255 \$250 and \$250 for residents of Oregon and \$60 a year additional for nonresidents The total registration for 1933 1934 was 230 graduates 56 The forty eighth session begins Oct 3 1934 and ends June 17 1935 The Dean is Richard B Dillehunt M D

## PENNSYLVANIA

### Philadelphia

HABNEMANN MEDICAL COLLEGE AND HOSPITAL OF PHILADELPHIA 235 North Fifteenth Street—Organized in 1848 as the Homeopathic Medical College of Pennsylvania In 1869 it united with the Hahnemann Medical College of Philadelphia taking the latter title Assumed present title in 1885 The first class graduated in 1849 Entrance requirements are a completed course in a standard secondary school and in addition two years devoted to a college course including English and either French, German or Spanish physics chemistry and biology It has a faculty of 76 professors and 125 lecturers instructors and others in all 201 The work covers four years of eight and one half months each Fees for each of the four years are respectively \$455, \$427 \$427 and \$450 The total registration for 1933 1934 was 470, graduates 95 The eighty seventh session begins Oct 1 1934 and ends June 13, 1935 The Dean is William A Pearson Ph C

JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA 1019 Walnut Street.—Organized in 1825 as the Medical Department of Jefferson College Canonsburg Pa It was chartered with its present title in 1838 Classes have been graduated annually beginning 1826 In 1838 a separate univer-

sity charter was granted without change of title, since which time it has continued under the direction of its own board of trustees It has a faculty of 62 professors, associate and assistant professors and 177 associates lecturers, demonstrators and instructors a total of 239 Entrance requirements are a completed standard four year high school college preparatory course or the equivalent, and in addition four years of work leading to a degree in an approved college of arts and science including specified courses in physics general and organic chemistry and biology with laboratory work in each subject The course of study covers four years of eight and one half months each The total fees for the four years are respectively \$445, \$430, \$425 and \$425 The total registration for 1933 1934 was 567 graduates, 143 The one hundred and tenth session begins Sept 24, 1934, and ends June 7, 1935 The Dean is Ross V Patterson M D

TEMPLE UNIVERSITY SCHOOL OF MEDICINE Broad and Ontario streets—Organized in 1901 The first class graduated in 1904 Coeducational since organization The faculty numbers 30 professors and 195 associates, assistants and others a total of 225 Three years of collegiate work is required for admission The fees for each of the four years, respectively are \$485 \$455 \$435 and \$455 The total registration for 1933 1934 was 457 graduates, 118 The thirty third session begins Sept 26 1934 and ends June 13 1935 The Dean is William N Parkinson M D

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE Thirty Sixth and Pine streets—Organized in 1765 Classes were graduated in 1768 and in all subsequent years except 1772 and 1775 1779, inclusive The original title was the Department of Medicine, College of Philadelphia The present title was adopted in 1909 It granted the first medical diploma issued in America In 1916 it took over the Medico Chirurgical College of Philadelphia to develop it as a graduate school Coeducational since 1914 The faculty consists of 97 professors associate and assistant professors and 295 lecturers associates, instructors and others a total of 392 Three years of collegiate work is required for admission, including courses in physics biology or zoology chemistry, including general inorganic, organic and analytic English and French or German The course covers four years of thirty three weeks each The tuition fee is \$500 each year with a deposit fee of \$15 a student health fee of \$10 and a matriculation fee of \$5 Total registration for 1933 1934 was 524, graduates, 133 The one hundred and sixty ninth session begins Sept 24 1934 and ends June 19, 1935 The Dean is William Pepper, M D

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA Henry Avenue and Abbottsford Road East Falls—Organized in 1850 Classes were graduated in 1852 and in all subsequent years except 1862 It has a faculty of 32 professors and 67 assistants lecturers and others in all 99 Entrance requirements effective in September, 1935, are a completed course in a standard secondary school and in addition three years of collegiate work, including courses in physics chemistry, biology English and French or German The curriculum covers four years of eight months each Total fees for each of the four years are respectively \$439 \$433 \$433 and \$455 The total registration for 1933 1934 was 122 graduates 19 The eighty fifth session begins Sept 26, 1934 and ends June 12, 1935 The Dean is Martha Tracy, M D

### Pittsburgh

UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE, Bigelow Boulevard—Organized in 1886 as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh removing to the university campus in 1910 The first class graduated in 1887 Coeducational since 1899 The faculty is composed of 22 professors and 255 associates, assistants and others 277 in all Entrance requirements are two years of collegiate work including English chemistry (inorganic and organic) physics and biology The course of study is four years of eight and one half months each The total fees for the four years respectively are \$415, \$400 \$400 and \$410 The total registration for 1933 1934 was 263 graduates 65 The forty ninth session begins Sept 24, 1934 and ends June 5, 1935 The Dean is R R Huggins M D

## SOUTH CAROLINA

### Charleston

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA 16 Lucas Street—Organized in 1823 as the Medical College of South Carolina The first class graduated in 1825 In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838 Classes were graduated in all years except 1862 to 1865 inclusive In 1913 by legislative enactment it became a state institution Coeducational from 1895 to 1912 when privileges for women were withdrawn, being restored in 1917 It has a faculty of 37 professors and 38 lecturers instructors and others a total of 75 The course covers four years of eight months each The minimum requirements for admission are graduation from an approved four year high school and satisfactory completion of two years of collegiate work The total fees are \$270 \$270 \$285 and \$285 each year respectively Fees for nonresidents of state \$420 \$420 \$435 and \$435 Total enrolment for 1933 1934 was 159, graduates 31 The one hundred and fifth session begins Sept 27, 1934, and ends June 6 1935 The Dean is Robert Wilson, M D

## SOUTH DAKOTA

### Vermilion

UNIVERSITY OF SOUTH DAKOTA SCHOOL OF MEDICINE—Organized in 1907 Coeducational since organization Offers only the first two years of the medical course Two years work in a college of liberal arts is required for admission The faculty numbers 11 The fees are \$100 each year for residents and \$200 for nonresidents The total registration for 1933 1934 was 57 The twenty eighth session begins Sept 19, 1934 and ends June 10, 1935 The Dean is J C Ohlmacher M D

**TENNESSEE****Memphis**

**UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE** 847 Union Avenue—Organized in 1876 at Nashville as Nashville Medical College. First class graduated 1877 and a class graduated each subsequent year. Became Medical Department of University of Tennessee in 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis where it united with the College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. Coeducational since 1911. The faculty includes 83 professors and 110 assistants, instructors and others, a total of 193. Entrance requirements are a high school education and ninety quarter hours of collegiate work. Students taking the two year premedical course in Knoxville may secure the BS and MD degrees. The fees are for the first quarter \$136, second to sixth quarters \$116 each, seventh to ninth quarters \$111 each, tenth to twelfth quarters \$121 each. For residents of the state the charge is reduced \$50 each quarter. Total registration for 1933-1934 was 431 graduates, 86. During the academic year 1934-1935 the quarters begin July 11, Sept 27, Jan 2 and March 21 and end Sept 26, Dec 15, March 20 and June 8. The Dean is O W Hyman, Ph D.

**Nashville**

**MEHARRY MEDICAL COLLEGE** Eighteenth Avenue North and Heffernan Street—This school was organized in 1876 as the Meharry Medical Department of Central Tennessee College which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1915. Coeducational since 1876. The faculty is made up of 25 professors and 24 instructors, demonstrators, lecturers and others, 49 in all. Two years work in a college of liberal arts is required for admission. The curriculum covers four years of thirty-two weeks each. Tuition fees are, respectively, \$250, \$250, \$250 and \$260 each year. Total registration for 1933-1934 was 178 graduates, 38. The fifty-ninth session begins Oct 1, 1934 and ends May 30, 1935. The President is John J Mallowney, MD.

**VANDERBILT UNIVERSITY SCHOOL OF MEDICINE** Twenty First and Edgehill—This school was founded in 1874. The first class graduated in 1875. Coeducational since September 1925. The faculty consists of 89 professors and 120 lecturers, instructors, assistants and others, a total of 209. For matriculation, students must be seniors in absentia who will receive the bachelor degree from their college after having completed successfully at least one year of work in the school of medicine. The course covers four years of nearly nine months each. The total fees for the four years respectively are \$315, \$315, \$315 and \$320. The total registration for 1933-1934 was 194 graduates, 50. The sixty-first session begins Sept 26, 1934 and ends June 12, 1935. The Dean is Waller S Leathers, MD.

**TEXAS****Dallas**

**BAYLOR UNIVERSITY COLLEGE OF MEDICINE** 810 College Avenue—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University. It acquired the charter of Dallas Medical College in 1904. Coeducational since organization. The first class graduated in 1901. The faculty consists of 64 professors and 79 instructors and assistants, a total of 143. Entrance requirements are two years of collegiate work. The course covers four years of eight months each. The fees for each of the four years respectively are \$362, \$347, \$332 and \$337. Total registration for 1933-1934 was 360 graduates, 64. The thirty-fifth session begins Oct 1, 1934 and ends May 27, 1935. The Dean is W H Moursund, MD.

**Galveston**

**UNIVERSITY OF TEXAS SCHOOL OF MEDICINE** 912 Avenue B—Organized in 1891. The first class graduated in 1892. Coeducational since organization. It has a faculty of 42 professors and 15 lecturers and instructors, a total of 57. The curriculum covers four years of eight months each. The entrance requirement is two years of collegiate work. The total fees for the four years respectively are \$100, \$102, \$102, \$110. There is a matriculation fee of \$50 for each year. Total registration for 1933-1934 was 350 graduates, 70. The forty-fourth session begins Oct 1, 1934 and ends May 31, 1935. The Dean is George E Bethel, MD.

**UTAH****Salt Lake City**

**UNIVERSITY OF UTAH SCHOOL OF MEDICINE**—Organized in 1906. Coeducational since organization. Gives only first two years of medical course. Each school year covers thirty-six weeks. Three years of collegiate work is required for admission. The medical faculty consists of 7 professors and 15 lecturers and assistants, a total of 22. The fees are \$190 for the first year and \$200 for the second year. Total registration for 1933-1934 was 70. The twenty-eighth session begins Sept 24, 1934 and ends June 1, 1935. The Dean is L L Daines, MD.

**VERMONT****Burlington**

**UNIVERSITY OF VERMONT COLLEGE OF MEDICINE** Pearl Street College Park—Organized with complete course in 1822. Classes graduated in 1823 to 1836 inclusive when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. Coeducational since 1920. It has a faculty of 31 professors and 32 lecturers, instructors, preceptors and others, a total of 68. Seventy

two hours of collegiate work is required for admission. The course of study covers four years of nine months each. For residents of Vermont the tuition fee is \$300 each session. Nonresidents are charged an additional \$75 each session. A student activity fee of \$30 is charged all students not holding academic degrees or in attendance four years previously and a \$25 fee for the Doctor's degree. The total registration for 1933-1934 was 170 graduates, 33. The next session begins Sept 21, 1934, and ends June 24, 1935. The Dean is J N Jenne, MD.

**VIRGINIA****Charlottesville**

**UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE**—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. Coeducational since the session 1920-1921. It has a faculty of 31 professors and 38 lecturers, instructors, assistants and others, a total of 69. The requirements for admission are the completion of a four year high school course or its equivalent and two years of collegiate work devoted to English, mathematics, chemistry, physics and biology. For residents of Virginia the total fees for the four years respectively are \$377, \$355, \$330 and \$325. Nonresidents are charged an additional \$50 each year. The total registration for 1933-1934 was 236 graduates, 52. The one hundred and eleventh session begins Sept 13, 1934 and ends June 11, 1935. The Dean is J Carroll Flippin, MD.

**Richmond**

**MEDICAL COLLEGE OF VIRGINIA** Twelfth and Clay streets—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Coeducational since 1918. Classes were graduated in 1839 and in all subsequent years. It has a faculty of 66 professors and 80 lecturers, instructors and others, a total of 146. The requirements for admission are a four year high school education and in addition two years of collegiate work including courses in physics, chemistry, biology and English. The course covers four years of eight and one-half months each. Total fees for the four years respectively are \$304, \$304, \$289 and \$319. Nonresidents are charged an additional \$100 each year. The total registration for 1933-1934 was 339 graduates, 93. The ninety-seventh session begins Sept 11, 1934 and ends May 28, 1935. The Dean is Lee E Sutton, Jr., MD.

**WEST VIRGINIA****Morgantown**

**WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE**—Organized in 1902 and gives only the first two years of the medical course. Coeducational since organization. Sixty-six semester hours of collegiate work is required for admission and the bachelor's degree will be granted to those who finish the two years in medicine. Session extends through nine months. The faculty numbers 11 professors and 14 lecturers, instructors, assistants and others, a total of 25. Fees for residents of the state \$250 each year for nonresidents \$400. The total registration for 1933-1934 was 138. The next session begins Sept 17, 1934 and ends June 11, 1935. The Dean is John N Simpson, MD.

**WISCONSIN****Madison**

**UNIVERSITY OF WISCONSIN MEDICAL SCHOOL**, 412 North Charter Street—Organized in 1907. Gave only first two years of the medical course until 1925 when the clinical years were added. Coeducational since organization. For matriculation at least two years in a college of arts and science or an equivalent training is required including one year of Latin, a reading knowledge of French or German and at least a year's work in physics, chemistry and biology and a semester's work in organic chemistry. It has a faculty of 64 professors and 67 lecturers, instructors and others, a total of 131. The fees for each year are respectively \$212, \$192, \$165 and \$110. An additional fee of \$200 is charged for nonresidents. The total registration for 1933-1934 was 317 graduates, 49. The twenty-seventh session begins Sept 19, 1934 and ends June 17, 1935. The Dean is C R Bardeen, MD.

**Milwaukee**

**MARQUETTE UNIVERSITY SCHOOL OF MEDICINE** 561 North Fifteenth Street—Organized in December 1912 by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. Coeducational since organization. It has a faculty of 157. The minimum entrance requirements are sixty-four semester hours of collegiate work including courses in physics, chemistry, biology and a modern foreign language. The curriculum covers four years of eight and a half months each and one year's internship in an approved hospital. The fees for the four years respectively are \$389, \$379, \$379 and \$364. The total registration for 1933-1934 was 302 graduates, 53. The twenty-third session begins Oct 1, 1934 and ends June 12, 1935. The Dean is Eben J Carey, MD.

**CANADA****Alberta**

**UNIVERSITY OF ALBERTA FACULTY OF MEDICINE** Edmonton—Organized in 1913. Coeducational since organization. Has given the complete six year medical course since 1924. The faculty includes 9 full time and 60 part time professors, instructors, assistants and others, a total of 69. Fees for first year are \$179 for the second, third and fourth years \$244 for the fifth and sixth years \$274. The registration for 1933-1934 was 180 graduates, 24. The twenty-second session begins Sept 27, 1934 and ends May 15, 1935. The Dean is Allan Coats Rankin, MD.

**Manitoba**

**UNIVERSITY OF MANITOBA FACULTY OF MEDICINE** corner of Emily and Bannatyne Avenue, Winnipeg—Organized in 1883 as Manitoba Medical College. First class graduated in 1886 and a class graduated

# STATISTICS, 1933-1934

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each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. Coeducational since organization. The faculty includes 36 professors, 87 instructors and assistants total of 123. The total fees for the five years respectively, are \$270 \$263 \$275, \$275 and \$145. Matriculation requires include two years of collegiate work in the faculty of arts and science of a recognized university subsequent to the complete high school course required for entrance to the latter. The course extends over four years of eight months each and a hospital internship. Total registration for 1933-1934 was 198 graduates 72. The next session begins Sept 21, 1934 and ends May 26 1935. The Dean is A T Mathers M D.

## Nova Scotia

**DALHOUSIE UNIVERSITY FACULTY OF MEDICINE Halifax**—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty separate from the Halifax Medical College in 1885. In 1911 in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College the work of the latter institution was discontinued and a full teaching faculty was established by the university. By an arrangement between Dalhousie University and the Provincial Board of Nova Scotia, the final professional examinations are conducted jointly by the university and the board and candidates may qualify at the same time for their academic degrees and the provincial license. First class graduated in 1872. Coeducational since 1871. It has a faculty of 23 professors and 43 demonstrators lecturers and others a total of 66. Requires for matriculation two years of arts. The medical course covers four years and a hospital internship of one year. The fees are \$312 \$312 \$317 and \$302 for each year respectively. \$150 additional registration fee payable by students outside the British Empire. The total registration in regular classes for 1933-1934 was 148 graduates 32. The next session begins Sept 11 1934 and ends May 14, 1935. The Dean is H G Grant M D.

## Ontario

**QUEEN'S UNIVERSITY FACULTY OF MEDICINE Kingston**—Organized 1854. First class graduated in 1855 and a class graduated each subsequent year. The faculty was originally a department of the university but a separation took place in 1866 when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. It admitted women from 1880 until 1883. In 1892 the school again became a part of Queen's University. The faculty numbers 56. The fees for the six years are respectively \$176 \$186 \$186 \$211 \$211 and \$241. The last includes the fee of \$30 for the M D C M degrees. The course covers six years of thirty teaching weeks each the first including courses in physics chemistry biology history or economics or English. The total registration in 1933-1934 was 296 graduates 44. The next session begins Sept 27 1934 and ends May 22 1935. The Dean is Frederick Etherington, M D.

**UNIVERSITY OF WESTERN ONTARIO MEDICAL SCHOOL Ottawa Ave. West London**—Organized in 1881 as the Western University Faculty of Medicine. First class graduated in 1883 and a class graduated each subsequent year. Present title in 1923. The medical school has been under the control of the Board of Governors of the University of Western Ontario since 1913. Coeducational since 1913. The faculty numbers 77. Two years of premedical college work including courses in physics chemistry and biology is required for admission to a five year medical course. The total fees to residents of Canada for the last four years respectively are \$200 \$200 \$208 and \$233. The registration for 1933-1934 was 139 graduates 24. The next session begins Sept 26 1934 and ends June 5 1935. The Dean is A B Macallum M D.

## INSTITUTIONS OFFERING GRADUATE COURSES FOR PHYSICIANS APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

**CALIFORNIA**  
University of California Graduate Division Berkeley  
Stanford University School of Medicine San Francisco

**COLORADO**  
University of Colorado School of Medicine Denver

**CONNECTICUT**  
New Haven School of Physical Therapy  
Yale University Graduate School New Haven

**ILLINOIS**  
Children's Memorial Hospital Chicago  
Northwestern University Medical School Chicago  
University of Chicago Rush Medical College  
University of Illinois College of Medicine Chicago

**INDIANA**  
Indiana University School of Medicine Indianapolis

**IOWA**  
State University of Iowa College of Medicine Iowa City

**KANSAS**  
University of Kansas School of Medicine Kansas City

**LOUISIANA**  
Tulane University Graduate School of Medicine (New Orleans Poly-clinic) New Orleans

**MARYLAND**  
Johns Hopkins University School of Hygiene and Public Health Baltimore  
Johns Hopkins University School of Medicine Baltimore

**MASSACHUSETTS**  
Harvard School of Public Health Boston  
Harvard Medical School Boston  
Massachusetts Institute of Technology Cambridge

**MICHIGAN**  
University of Michigan Medical School Ann Arbor  
Wayne University College of Medicine Detroit

**MINNESOTA**  
University of Minnesota, Graduate School of Medicine Minneapolis  
Rochester

**MISSOURI**  
Washington University School of Medicine St Louis

**NEW YORK**  
Albany Medical College  
University of Buffalo School of Medicine  
New York Post Graduate Medical School  
Cornell University Medical College and Hospital (Columbia Uni-versity) New York  
New York Eye and Ear Infirmary School of Ophthalmology and Otology  
New York  
New York Polyclinic Medical School and Hospital New York  
New York University University and Bellevue Hospital Medical College  
New York  
Trudeau School of Tuberculosis Saranac Lake

**OHIO**  
University of Cincinnati College of Medicine  
Western Reserve University Graduate School Cleveland  
Ohio State University College of Medicine Columbus

**PENNSYLVANIA**  
University of Pennsylvania Graduate School of Medicine Philadelphia

**PUERTO RICO**  
University of Puerto Rico School of Tropical Medicine (under the auspices of Columbia University New York) San Juan

**TENNESSEE**  
Vanderbilt University School of Medicine Nashville

**WISCONSIN**  
University of Wisconsin Medical School Madison

**UNIVERSITY OF TORONTO FACULTY OF MEDICINE Toronto**—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed the Victoria University Medical Department and in 1903 it absorbed the Medical Faculty of Trinity University. Coeducational since 1903. The course of study covers six years of eight months each the first two being devoted largely to physics chemistry biology and cultural courses in history science and English. It has a faculty of 63 professors and 212 lecturers associates and others a total of 275. The fees are \$170 for the first year for the second \$320 \$215 for the third year \$215 for the fourth and fifth years and \$243 for the sixth year. The total registration for 1933-1934 was 794 graduates 106. The next session begins Sept 25, 1934, and ends May 18 1935. The Dean is J G Fitzgerald M D.

## Quebec

**MCGILL UNIVERSITY FACULTY OF MEDICINE 3640 University Street Montreal**—Founded 1824 as Montreal Medical Institution. Became the Medical Faculty of McGill University in 1829. First class graduated under the university auspices in 1833. No session between 1836-1839 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. Coeducational since 1919. The course consists of three premedical years and five medical years of eight months each. The faculty consists of 63 professors and 146 lecturers and others a total of 209. The total fees for each of the five medical years are \$393. The total registration for 1933-1934 was 491 graduates 80. The next session begins Sept 19 1934 and ends May 1, 1935. The Dean is Charles F Martin M D.

**UNIVERSITY OF MONTREAL FACULTY OF MEDICINE 1265 St Denis Street Montreal**—Organized in 1843 incorporated in 1845 as the Montreal School of Medicine and Surgery. In 1891 by act of Parliament absorbed. Present name by act of Parliament (organized in 1878) was graduated in 1843 and in each subsequent year. A class was graduated in 1925. The faculty numbers 118. One year of premedical college work is required for admission to a five year medical course. The total fees for each of the five years respectively are \$252 \$220 \$270 \$232 and \$218. The total registration for 1933-1934 was 186 graduates 51. The next session begins Sept 15, 1934 and ends June 15 1935. The Dean is Telesphore Parizeau M D.

**LAVAL UNIVERSITY FACULTY OF MEDICINE Quebec**—The Quebec School of Medicine organized in 1848 became in 1852 the Laval University Faculty of Medicine first class graduated in 1855 and a class graduated each subsequent year. The faculty numbers 88. The fees for each of the medical years are \$160 \$170 \$160 \$160 and \$180 for residents of Canada. Nonresidents are charged an extra fee of \$190 each year. One year of premedical college work is required for admission to a five year medical course. Total registration for 1933-1934 was 263 graduates 43. The next session begins Sept 11 1934, and ends May 31, 1935. The Dean is P C Dagneau M D.

## Saskatchewan

**UNIVERSITY OF SASKATCHEWAN SCHOOL OF MEDICAL SCIENCES, Saskatoon**—Organized in 1926. Coeducational. Offers the first two years only following a minimum of two years university work mainly in physics chemistry and biology. Students require three more years for graduation making in all seven years from matriculation. The medical faculty includes 8 professors and 4 lecturers and assistants a total of 12. The fees are \$150 for each year. The total registration for 1933-1934 was 47. The next session begins Sept 21 1934 and ends May 10 1935. The Dean is W S Lindsay M B.



## HOSPITALS APPROVED FOR INTERNSHIPS

By the Council on Medical Education and Hospitals of the American Medical Association 535 North Dearborn Street Chicago

Revised to Aug 2, 1934

The following general hospitals containing 211 705 beds are considered in position to furnish acceptable internships for medical graduates

## HOSPITALS, 676 INTERNSHIPS, 6,204

The terms used in the column Type of Internship are defined as  
 1 Rotating internships include services in medicine surgery pediatrics obstetrics and in the clinical and x-ray laboratories  
 2 Straight internships are limited to a single field  
 3 Mixed internships are those comprising more than one service but which do not include all of the six branches which constitute a rotating internship

## ABBREVIATIONS

Chrch Church  
CyCo City and county  
Co County

Fed Frat  
Indep Independent

Federal Fraternal  
Independent hospital association

Indlv Individual  
Indus Industrial

Name of Hospital	Location	Control	Capacity	Classification of Patients			Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free and Part Pay	Full Pay	Total Patients Treated								
ALABAMA														
Hillman Hospital	Birmingham	Co	475	100		10 074	Mixed	16	12	July	No	Req	31	No
Norwood Hospital	Birmingham	Indep	226	59	41	2 425	Rotating	2	12	July	No	Req	32	\$25
Employees Hospital of the Tennessee Coal Iron and Railroad Co	Fairfield	Indus	310	1	99	5 433	Rotating	8	12	July	No	Req	31	\$25
John A. Andrew Memorial Hosp <sup>1</sup> (col)	Tuskegee Institute	Indep	79	81	19	2 915	Rotating	3	12	June & Sept	No	Req	56	\$6
ARIZONA														
St. Joseph's Hospital	Phoenix	Chrch	190	27	73	3 650	Mixed	2	12	July	No	None	37	\$95
ARKANSAS														
Baptist State Hospital	Little Rock	Chrch	315	32	68	3 322	Mixed	3	12	July	No	None	29	\$50
Little Rock City Hospital	Little Rock	City	140	100		1 959	Rotating	4	12	July	No	Req	30	\$35
St. Vincent's Infirmary	Little Rock	Chrch	150	17	83	3 274	Rotating	4	12	June	No	None	15	\$25
CALIFORNIA														
Fresno County General Hospital	Fresno	Co	523	100		5 707	Rotating	10	12	July	No	Req	34	\$25
Glendale Sanitarium and Hospital <sup>1</sup>	Glendale	Chrch	264	56	44	2 077	Mixed	3	12	July	No	Req	36	\$25(a)
Loma Linda Sanitarium and Hospital	Loma Linda	Chrch	124			1 644	Rotating	4	12	July	(3)	Req	43	\$5(a)
Seaside Hospital	Long Beach	Indep	333			4 638	Mixed	1	12	Aug	No	Req	21	\$25
California Hospital	Los Angeles	Chrch	315	15	85	5 163	Rotating	9	12	July	(4)	Req	27	\$25
Cedars of Lebanon Hospital	Los Angeles	Indep	280	27	73	5 074	Rotating	8	12	July	No	Req	35	\$25
Hollywood Clara Barton Mem. Hosp	Los Angeles	Indep	316		100	4 512	Mixed	5	12	July	No	None	41	\$25
Los Angeles County Hospital <sup>1</sup>	Los Angeles	Co	3 572	100		36 182	Rotating	104	12 & 24	(1 a)	No	Op	53	No
St. Vincent's Hospital	Los Angeles	Chrch	250	8	92	3 925	Rotating	3	12	July	No	None	45	\$40
Santa Fe Coast Lines Hospital	Los Angeles	Indus	150	65	35	2 342	Rotating	5	12	July	(5)	Req	69	\$22.50
U. S. Memorial Hospital <sup>1</sup>	Los Angeles	Chrch	134	70	30	3 297	Rotating	10	12	July	No	Req	30	\$50(a)
Alameda County Hospital	Oakland	Co	1 455	100		9 600	Rotating	24	12	July	(6)	None	38	\$25
Orange County Hospital	Orange	Co	282	100		2 038	Rotating	7	12	July	No	Req	36	\$15-20
Pasadena Hospital	Pasadena	Indep	211	17	83	4 591	Rotating	4	12	July	(7)	Req	54	\$30
Sacramento County Hospital	Sacramento	Co	481	100		10 671	Rotating	10	12	July	No	Req	49	\$35
San Bernardino County Charity Hosp	San Bernardino	Co	370	100		3 226	Rotating	8	12	July	No	Req	50	\$25
San Diego County General Hospital	San Diego	Co	612	100		6 535	Rotating	14	12	July	No	Req	43	\$15-20
French Hospital	San Francisco	Frat	234	2	98	3 187	Mixed	6	12	July	No	Req	29	\$30(b)
Hospital for Children <sup>2</sup>	San Francisco	Indep	2 9	35	65	3 339	Rotating	10	12	July	No	Req	41	No
Mary's Help Hospital	San Francisco	Chrch	150	32	68	3 194	Rotating	5	12	July	No	Req	34	\$25
Mount Zion Hospital <sup>1</sup>	San Francisco	Indep	193	37	63	3 710	Rotating	6	12	June	No	Req	50	\$25
St. Luke's Hospital <sup>1</sup>	San Francisco	Chrch	225	19	81	4 397	Rotating	4	12	July	No	Req	31	\$15(c)
St. Mary's Hospital	San Francisco	Chrch	325	15	85	5 631	Rotating	5	12	July	No	Req	15	\$95
San Francisco Hospital <sup>1</sup>	San Francisco	CyCo	1 408	100		12 542	Rotating	44	12	July	(8)	Req	57	\$10
Southern Pacific General Hospital	San Francisco	Indus	400			4 225	Rotating	14	12	July	(9)	Req	57	\$30
Stanford University Hospitals <sup>1</sup> (including Lane Hospital)	San Francisco	Indep	329	51	49	6 364	Straight	13	12	July	No	Req	48	No
University of California Hospital <sup>1</sup>	San Francisco	State	287			5 653	Straight	20	12	June	(10)	Req	99	No
St. Helena Sanitarium and Hospital	Sanitarium	Chrch	146			1 442	Mixed	1	12	July	(20)	None	18	\$50
Santa Clara County Hospital	San Jose	Co	499	100		10 762	Rotating	8	12	July	No	Req	50	\$30
St. Francis Hospital	Santa Barbara	Chrch	100	37	63	1 324	Mixed	2	12	July	No	None	47	\$90
Santa Barbara Cottage Hospital	Santa Barbara	Indep	104			2 426	Rotating	5	12	July	(11)	Req	65	\$20
Santa Barbara General Hospital	Santa Barbara	Co	225	100		1 988	Rotating	4	12	July	(12)	None	61	\$15
COLORADO														
Boulder Colorado Sanit. and Hosp <sup>1</sup>	Boulder	Chrch	107			1 060	Mixed	1	12	July	No	Req	26	\$35
Beth El General Hospital	Colorado Springs	Chrch	207	43	57	2 410	Mixed	2	12	June	No	Req	23	\$15
Colorado General Hospital <sup>1</sup>	Denver	State	178	100		2 936	Rotating	10	12	July & Aug	No	Req	82	\$20
Denver General Hospital	Denver	CyCo	589	100		17 080	Rotating	12	18	Jan & July	No	Req	20	\$50
Mercy Hospital	Denver	Chrch	250			3 633	Mixed	4	12	July	No	None	27	\$25
Presbyterian Hospital	Denver	Chrch	175	14	86	3 809	Mixed	4	12	July	No	None	29	\$25
St. Anthony Hospital	Denver	Chrch	219	79	21	3 102	Rotating	3	12	July	No	None	30	\$25
St. Joseph's Hospital	Denver	Chrch	225	79	21	3 814	Rotating	4	12	July	No	None	15	\$30
St. Luke's Hospital	Denver	Chrch	249	7	93	4 442	Rotating	6	12	July	No	Req	40	\$25
CONNECTICUT														
Bridgeport Hospital	Bridgeport	Indep	400			7 967	Rotating	8	12	July	No	Req	20	No
St. Vincent's Hospital	Bridgeport	Chrch	135	87	13	4 596	Rotating	6	12	July	(13)	Req	22	\$90 (f)
Danbury Hospital	Danbury	Indep	135	78	22	2 900	Mixed	2	12	July	No	None	17	\$10
Hartford Hospital	Hartford	Indep	780	63	37	14 015	Rotating	18	18	Jan & July	No	None	40	No
Municipal Hospital	Hartford	City	310	100		5 714	Rotating	10	24	July	(14)	Req	48	\$10
St. Francis Hospital	Hartford	Chrch	625			8 986	Rotating	9	12	July	No	Req	20	\$10
Meriden Hospital	Meriden	Indep	146	93	7	1 992	Rotating	3	12	July	No	Req	27	\$30
Middlesex Hospital	Middletown	Indep	160	48	52	2 448	Rotating	2	12	July & Sept	No	None	24	\$10(d)
New Britain General Hospital	New Britain	Indep	241	87	13	3 550	Rotating	5	12	July	No	Req	24	\$30
Grace Hospital	New Haven	Indep	286	79	21	4 938	Mixed	9	18	Jan & July	No	Req	27	\$25
Hospital of St. Raphael	New Haven	Chrch	250	30	70	5 685	Rotating	6	12	July	No	Req	17	\$25
New Haven Hospital <sup>1</sup>	New Haven	Indep	504	88	12	7 902	Straight	26	12 20	(1 b)	No	Req	46	No
Lawrence and Memorial Associated Hospitals	New London	Indep	233	44	56	2 636	Rotating	3	12	July	No	Req	22	\$25 (f)
Norwalk General Hospital	Norwalk	Indep	165	76	24	2 579	Mixed	2	12	Jan & July	No	None	31	\$35(d)
William W. Backus Hospital	Norwich	Indep	155	93	7	2 096	Mixed	2	12	July	No	Req	17	\$25
Stamford Hospital	Stamford	Indep	266	19	81	4 395	Rotating	4	12	Jan & July	No	Req	16	\$45
St. Mary's Hospital	Waterbury	Chrch	264	62	38	5 136	Rotating	4	12	July	No	Req	22	\$25
Waterbury Hospital	Waterbury	Indep	289	94	6	4 231	Rotating	7	12	July & Oct	No	Req	34	\$25

Numerical and other references will be found on page 596

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Name of Hospital	Location	Control	Classification of Patients				Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month	
			Capacity	Free and Part Pay	Full Pay	Percentage of Patients Treated									
<b>DELAWARE</b>															
Delaware Hospital	Wilmington	Indep	200	45	20	4 227	Rotating	5	12	July	No	Req	28	\$25	
Wilmington General Hospital	Wilmington	Indep	133	60	55	3 057	Rotating	5	12	July	No	Req	28	\$25	
<b>DISTRICT OF COLUMBIA</b>															
Central Disp and Emergency Hospital	Washington	Indep	260	34	66	6,656	Mixed	17	12	July	No	Req	32	\$10	
Freedmen's Hospital (col)	Washington	Fed	3/4	85	15	4 385	Rotating	26	12	July & Oct	No	Req	32	\$8 50	
Gallinger Municipal Hospital	Washington	City	825	09	1	18 070	Rotating	18	12	July	No	Req	32	\$9	
Garfield Memorial Hospital	Washington	Indep	321	58	42	4,412	Mixed	8	12	July	No	Req	30	\$10	
Georgetown University Hospital	Washington	Indep	261	50	50	2 289	Rotating	8	12	July	No	Req	29	\$10	
George Washington University Hospital	Washington	Indep	110	32	68	4 117	Mixed	6	12	July	No	Req	34	\$15	
Providence Hospital	Washington	Chrch	260	63	35	1 071	Rotating	4	12	July	No	Req	39	\$10	
Surgical Departments	Washington	Fed	642	310		5 464	Rotating	0	12	July & Oct	(15)	Req	73	\$136 66	
Shiley Memorial Hospital	Washington	Chrch	180	43	57	1 893	Mixed	2	12	July	No	Req	29	\$20	
Washington Sanitarium and Hospital	Washington	Co	185	100		3 606	Rotating	8	24	July	No	Req	33	\$65(a)	
Takoma Park	Washington	City	175	67	33	2 265	Rotating	3	12	July	No	Req	28	\$15-30	
<b>FLORIDA</b>															
Duval County Hospital	Jacksonville	City	194	45	55	7 193	Rotating	10	12	July	No	Req	16	\$30	
St Luke's Hospital	Jacksonville	Chrch	150	23	77	4 455	Rotating	5	12	July & Oct	No	Req	26	\$25	
James M Jackson Memorial Hospital	Miami	City	260	100		8 109	Rotating	12	12	July	(16)	Op	17	\$30	
Lampa Municipal Hospital	Tampa	City	130	100		5,342	Rotating	4	12	July	No	Req	22	\$15	
<b>GEORGIA</b>															
Georgia Baptist Hospital	Atlanta	City	267	100		2 099	Rotating	10	12	July	No	Req	22	\$15	
Grady Hospital (White Unit)	Atlanta	City	185	35	65	5,342	Rotating	4	12	July	No	Req	27	\$10(e)	
Grady Hospital (Colored Unit)	Atlanta	Chrch	160	85	15	4 736	Rotating	6	12	July	No	Req	27	\$30(f)	
Piedmont Hospital	Atlanta	Chrch	285	43	57	3 014	Mixed	7	12	July	No	Req	20	\$40	
Emory University Hospital	Atlanta	Indep	170	25	75	1 729	Rotating	4	12	Jan & July	No	Req	21	No	
Emory University Hospital	Atlanta	Chrch	375	34	66	4 333	Rotating	10	18	July	No	Req	21	No	
Macon Hospital	Macon	Chrch	108	86	14	1 867	Mixed	4	12	July	No	Req	21	No	
<b>ILLINOIS</b>															
Alexian Bros Hosp (male patients only)	Chicago	Co	3 300	100		63 018	Mixed	96	18	Jan & July	No	Req	21	No	
American Hospital	Chicago	Indep	140	96	4	1 989	Rotating	5	12	Jan & July	No	Req	21	No	
Augustana Hospital	Chicago	Indep	128	78	22	2 329	Rotating	6	12	Jan & July	No	Req	21	No	
Chicago Memorial Hospital	Chicago	Indep	271	50	50	2 757	Mixed	6	12	Jan & July	No	Req	21	No	
Columbus Hospital	Chicago	Chrch	109	29	71	4 723	Rotating	7	12	Jan & July	No	Req	21	No	
Edgewater Hospital	Chicago	Indus	265	100	90	3 342	Rotating	3	12	July	No	Req	21	No	
Englewood Hospital	Chicago	Chrch	276	37	63	3 606	Mixed	8	12	July	No	Req	21	No	
Frances E Willard Hospital	Chicago	Frat	175	22	78	2 370	Mixed	8	12	June	No	Req	21	No	
Grant Park Community Hospital	Chicago	Indep	265	22	78	2 689	Rotating	10	12	June	No	Req	21	No	
Holy Cross Hospital	Chicago	Chrch	140	19	81	1 662	Rotating	4	12	July	No	Req	21	No	
Hospital of St Anthony de Padua	Chicago	Chrch	214	18	82	3 114	Mixed	5	12	July	No	Req	21	No	
Illinois Central Hospital	Chicago	Chrch	235	34	66	2 167	Mixed	4	12	July	No	Req	21	No	
Illinois Masonic Hospital	Chicago	Chrch	395	34	66	4 092	Mixed	12	12	July	No	Req	21	No	
Jackson Park Hospital	Chicago	Indep	629	82	18	11 535	Rotating	34	12	July	No	Req	21	No	
Lutheran Deaconess Home and Hospital	Chicago	Indep	168	94	6	2 502	Rotating	4	12	July	No	Req	21	No	
Lutheran Memorial Hospital	Chicago	Indep	180	44	56	4 526	Rotating	8	12	July	No	Req	21	No	
Mercy Hospital	Chicago	Chrch	250	6	94	3 513	Mixed	6	12	July	No	Req	21	No	
Michael Reese Hospital	Chicago	Indep	402	72	28	9 365	Mixed & Str	27	12	Apr & July	(10)	Op	33	\$25	
Mount Sinai Hospital	Chicago	Indep	192			1 967	Rotating	6	12	July	No	Req	29	\$20	
Norwegian American Hospital	Chicago	State	382	100		4 636	Rotating	5	12	June & July	(1 o)	Op	47	No	
Passavant Memorial Hospital	Chicago	Chrch	133	30	70	2 232	Rotating	5	12	July	No	Op	20	No	
Presbyterian Hospital	Chicago	Chrch	230	53	47	2 638	Rotating	3	12	July	No	Op	76	No	
Provident Hospital (col)	Chicago	Chrch	299	27	73	3 629	Rotating	7	12	June	No	Req	16	\$15	
Ravenswood Hospital	Chicago	Indep	200	14	86	3 746	Mixed	7	12	July	No	Req	27	No	
Research and Educational Hospital	Chicago	Chrch	714	25	75	2 542	Rotating	7	12	July	No	Req	15	No	
St Anne's Hospital	Chicago	Chrch	200	12	88	8 871	Rotating	24	12	Apr & July	(1 e)	No	Req	20	No
St Bernard's Hospital	Chicago	Indep	210	34	66	2 180	Rotating	5	12	July	No	Req	37	No	
St Elizabeth Hospital	Chicago	Indep	121	81	69	5 430	Straight	4	12	March	No	Op	15	No	
St Joseph Hospital	Chicago	Indep	408	94	6	1 612	Rotating	6	12	July	No	Req	57	\$10	
St Luke's Hospital	Chicago	Indep	110			1 840	Rotating	6	12	July	No	Req	76	\$15	
St Mary of Nazareth Hospital	Chicago	Indep	125	43	57	2 820	Rotating	5	12	Jan & July	(1 f)	No	Req	23	No
St Mary's Hospital	Chicago	Chrch	296	54	46	2 854	Rotating	3	12	Jan & July	No	Req	60	No	
St Francis Hospital	Chicago	Chrch	350	61	39	4 704	Rotating	12	12	July	No	Req	18	\$25	
St Joseph's Hospital	Chicago	Chrch	174	52	48	3 252	Rotating	8	12	July	No	Req	66	No	
St Anthony's Hospital	Chicago	Indep	165	12	88	3 593	Rotating	6	12	June	No	Req	38	\$25	
St Anthony's Hospital	Chicago	Chrch	427	7	93	5 040	Rotating	10	12	July & Oct	(1 c)	No	Req	22	No
St Catherine's Hospital	Chicago	Chrch	330	39	61	5 414	Rotating	4	12	July	No	Req	39	No	
St Elizabeth's Hospital	Chicago	Chrch	215	85	15	2 963	Rotating	3	12	July	No	Req	24	\$20	
St Joseph's Hospital	Chicago	Chrch	215	85	15	2 963	Rotating	3	12	July	No	Req	24	\$20	
<b>INDIANA</b>															
St Catherine's Hospital	East Chicago	Chrch	350	32	68	2 538	Rotating	4	12	June & July	No	Req	30	\$25	
St Elizabeth's Hospital	East Chicago	Chrch	180	20	80	2 384	Mixed	1	12	July	No	Req	19	No	
St Joseph's Hospital	Evansville	Chrch	182	20	80	2 307	Rotating	2	12	July	No	Req	28	\$25(g)	
St Mary's Hospital	Fort Wayne	Chrch	300	46	54	3 880	Rotating	4	12	July	No	Req	32	\$25	
St Margaret's Hospital	Fort Wayne	Chrch	200	48	52	3,345	Rotating	4	12	July	No	Req	38	\$10	
St Vincent's Hospital	Gary	Chrch	200	48	52	2 830	Rotating	7	12	July	No	Req	40	\$12 50	
St Elizabeth's Hospital	Hammond	Chrch	200	48	52	11 192	Rotating	20	12	July	No	Req	31	\$10	
St Joseph's Hospital	Indianapolis	Chrch	200	48	52	4 210	Rotating	16	12	July	No	Req	31	\$15	
St Vincent's Hospital	Indianapolis	Chrch	200	48	52	2 319	Mixed	4	12	July	No	Req	23	\$35	
St Elizabeth's Hospital	Indianapolis	Chrch	160	28	72	2 303	Rotating	3	12	July	No	Req	20	\$25	
St Joseph's Hospital	Indianapolis	Chrch	147	70	30	1 996	Rotating	2	12	July	No	Req	20	\$25	

Numerical and other references will be found on page 596

Name of Hospital	Location	Control	Capacity	Classification of Patients			Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Inpatient Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free and Part Pay	Full Pay	Total Patients Treated								
IOWA														
Mercy Hospital	Cedar Rapids	Chrch	145			1 569	Mixed	1	12	July	No	None	18	\$25
Jennie Edmundson Memorial Hospital	Council Bluffs	Indep	139			2 363	Mixed	2	12	June	No	Op	20	\$30
Mercy Hospital	Council Bluffs	Chrch	149			1 740	Rotating	3	12	June	No	None	26	\$25(d)
Mercy Hospital	Davenport	Chrch	135	26	74	2 209	Rotating	2	12	July & Aug	No	None	28	\$25
Broadlawn-Polk Co Public Hospital	Des Moines	Co	112	100		3 706	Rotating	6	12	July	(23)	Req	56	\$25
Iowa Lutheran Hospital	Des Moines	Chrch	160			2 744	Mixed	3	12	July	No	None	16	\$40
Iowa Methodist Hospital	Des Moines	Chrch	249	23	77	5 416	Rotating	6	12	July	No	None	21	\$20(d)
Mercy Hospital	Des Moines	Chrch	176			2 580	Rotating	4	12	July	(23)	None	17	\$35
University Hospitals	Iowa City	State	1 008	95	5	13 776	Rotating	18	12	July	No	Req	57	(d)
St Joseph's Mercy Hospital	Sioux City	Chrch	220	15	85	5 460	Rotating	4	12	July	No	Req	42	\$25
KANSAS														
Bell Memorial Hospital	Kansas City	State	250	89	11	4 655	Rotating	8	12	July	(24)	Req	83	\$15
Bethany Methodist Hospital	Kansas City	Chrch	145	19	81	2 349	Rotating	3	12	July	No	None	52	\$25
St Margaret's Hospital	Kansas City	Chrch	265	90	10	6 611	Rotating	5	12	July	No	Req	69	\$25
St Francis Hospital	Wichita	Chrch	350	50	50	3 806	Rotating	5	12	July	(25)	Req	40	\$40
Wesley Hospital	Wichita	Chrch	228	25	75	3 355	Mixed	5	12	July	(26)	Op	16	\$25
KENTUCKY														
St Elizabeth Hospital	Covington	Chrch	290	82	18	3 660	Rotating	6	12	July	No	Req	16	\$25
Good Samaritan Hospital	Lexington	Chrch	216	30	04	3 831	Rotating	3	12	July	No	None	18	\$25
St Joseph's Hospital	Lexington	Chrch	210	44	56	3 681	Rotating	3	12	July	No	None	20	\$25(d)
Kentucky Baptist Hospital	Louisville	Chrch	160			2 527	Mixed	2	12	July	No	None	21	No
Louisville City Hospital	Louisville	City	444	100		10 476	Rotating	18	12	July	(27)	Req	36	\$10
Norton Memorial Infirmary	Louisville	Chrch	130	68	32	2 133	Mixed	2	12	July	No	Req	45	\$20
St Anthony's Hospital	Louisville	Chrch	157	59	41	2 176	Mixed	2	12	July	No	None	15	\$15
St Joseph Infirmary	Louisville	Chrch	327	43	57	4 977	Rotating	3	12	July	No	None	32	\$25
St Mary and Elizabeth Hospital	Louisville	Chrch	163			3 057	Mixed	2	12	July	No	None	18	\$40
LOUISIANA														
Charity Hospital	New Orleans	State	1 809	100		55 477	Rotating	68	12	July	No	Req	46	\$10
Filint Goodridge Hospital of Dillard University (col)	New Orleans	Indep	100	63	37	1 129	Mixed	5	12	July	No	Req	33	\$10-25
Hotel Dieu Hospital	New Orleans	Chrch	263	21	79	5 886	Rotating	6	12	July	No	None	20	\$25
Mercy Hospital-Soniat Memorial	New Orleans	Chrch	144	38	62	2 365	Mixed	2	12	July	No	Op	31	\$45
Southern Baptist Hospital	New Orleans	Chrch	222	31	69	5 681	Rotating	9	12	July	No	None	21	\$15
Touro Infirmary	New Orleans	Indep	366	74	26	7 534	Rotating	15	12	July	No	Req	38	\$10
T E Schumpert Memorial Sanitarium	Shreveport	Chrch	162	57	43	2 839	Mixed	2	12	July	No	Op	29	\$80
Shreveport Charity Hospital	Shreveport	State	515	100		13 808	Rotating	13	12	July	No	None	46	\$10
MAINE														
Eastern Maine General Hospital	Bangor	Indep	173	43	57	3 316	Rotating	3	12	July	No	Req	18	\$25
Central Maine General Hospital	Lewiston	Indep	181	56	44	2 448	Mixed	2	12	July	No	None	34	No
Maine General Hospital	Portland	Indep	302	76	24	4 645	Mixed	6	12	July	No	Req	24	No
MARYLAND														
Baltimore City Hospitals	Baltimore	City	1 258	100		6 021	Mix & Str	17	12	July	No	Req	29	No
Bon Secours Hospital	Baltimore	Chrch	145	56	44	1 470	Rotating	5	12	July	(29)	Req	19	\$25
Church Home and Infirmary	Baltimore	Chrch	184	81	19	2 511	Rotating	7	12	July	No	Req	46	\$15
Franklin Square Hospital	Baltimore	Indep	129	77	23	1 792	Mixed	6	12	July	No	None	18	\$12-50(h)
Hospital for Women	Baltimore	Indep	135	56	44	1 862	Mixed	5	12	July	(23)	Req	16	\$15
Johns Hopkins Hospital	Baltimore	Indep	1 004	88	12	12 515	Straight	60	12	Sept	No	Req	65	No
Maryland General Hospital	Baltimore	Chrch	228	51	49	4 100	Rotating	8	12	July	No	Req	16	\$10
Mercy Hospital	Baltimore	Chrch	264	60	40	4 562	Rotating	9	12	July	No	Req	21	No
Provident Hosp and Free Disp (col)	Baltimore	Indep	129	91	9	1 882	Rotating	7	12	July & Oct	No	Req	18	No
St Agnes Hospital	Baltimore	Chrch	211	75	25	3 329	Rotating	4	12	July	(29)	Req	25	No
St Joseph's Hospital	Baltimore	Chrch	290	58	42	4 189	Rotating	6	12	July	No	Req	30	\$15
Sinal Hospital	Baltimore	Indep	269	61	39	4 278	Straight	15	12	July	No	Req	29	No
South Baltimore General Hospital	Baltimore	Indep	115	74	26	2 185	Rotating	5	12	July	No	Req	16	\$20
Union Memorial Hospital	Baltimore	Indep	332	75	25	5 032	Mixed	15	12	July	No	Req	39	No
University Hospital	Baltimore	State	275	81	19	5 113	Rotating	13	12	July	(30)	Req	39	No
West Baltimore General Hospital	Baltimore	Indep	200	39	61	2 060	Rotating	5	12	July	No	Req	22	\$15
MASSACHUSETTS														
Beverly Hospital	Beverly	Indep	141	52	48	2 475	Rotating	3	12	(1 h)	No	Req	37	\$25
Beth Israel Hospital	Boston	Indep	202	29	71	4 644	Straight	14	15½ & 20½	(1 v)	No	Req	41	No
Boston City Hospital	Boston	City	2 285			42 671	Straight	93	12-24	Varies	(31)	Req	27	No
Carney Hospital	Boston	Chrch	210	85	15	2 841	Mixed	12	12 & 16	(1 d)	No	Req	16	No
Faulkner Hospital	Boston	Indep	157	80	20	2 800	Mixed	2	12	June	No	Req	38	No
Long Island Hospital	Boston	City	550	100		1 735	Rotating	6	12	July	No	Req	47	\$50
Massachusetts General Hospital	Boston	Indep	405	87	13	8 021	Straight	38	12-25	(1 c)	No	Req	57	No
Massachusetts Memorial Hospitals	Boston	Indep	367	63	32	5 560	Rotating	12	12	Aug	(32)	Req	45	No
New England Hospital for Women and Children	Boston	Indep	260	9	91	4 082	Rotating	8	12	July & Oct	No	Req	38	No
Peter Bent Brigham Hospital	Boston	Indep	247	64	36	4 272	Straight	24	12 & 16½	(1 f)	No	Req	64	No
St Elizabeth's Hospital Brighton	Boston	Chrch	300			4 133	Rotating	7	21	(1 c)	No	Req	18	No
Brockton Hospital	Brockton	Indep	158	74	26	2 690	Rotating	3	12	(1 t)	No	Req	17	\$10(d)
Cambridge Hospital	Cambridge	Indep	300	90	10	2 461	Rotating	4	12	(1 c)	(33)	Req	20	\$50
Union Hospital	Fall River	Indep	175	37	63	3 367	Mixed	2	12	July	No	Req	24	\$30-50
Lawrence General Hospital	Lawrence	Indep	152	44	56	2 165	Mixed	2	12	June	No	Req	30	\$10
Lowell General Hospital	Lowell	Indep	180	75	25	2 843	Rotating	2	12	July	No	Req	39	\$25
St John's Hospital	Lowell	Chrch	166	64	36	3 204	Mixed	3	12	June	No	Op	18	No
St Joseph's Hospital	Lowell	Chrch	108	66	34	2 096	Rotating	2	12 & 24	July	No	Req	38	\$10
Lynn Hospital	Lynn	Indep	250	59	41	4 293	Rotating	3	12	June & July	No	Req	15	\$300 yr
St Luke's Hospital	New Bedford	Indep	330	88	12	5 437	Rotating	6	12	July	No	Req	23	No
Newton Hospital	Newton	Indep	290	67	33	4 774	Rotating	6	12	July	No	Req	39	No
House of Mercy Hospital	Pittsfield	Indep	222	97	3	2 561	Rotating	2	12	July	No	Req	22	\$40
St Luke's Hospital	Pittsfield	Chrch	189	5	95	3 067	Rotating	2	12	June	No	Req	15	\$25
Quincy City Hospital	Quincy	City	296	24	76	4 774	Rotating	6	12	Jan & July	No	None	26	No
Salem Hospital	Salem	Indep	190	65	35	3 154	Rotating	3	12	July & Aug	No	Req	26	\$25
Springfield Hospital	Springfield	Indep	182	83	17	4 486	Rotating	9	18	Jan & July	(34)	Req	22	No
State Infirmary	Worcester	State	2 000	100		3 511	Rotating	4	12	July	No	None	19	(1)
Waltham Hospital	Waltham	Indep	216			2 686	Mixed	3	12	(1 k)	No	Req	28	\$15(1)
Memorial Hospital	Worcester	Indep	215	26	74	4 152	Rotating	9	18	(1 o)	No	Req	54	No
St Vincent Hospital	Worcester	Chrch	250	25	75	4 009	Mixed	5	12	(1 c)	No	Req	35	\$25
Worcester City Hospital	Worcester	City	400	75	25	8 625	Rotating	16	24	(1 w)	No	Req	30	No
Worcester Hahnemann Hospital	Worcester	Indep	140			1 661	Rotating	2	12	July	No	None	61	
MICHIGAN														
St Joseph's Mercy Hospital	Ann Arbor	Chrch	130			2 001	Mixed	1	12	July	(35)	Req	32	\$25
University Hospital	Ann Arbor	State	1 257			30 820	Mixed	30	12	July	No	Req	50	\$20
Battle Creek Sanitarium	Battle Creek	Indep	1 013	40	60	5 105	Mixed	1	12	July	No	None	26	\$25
Lella Y Post Montgomery Hospital	Battle Creek	Chrch	175	90	10	1 893	Mixed	1	12	July	No	Req	34	\$25
Mercy Hospital	Bay City	Chrch	160	23	77	1 255	Rotating	2	12	July	No	Req	27	\$25
City of Detroit Receiving Hospital	Detroit	City	764	100		23 506	Rotating	36	12	July	(36)	Req	41	\$19-50(1)

Numerical and other references will be found on page 596

## HOSPITALS APPROVED FOR INTERNSHIPS

Name of Hospital	Location	Control	Capacity	Percentage		Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free and Part Pay	Full Pay								
MICHIGAN—Continued													
Grace Hospital	Detroit	Indep	308	78	22	0 407	Rotating	20	July & Sept	(36)	Req	34	\$12 50
Harper Hospital	Detroit	Indep	750	61	39	10 791	Rotating	32	July	(37)	Req	20	No
Henry Ford Hospital	Detroit	Indep	610	42	58	0 242	Rotating	20	Sept	(38)	Req	43	\$100(a)
St Joseph's Mercy Hospital	Detroit	Chrch	400	88	12	7 486	Rotating	16	July	(39)	Req	17	\$15
St Mary's Hospital	Detroit	Chrch	198	27	73	2 200	Rotating	6	July	(36)	Req	28	\$25
Dr William J. Seymour Hospital	Flint	Co	1 368	100	58	3 220	Rotating	7	July	(38)	Req	33	\$10
Hurley Hospital	Grand Rapids	Indep	425	70	21	0 838	Rotating	13	July	(39)	Req	18	\$15
Blodgett Memorial Hospital	Grand Rapids	Indep	272	70	21	0 838	Rotating	12	July	(39)	Req	17	\$10
Butterworth Hospital	Grand Rapids	Chrch	253	63	37	2 748	Rotating	4	July	(36)	Req	28	\$25
St Mary's Hospital	Highland Park	City	181	46	54	2 966	Rotating	5	July	No	None	35	\$25
Highland Park General Hospital	Jackson	City	156	1	99	2 645	Rotating	5	July	No	Req	38	No
W. A. Foote Memorial Hospital	Lansing	Indep	135	75	25	2 427	Rotating	3	July & Sept	(40)	Req	30	\$7 50
Edward W. Sparrow Hospital	Lansing	Chrch	128	73	27	2 506	Rotating	1	July	No	Req	24	\$10
St Lawrence Hospital	Muskegon	Indep	140	83	17	2 600	Rotating	2	July	No	None	15	\$35
Heckley Hospital	Muskegon	Indep	156	19	81	2 210	Rotating	1	July	(41)	Req	43	\$50
Mercy Hospital	Saginaw	Chrch	170	29	71	3 990	Rotating	2	July	No	None	55	\$30
Saginaw General Hospital	Saginaw	Chrch	200	58	42	4 471	Mixed	7	July	No	Req	38	\$25
St Mary's Hospital	Duluth	Indep	145	58	42	2 061	Rotating	3	July	No	Req	20	\$45
MINNESOTA													
St Luke's Hospital	Duluth	Chrch	120	64	36	2 781	Mixed	5	Jan & July	(42)	Req	62	\$12 50
St Mary's Hospital	Duluth	Chrch	225	14	86	3 174	Rotating	2	Jan & July	No	Req	39	\$25
Ashbury Hospital	Minneapolis	Chrch	150	65	35	2 818	Mixed	5	Jan & July	No	None	32	\$25
Eitel Hospital	Minneapolis	City	674	98	2	13 006	Rotating	24	Jan & June	(43)	Req	29	\$25
Fairview Hospital	Minneapolis	Chrch	165	13	87	3 770	Rotating	4	Jan & July	No	None	27	\$25
Lutheran Deaconess Home and Hospital	Minneapolis	Chrch	200	42	58	2 452	Mixed	2	Jan & July	No	Req	47	No
St Barnabas Hospital	Minneapolis	Indep	313	13	87	4 285	Mixed	6	July	No	None	36	\$25(d)
St Mary's Hospital	Minneapolis	Chrch	100	99	1	11 097	Rotating	21	Apr & July	No	Op	29	\$25
Swedish Hospital	Minneapolis	State	410	69	31	2 093	Mixed	3	July	(44)	Req	71	\$15(f)
University Hospitals	St Paul	Chrch	242	69	31	2 811	Rotating	6	July	No	Req	64	No
Ancker Hospital	St Paul	Indep	162	50	50	4 789	Rotating	2	July	No	None	30	\$25
Bethesda Hospital	St Paul	Chrch	270	50	50	4 789	Rotating	2	July	No	Req	61	No
Charles T. Miller Hospital	St Paul	Co	225	91	9	4 129	Rotating	5	July	No	Req	31	\$25
Northern Pacific Beneficial Association Hospital	St Paul	City	475	100	0	8 615	Rotating	24	July	(43)	Req	21	\$25
St Joseph's Hospital	Clayton	Indep	274	100	0	2 545	Rotating	12	July	No	Op	20	\$25
MISSOURI													
Kansas City General Hospital	Kansas City	Indep	266	95	5	2 423	Rotating	5	July	No	Req	75	\$25
Kansas City General Hospital No 2 (col)	Kansas City	Chrch	262	41	59	3 617	Rotating	4	July	No	Req	47	\$25
Menorah Hospital	Kansas City	Chrch	192	41	59	3 460	Mixed	5	July	No	Req	54	\$25
Research Hospital	Kansas City	Chrch	181	31	69	3 201	Rotating	4	July	No	Req	69	\$25
St Joseph Hospital	Kansas City	Chrch	149	15	85	2 990	Rotating	4	July	No	None	57	\$25
St Luke's Hospital	Kansas City	Chrch	220	30	70	1 962	Rotating	4	July	No	Op	80	\$25
St Mary's Hospital	Kansas City	Chrch	141	35	65	4 255	Rotating	4	July	No	None	87	\$25
Trinity Lutheran Hospital	St Joseph	Chrch	250	48	52	2 063	Rotating	2	July	No	None	59	\$25
St Joseph's Methodist Hospital	St Joseph	Indep	162	35	65	1 377	Mixed	4	July	No	Req	26	\$50
Alexian Bros. Hosp (male patients only)	St Louis	Chrch	285	26	74	1 260	Straight	32	Jan & July	(45)	Req	18	\$30
Barnes Hospital	St Louis	Chrch	185	17	83	4 800	Rotating	7	July	(46)	Req	19	\$25
Christian Hospital	St Louis	Indep	290	86	14	3 592	Rotating	5	July	No	Req	66	No
De Paul Hospital	St Louis	Chrch	180	80	20	4 612	Rotating	10	July	No	Req	26	\$25(k)
Evangelical Deaconess Home and Hosp	St Louis	Chrch	500	20	80	3 070	Mixed	3	July	No	None	17	\$25
Lutheran Hospital	St Louis	Chrch	250	28	72	4 469	Mixed	9	July	(47)	Req	38	\$15
Missouri Baptist Hospital	St Louis	City	348	17	83	4 614	Rotating	5	July	No	Req	18	\$25
St Anthony's Hospital	St Louis	Chrch	385	100	0	3 353	Rotating	9	July	(48)	Req	26	\$25
St John's Hospital	St Louis	Chrch	335	100	0	8 129	Rotating	20	July	No	Op	31	\$10
St Louis City Hospital	St Louis	Chrch	210	49	51	3 976	Rotating	7	July	No	Req	30	\$20
St Louis City Hospital No 2 (col)	St Louis	Chrch	607	68	32	7 810	Rotating	26	July	No	None	25	\$9(f)
St Mary's Group of Hospitals	St Louis	Indep	132	100	0	1 537	Mixed	2	Jan & July	No	Req	16	\$10(f)
Murray Hospital	Butte	Chrch	144	35	65	1 780	Rotating	2	July	No	Req	47	No
St James Hospital	Butte	Indep	160	70	30	1 379	Mixed	2	July	No	Req	30	\$40
NEBRASKA													
St Francis Hospital	Grand Island	Indep	162	81	19	3 372	Rotating	2	July	No	None	18	\$20(e)
Lincoln General Hospital	Lincoln	Chrch	200	81	19	3 372	Rotating	2	July	No	Req	33	\$25
Bishop Clarkson Hospital	Lincoln	Chrch	108	75	25	1 947	Rotating	3	July	No	None	16	\$35
Crelighton Memorial St Joseph's Hosp	Omaha	Chrch	433	84	16	5 247	Rotating	10	July	No	Op	35	\$25
Douglas County Hospital	Omaha	Co	430	100	0	3 149	Rotating	4	July	No	Req	60	\$25
Immanuel Covenant Hospital	Omaha	Chrch	125	61	39	1 879	Rotating	3	June	No	Req	18	\$35
Nebraska Deaconess Institute	Omaha	Chrch	295	16	84	2 692	Rotating	4	July	No	None	35	\$20(f)
St Catherine's Methodist Episcopal Hosp	Omaha	State	175	14	86	3 028	Rotating	4	July	No	Req	27	\$25
University of Nebraska Hospital	Omaha	Indep	142	18	82	2 744	Rotating	4	July	No	None	15	\$25
NEW HAMPSHIRE													
Mary Hitchcock Memorial Hospital	Hanover	Indep	316	73	27	4 932	Rotating	8	Jan & July	(49)	Req	57	\$100 yr
NEW JERSEY													
Atlantic City Hospital	Atlantic City	Indep	225	85	15	3 845	Rotating	5	July	No	Req	23	\$22 50
Bayonne Hospital and Dispensary	Bayonne	Indep	301	73	27	7 091	Rotating	10	July	No	Req	40	\$25
Cooper Hospital	Camden	Indep	267	73	27	3 678	Rotating	7	July	No	Req	38	\$10
West Jersey Homeopathic Hospital	Camden	Indep	120	63	37	2 423	Mixed	2	July	No	Req	40	\$20
Homeopathic Hospital of Essex County	East Orange	Chrch	175	70	30	1 780	Mixed	2	July	No	Req	29	\$15
Arden Bros Hosp (male patients only)	Elizabeth	Indep	226	66	34	4 803	Rotating	8	July & Aug	(110)	Req	36	\$75
Elizabeth General Hospital and Dispensary	Elizabeth	Indep	233	82	18	4 020	Rotating	5	July	No	Req	23	\$40
Englewood Hospital	Englewood	Chrch	260	83	17	6 627	Rotating	8	July	No	Req	29	\$15
Hackensack Hospital	Hackensack	Chrch	460	95	5	17 903	Rotating	9	July	(50)	Req	35	\$20
St Mary Hospital	Hoboken	City	218	23	77	3 693	Rotating	6	July & Oct	(51)	Req	21	\$25
Medical Center of Jersey City	Jersey City	Chrch	1 200	95	5	17 903	Rotating	9	July	(52)	Req	16	\$25
St Francis Hospital	Jersey City	Indep	215	72	28	4 020	Rotating	9	July	(53)	Req	22	No
Monmouth Memorial Hospital	Jersey City	Indep	300	63	37	4 874	Rotating	9	Jan & July	No	Req	25	\$25
Mountainside Hospital	Montclair	Indep	300	63	37	4 874	Rotating	9	Jan & July	No	Req	25	\$25

Numerical and other references will be found on page 596

Name of Hospital	Location	Control	Capacity	Classification of Patients			Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free and Part Pay	Full Pay	Total Patients Treated								
NEW JERSEY—Continued														
All Souls Hospital	Morristown	Chrch	159			1 670	Mixed	2	12	July & Sept	No	Req	47	\$35
Morristown Memorial Hospital <sup>1</sup>	Morristown	Indep	160	40	55	2 924	Rotating	4	12	(1 m)	No	Req	25	\$40
Fitch Memorial Hospital	Neptune	Indep	173			2 910	Rotating	7	12	Jan & July	No	Req	23	\$25
Hospital of St Barnabas and for Women and Children	Newark	Chrch	266	43	57	5 458	Rotating	3	12	July	No	Req	22	\$45
Newark Beth Israel Hospital	Newark	Indep	414	50	50	8 490	Rotating	12	12	(1 n)	No	Req	49	\$100 fr
Newark City Hospital <sup>1</sup>	Newark	City	770	100		17 647	Rotating	21	24	(1 c)	No	Op	50	No
Newark Memorial Hospital	Newark	InJep	157	68	32	1 843	Rotating	4	12	July	No	Req	22	\$25
Presbyterian Hospital	Newark	Chrch	237	11	89	5 047	Mixed		12	July	No	Req	36	
St James Hospital <sup>1</sup>	Newark	Chrch	125	54	46	1 996	Mixed	3	12	July	No	Req	17	\$35
St Michael's Hospital	Newark	Chrch	319	96	4	4 161	Mixed	7	12	July & Aug	(52)	Req	44	\$30
St Peter's General Hospital	New Brunswick	Chrch	203	59	41	3 400	Rotating	4	12	July & Sept	No	Req	24	(1)
Orange Memorial Hospital	Orange	Indep	388	60	40	6 088	Rotating	8	12	July	No	Req	29	\$25
Passaic General Hospital <sup>1</sup>	Passaic	Indep	225	73	27	4 003	Rotating	4	12	July	No	Req	25	\$25
St Mary's Hospital	Passaic	Chrch	225	54	46	2 948	Rotating	3	12	July	No	Req	16	\$50
Nathan and Miriam Barnert Memorial Hospital	Paterson	Indep	117			2 254	Rotating	4	12	July & Oct	No	Req	29	\$15-90
Paterson General Hospital	Paterson	Indep	326	80	20	5 163	Rotating	7	18	Jan & July	No	Op	18	\$12.50(h)
Muhlenberg Hospital	Plainfield	Indep	215	73	27	4 573	Rotating	5	12	July	No	Req	41	\$25
Holy Name Hospital	Plainfield	Chrch	220	49	51	3 063	Rotating	5	12	July	(50)	Op	15	\$20
Mercer Hospital	Trenton	Indep	250	59	41	3 909	Rotating	5	12	July	No	Req	31	\$27
St Francis Hospital	Trenton	Chrch	370	96	4	4 692	Rotating	8	12	July	No	Req	16	\$25
William McKinley Memorial Hospital	Trenton	Indep	166			2 529	Rotating	4	12	July	No	None	19	\$25
North Hudson Hospital	Weehawken	Indep	190	60	40	2 290	Rotating	6	24	July	(50)	Req	16	\$25
NEW YORK														
Albany Hospital <sup>1</sup>	Albany	Indep	537	86	14	8 822	Mixed	16	12	July	No	Req	68	No
Memorial Hospital <sup>1</sup>	Albany	Indep	140	46	54	2 645	Mixed	5	12	July & Sept	No	Op	26	\$25
St Peter's Hospital	Albany	Chrch	150	41	59	2 700	Mixed	5	12	July	(55)	Req	37	\$40
Auburn City Hospital	Auburn	Indep	157	70	30	2 863	Rotating	2	12	July	No	Req	23	\$25
Binghamton City Hospital	Binghamton	City	450	63	37	9 175	Rotating	10	24	July	No	Req	19	No
Beth El Hospital	Brooklyn	Indep	239	73	27	4 507	Rotating	15	18	Jan & July	No	Req	24	No
Beth Moses Hospital	Brooklyn	Indep	224	45	55	4 289	Rotating	16	24	Jan & July	No	Req	18	No
Brooklyn Hospital	Brooklyn	Indep	322	28	72	6 736	Rotating	14	24	July	No	Op	36	No
Caledonian Hospital <sup>1</sup>	Brooklyn	Indep	130	57	43	1 236	Rotating	2	12	June	No	Req	26	\$25
Coney Island Hospital <sup>1</sup>	Brooklyn	City	300	100		7 853	Rotating	20	24	July	No	Req	34	No
Cumberland Hospital	Brooklyn	City	321	100		7 982	Rotating	24	24	July	No	Req	40	No
Greenpoint Hospital	Brooklyn	City	368	100		8 638	Rotating	16	24	July	No	Req	37	No
Israel Zion Hospital	Brooklyn	Indep	410	41	59	7 769	Rotating	24	24	Jan & July	(56)	Req	27	No
Jewish Hospital <sup>1</sup>	Brooklyn	Indep	674	49	51	12 893	Rotating	53	30	Jan & July	(56)	Req	43	No
Kings County Hospital	Brooklyn	City	1 660	100		35 785	Rotating	72	18	(1 o)	No	Req	19	No
Long Island College Hospital	Brooklyn	Indep	480	49	51	7 609	Straight	15	12	July	No	Req	46	No
Methodist Episcopal Hospital	Brooklyn	Chrch	480	41	59	9 002	Rotating	12	24	July	No	Op	31	No
Norwegian Lutheran Deaconess Home and Hospital <sup>1</sup>	Brooklyn	Chrch	104	51	49	3 545	Rotating	9	12	July	No	Req	30	No
St Catherine's Hospital	Brooklyn	Chrch	308	35	61	5,233	Rotating	12	24	July	No	Req	23	No
St John's Hospital	Brooklyn	Chrch	234	56	44	4 844	Rotating	11	24	July	No	Req	64	No
St Mary's Hospital	Brooklyn	Chrch	330	81	19	4 884	Rotating	14	24	July	No	Req	15	No
St Peter's Hospital	Brooklyn	Chrch	264	83	17	2 754	Rotating	6	12	July	No	None	24	No
Trinity Hospital	Brooklyn	Indep	115	94	6	2 619	Rotating	10	12	July	No	Req	25	No
Wyckoff Heights Hospital	Brooklyn	Indep	200	76	24	3 865	Rotating	9	18	(1 p)	No	Req	22	No
Buffalo and Emergency Hospitals of the Sisters of Charity	Buffalo	Chrch	342	70	21	6 784	Rotating	16	12	July	(57)	Req	24	\$25
Buffalo City Hospital <sup>1</sup>	Buffalo	CyCo	1 065	98	2	12 879	Mixed	17	12 36	July	No	Req	35	\$50
Buffalo General Hospital	Buffalo	Indep	462	49	51	8 803	Rotating	14	12	July	(58)	Req	38	No
Deaconess Hospital	Buffalo	Indep	225	39	61	3 880	Rotating	6	12	July	No	None	22	\$25
Mercy Hospital	Buffalo	Chrch	210	55	42	3 485	Rotating	4	12	July	No	Req	15	\$20
Millard Tiltmore Hospital	Buffalo	Indep	309	58	42	5 132	Rotating	6	12	July	No	Req	49	\$75
Arnot Ogden Memorial Hospital	Elmira	Indep	213	61	37	3 932	Mixed	2	12	July	No	Req	23	\$75(h)
St Joseph's Hospital <sup>1</sup>	Elmira	Chrch	216	60	40	3 889	Rotating	2	12	July	No	None	18	\$35
Ideal Hospital	Endicott	City	143	5	91	3 027	Mixed	3	12	July	No	None	37	\$50
Flushing Hospital and Dispensary	Flushing	Indep	248	44	56	6 524	Rotating	8	24	July	No	Req	16	\$75
Mary Immaculate Hospital	Jamaica	Chrch	319	48	52	4 904	Rotating	14	24	July	No	Req	29	No
Charles S Wilson Memorial Hospital	Johnson City	Indep	219	6	95	3 173	Rotating	3	12	July	No	Req	49	\$50
Our Lady of Victory Hospital	Lackawanna	Chrch	150	64	36	1 846	Rotating	3	12	July	No	Req	19	\$50
St John's Long Island City Hospital	Long Island City	Chrch	304	64	36	7 491	Rotating	16	24	July	No	Req	48	No
Nassau Hospital	Mineola	Indep	205	73	27	5 015	Rotating	6	18	Jan & July	No	None	23	\$75-50
Mount Vernon Hospital <sup>1</sup>	Mount Vernon	Indep	192	42	58	3 683	Rotating	6	24	July	No	Req	16	\$75
New Rochelle Hospital	New Rochelle	Indep	147	52	48	4 399	Rotating	6	12	July	No	Req	37	\$25
Bellevue Hospital <sup>1</sup>	New York	City	2 084	100		62 021	Straight	89	12 24	Jan & July	No	Req	23	No
Beth David Hospital	New York	Indep	128	75	25	2 350	Rotating	6	24	Jan & July	No	Req	41	No
Beth Israel Hospital <sup>1</sup>	New York	Indep	438	69	91	6 509	Mixed	24	12 & 24	July	No	Op	50	No
Bronx Hospital	New York	Indep	313	46	54	6 323	Rotating	16	24	(1 a)	No	Req	22	No
Columbus Hospital	New York	Chrch	300	70	30	2 884	Rotating	8	18	July & Oct	No	Req	15	No
Fifth Avenue Hospital	New York	Indep	300	45	55	5 376	Straight	9	12 & 15	(1 c)	No	Req	40	No
Fordham Hospital	New York	City	609	100		12 648	Straight	28	12 & 24	(1 r)	No	Op	33	No
French Hospital	New York	Indep	200	22	78	3 371	Straight	10	18 & 24	(1 c)	No	Op	33	No
Gouverneur Hospital	New York	City	279	100		4 684	Mixed	16	12 & 24	Jan & July	No	Op	24	No
Harlem Hospital <sup>1</sup>	New York	City	377	100		9 797	Rotating	35	24	Jan & July	No	Op	33	No
Hospital for Joint Diseases	New York	Indep	355	50	40	5 438	Rotating	12	24	Jan & July	(54)	Req	46	No
Knickbocker Hospital	New York	Indep	204	81	19	3 488	Rotating	8	24	(1 c)	No	Req	25	No
Lebanon Hospital	New York	Indep	182	92	8	3 233	Straight	11	20 28	(1 j)	No	Req	34	No
Lenox Hill Hospital <sup>1</sup>	New York	Indep	534	18	82	7 880	Straight	24	24	Jan & July	No	Req	30	(o)
Lincoln Hospital	New York	City	213	100		6 380	Rotating	20	24	Jan & July	No	Req	37	No
Manhattan General Hospital	New York	Indep	150	13	87	2 998	Rotating	4	12	Jan & July	No	Req	23	No
Metropolitan Hospital <sup>1</sup>	New York	City	1 620	100		15 569	Rotating	36	24	July	No	Req	24	No
Montefiore Hosp for Chronic Diseases <sup>1</sup>	New York	Indep	706	89	11	2 256	Mixed	11	12	Jan & July	No	Req	63	\$25
Morrisania City Hospital <sup>1</sup>	New York	City	539	100		13 270	Rotating	55	24	Jan & July	No	Req	33	No
Mount Sinai Hospital <sup>1</sup>	New York	Indep	754	95	5	11 701	Mixed	37	12 30	Jan & July	No	Op	53	(p)
New York City Hospital	New York	City	1 060	100		10 448	Straight	27	18	Jan & July	No	Req	30	No
New York Homeopathic Medical College and Flower Hospital <sup>1</sup>	New York	Indep	225	80	20	5 318	Rotating	15	12	July	(60)	Req	22	No
New York Hospital <sup>1</sup>	New York	Indep	823	76	24	11 454	Straight	30	12	Sept	No	Req	58	No
New York Infirmary for Women and Children <sup>1</sup>	New York	Indep	155	85	15	2 171	Rotating	5	12	(1 s)	No	Req	60	(1)
New York Polyclinic Medical School and Hospital	New York	Indep	345	42	53	6 790	Rotating	8	24	(1 c)	No	Req	24	No
New York Post Graduate Medical School and Hospital	New York	Indep	415	16	84	8 940	Straight	32	24 23	Varies	No	Req	36	No
Presbyterian and Sloane Hospitals <sup>1</sup>	New York	Indep	963			12 533	Straight	43	12 25	(1 j)	No	Req	43	No

Numerical and other references will be found on page 596

Name of Hospital	Location	Control	Capacity	Classification of Patients		Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free and Part Pay	Full Pay									
NEW YORK—Continued														
Roosevelt Hospital	New York	Indep	379	70	80	5,686	Straight	10	24	Jan & July	No	Req	27	No
St Francis Hospital	New York	Chrch	425	88	12	5,189	Mixed	8	24	Jan & July	No	None	15	No
St Luke's Hospital	New York	Chrch	540	60	81	8,24	Mixed	10	24	Jan & July	No	Req	46	No
St Vincent's Hospital	New York	Chrch	465	62	38	9,287	Rotating	32	24	Jan & July	No	Req	31	No
Sydenham Hospital	New York	Indep	200	20	80	3,936	Rotating	8	24 27	Jan & July	No	Req	21	No
United Hospital	Port Chester	Indep	236	31	69	3,338	Rotating	5	12	July	No	Req	35	\$40(d)
Vassar Brothers Hospital	Poughkeepsie	Indep	248	30	68	3,849	Rotating	4	12	July	No	Req	21	\$30(e)
Jamaica Hospital	Richmond Hill	Indep	171	32	68	3,538	Rotating	8	18	(1 c)	No	Req	25	\$15
Genesee Hospital	Rochester	Indep	225	68	34	4,109	Rotating	6	12	July	No	Req	35	\$15
Highland Hospital	Rochester	Indep	177	89	11	3,229	Rotating	5	12	July	No	Req	28	\$22.50
Rochester General Hospital	Rochester	Indep	365	67	33	6,023	Rotating	8	12	July	No	Req	64	\$4
St Mary's Hospital	Rochester	Chrch	201	61	39	3,648	Rotating	5	12	July	No	Req	24	\$2.4(q)
Strong Memorial and Rochester Municipal Hospitals	Rochester	Ind Cy	560	80	20	10,000	Straight	31	12	July & Sept	No	Req	63	No
Ellis Hospital	Schenectady	Indep	235	23	77	6,045	Rotating	8	12	July	No	Req	19	No
St Vincent's Hospital	Staten Island	Chrch	255	68	34	5,438	Rotating	6	18	(1 c)	No	Req	15	No
Staten Island Hospital	Staten Island	Indep	275	70	21	5,160	Mixed	6	18	(1 c)	No	Req	31	No
General Hospital of Syracuse	Syracuse	Indep	110	78	22	2,466	Rotating	2	12	July	No	Req	28	\$10
Hospital of the Good Shepherd Syracuse University	Syracuse	Indep	242	36	64	4,826	Rotating	8	12	July & Aug	(60)	None	34	No
St Joseph Hospital	Syracuse	Chrch	231	81	19	4,720	Mixed	6	12	July	No	None	26	No
Syracuse Memorial Hospital	Syracuse	Indep	240	79	21	5,91	Rotating	7	12	July	No	Req	34	No
Samaritan Hospital	Troy	Indep	185	71	22	2,230	Rotating	3	12	(1 h)	No	Req	21	\$40
Troy Hospital	Troy	Chrch	222	60	60	8,24	Rotating	4	12	July	(55)	Op	40	\$30
Grasslands Hospital	Valhalla	Co	933	91	9	6,663	Rotating	18	18	Jan & July	No	Req	67	(r)
St Johns Riverside Hospital	Yonkers	Chrch	223	48	62	3,937	Rotating	5	12 15	Jan & July	No	Req	35	\$0
Yonkers General Hospital	Yonkers	Indep	197	77	23	2,943	Rotating	4	12	Jan & July	No	Req	20	\$25-50(d)
NORTH CAROLINA														
Duke Hospital	Durham	Indep	454	95	5	5,823	Straight	20	12	July & Sept	No	Req	59	No
Lincoln Hospital (col)	Durham	Indep	108	85	15	1,54	Rotating	3	12	(1 t)	No	Req	34	\$5
Watts Hospital	Durham	Indep	210	68	32	3,337	Rotating	4	12	July	No	Req	35	\$15(d)
Highsmith Hospital	Fayetteville	Indep	106	71	29	1,973	Mixed	2	12	July	No	Req	21	\$25
L Richardson Memorial Hospital (col)	Greensboro	Indep	64	85	14	832	Rotating	2	12	July	No	Req	23	\$0
Rex Hospital	Raleigh	CyCo	123	69	41	2,860	Mixed	8	12	July	No	Req	16	\$2.50
St. Agnes Hospital (col)	Raleigh	Chrch	100	25	75	840	Mixed	3	12	July & Sept	No	Req	34	No
Park View Hospital	Rocky Mount	Indep	110	61	39	1,831	Mixed	2	12	July	No	Req	23	\$25
Davis Hospital	Statesville	Indep	142	71	29	2,561	Mixed	1	12	July	No	Req	15	No
James Walker Memorial Hospital	Wilmington	Indep	172	71	29	3,51	Rotating	4	12	July	No	Req	15	\$25(d)
City Memorial Hospital	Winston Salem	City	236	67	33	3,290	Rotating	7	12	July	(61)	Req	21	\$15(s)
NORTH DAKOTA														
St John's Hospital	Fargo	Chrch	165	36	64	2,632	Mixed	2	12	July	No	None	53	\$20
OHIO														
City Hospital	Akron	Indep	350	60	40	5,664	Rotating	12	12	July	(62)	Req	64	\$20
Peoples Hospital	Akron	Indep	156	27	78	2,30	Rotating	4	12	July	(62)	Req	33	\$25
St Thomas Hospital	Akron	Chrch	183	68	82	2,811	Rotating	4	12	July	No	None	52	\$30
Mercy Hospital	Canton	Chrch	206	79	21	3,640	Mixed	2	12	July	No	None	31	\$25
Bethesda Hospital	Cincinnati	Chrch	226	68	32	4,593	Rotating	7	12	July	(51)	Req	17	\$2 (t)
Christ Hospital	Cincinnati	Chrch	806	71	29	4,397	Rotating	8	12	July	(63)	Req	26	\$22.50
Cincinnati General Hospital	Cincinnati	City	925	100	10	16,777	Rotating	30	12	July	(64)	Req	45	No
Dracena Hospital	Cincinnati	Chrch	175	57	43	2,984	Mixed	4	12	July	(65)	None	38	\$25
Good Samaritan Hospital	Cincinnati	Chrch	535	71	29	7,834	Rotating	12	12	June	No	Req	24	\$12.50
Jewish Hospital	Cincinnati	Indep	262	62	38	3,505	Rotating	8	12	July	(66)	None	23	\$20
St Mary Hospital	Cincinnati	Chrch	210	88	12	3,529	Rotating	5	12	July	No	Req	21	\$25
Charity Hospital	Cleveland	Chrch	301	61	49	4,540	Rotating	12	12	July	(67)	Req	38	No
City Hospital	Cleveland	City	1,550	100	10	11,747	Rotating	30	12	July	No	Req	44	No
Huron Road Hospital	Cleveland	Indep	120	36	64	1,912	Rotating	4	12	July	No	Req	57	\$0
Mount Sinai Hospital	Cleveland	Indep	210	87	13	6,671	Rotating	10	12	July	(68)	Req	33	\$0
St Alexis Hospital	Cleveland	Chrch	230	28	72	3,472	Rotating	8	12	July	(67)	Req	15	\$10
St John's Hospital	Cleveland	Chrch	207	94	6	3,677	Rotating	6	12	July	No	None	18	\$12.50
St Luke's Hospital	Cleveland	Chrch	394	20	80	5,915	Rotating	15	12	July	No	Req	28	No
University Hospitals	Cleveland	Indep	539	55	45	12,003	Rotating & Str	30	12 24	(1 r)	(69)	Req	59	(n)
Womans Hospital	Cleveland	Indep	120	87	13	1,613	Rotating	3	12	July	(70)	None	33	\$25
Grant Hospital	Columbus	Indep	333	76	24	4,661	Rotating	8	12	July	(71)	None	22	\$25
Mount Carmel Hospital	Columbus	Chrch	238	13	87	3,531	Rotating	5	12	July	(71)	None	16	\$25
St Francis Hospital	Columbus	Chrch	158			3,284	Rotating	8	12	July	(72)	Op	39	\$125 yr
Starling Loving University Hospital	Columbus	State	271	74	26	4,742	Rotating	9	12	July	No	Req	41	(t)
White Cross Hospital	Columbus	Chrch	271	18	82	3,451	Rotating	6	12	July	No	Req	31	\$25
Miami Valley Hospital	Dayton	Indep	383	74	26	6,951	Rotating	12	12	July	(73)	Req	66	\$25
St Elizabeth Hospital	Dayton	Chrch	420	23	77	6,603	Rotating	8	12	July	No	Req	28	No
Elyria Memorial Hospital	Elyria	Indep	154			1,827	Mixed	1	12	July	No	Op	16	\$25
Mercy Hospital	Hamilton	Chrch	270	80	20	2,025	Rotating	2	12	July	No	Req	30	\$2.5(u)
Springfield City Hospital	Springfield	City	263	73	27	2,912	Rotating	6	12	July	No	Req	24	\$25
Flower Hospital	Toledo	Chrch	125	67	43	1,787	Rotating	2	12	July	No	None	37	\$0
Lucas County General Hospital	Toledo	Co	315	100		4,454	Rotating	10	12	July	No	Req	38	\$25
Mercy Hospital	Toledo	Chrch	126	78	22	1,832	Rotating	2	12	July	No	Op	17	\$25
St Vincent's Hospital	Toledo	Chrch	344	63	37	8,260	Rotating	8	12	July	No	Req	15	\$25
Toledo Hospital	Toledo	Indep	275	74	26	2,172	Rotating	6	12	July	No	None	35	\$25
St Elizabeth's Hospital	Youngstown	Chrch	300			3,559	Rotating	5	12	July	No	Req	18	\$20(e)
Youngstown Hospital	Youngstown	Indep	450	52	48	5,845	Rotating	11	12	July	No	Req	33	\$20
OKLAHOMA														
Oklahoma City General Hospital	Oklahoma City	Indep	112			2,977	Mixed	4	12	July	No	Req	17	\$25
St Anthony Hospital	Oklahoma City	Chrch	290	74	26	5,731	Mixed	8	12	July	No	None	35	\$15
State University Hospitals	Oklahoma City	State	467	91	9	5,955	Rotating	14	12	July	No	Req	42	\$10
Wiley Hospital	Oklahoma City	Indep	175			3,272	Mixed	3	12	July	No	None	21	\$2.5(f)
Morningside Hospital	Tulsa	Indiv	249	45	55	4,850	Rotating	4	12	July	No	Req	18	\$2.5(d)
St John's Hospital	Tulsa	Chrch	273	56	44	3,960	Rotating	5	12	July	No	Req	29	\$2.5(w)
OREGON														
Emanuel Hospital	Portland	Chrch	304			4,602	Rotating	7	12	July	(74)	None	35	\$20
Good Samaritan Hospital	Portland	Chrch	300	9	91	4,941	Rotating	7	12	July	No	None	39	\$20
Portland Sanitarium and Hospital	Portland	Chrch	130	41	59	3,596	Mixed	2	12	July	No	None	59	\$7.5(a)
St. Vincent's Hospital	Portland	Chrch	402			8,221	Rotating	7	12	July	No	Req	43	\$25
Univ of Oregon Medical School Hosps	Portland	Co Sta	408	99	1	6,960	Rotating	10	12	July	(75)	Req	43	\$20
PENNSYLVANIA														
Abington Memorial Hospital	Abington	Indep	275	61	39	4,663	Rotating	4	24	July	No	Req	42	No
Allentown Hospital	Allentown	Indep	325	53	47	5,977	Rotating	8	12	July	No	Req	31	No
Sacred Heart Hospital	Allentown	Chrch	300	71	29	3,068	Rotating	5	12	July	No	Req	30	No
Altoona Hospital	Altoona	Indep	180	48	52	2,395	Rotating	5	12	July	No	Req	35	\$25
Mercy Hospital	Altoona	Indep	124	52	48	2,06	Rotating	4	12	July	No	Req	17	\$25
St Luke's Hospital	Bethlehem	Indep	216	73	27	3,844	Rotating	8	12	July	No	Req	42	(d)
Braddock General Hospital	Braddock	Indep	136	72	28	1,849	Rotating	4	12	July	No	Req	40	



Name of Hospital	Location	Control	Capacity	Percentage		Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free and Part Pay	Full Pay									
PENNSYLVANIA—Continued														
Bryn Mawr Hospital	Bryn Mawr	Indep	262	40	60	4 478	Rotating	8	12	July	No	Req	34	No
Chester Hospital <sup>1</sup>	Chester	Indep	285	02	38	3 470	Rotating	6	12	July	No	Req	13	\$15
G. F. Gelsinger Memorial Hospital	Danville	Indep	200	34	66	3 860	Rotating	8	12	July	No	Req	36	No
Easton Hospital <sup>1</sup>	Easton	Indep	220	57	43	4 698	Rotating	7	12	July	No	Req	32	(u)
Hamot Hospital	Erie	Indep	255	67	33	5 400	Rotating	7	12	July	No	Req	33	\$9
St. Vincent's Hospital	Erie	Chrch	214	57	43	5 868	Rotating	8	12	July	No	Req	24	\$15(e)
Harrisburg Hospital	Harrisburg	Indep	271	59	41	4 028	Rotating	8	12	July	No	Req	33	\$2
Harrisburg Polyclinic Hospital <sup>1</sup>	Harrisburg	Indep	188	48	52	3 260	Rotating	4	12	July	No	Req	26	\$50
Conemaugh Valley Memorial Hospital	Johnstown	Indep	290	64	36	4 534	Rotating	6	12	July	No	Req	21	No
Lancaster General Hospital <sup>1</sup>	Lancaster	Indep	213	48	52	4 853	Rotating	6	12	July	No	Req	49	\$17 50
McKeesport Hospital	McKeesport	Indep	263	62	38	3 967	Rotating	6	12	July	No	Req	15	\$75
Jameson Memorial Hospital	New Castle	Indep	154	31	69	2 510	Rotating	4	12	July	No	None	21	\$15
Montgomery Hospital <sup>1</sup>	Norristown	Indep	110	51	49	2 547	Rotating	4	12	July	No	Req	32	\$30
Chestnut Hill Hospital	Philadelphia	Indep	114	42	58	2 216	Rotating	4	12	July	No	Req	25	\$50
Frankford Hospital	Philadelphia	Indep	142	51	49	3 073	Rotating	7	12	July	No	Req	19	No
Germanatown Dispensary and Hospital	Philadelphia	Indep	360	47	33	7 530	Rotating	12	24	July	No	Req	29	No
Graduate Hospital of the University of Pennsylvania	Philadelphia	Indep	415	43	57	7 325	Rotating	16	24	July	(76)	Req	46	No
Hahnemann Hospital	Philadelphia	Indep	592	42	58	12 835	Rotating	24	24	July	(111)	Req	49	No
Hospital of the Protestant Episcopal Church	Philadelphia	Chrch	525	96	4	6 282	Rotating	16	24	Jan. & July	No	Req	39	No
Hosp. of the Univ. of Pennsylvania <sup>1</sup>	Philadelphia	State	594	60	40	9 233	Rotating	23	24	July	No	Req	54	No
Hosp. of the Woman's Medical College <sup>2</sup>	Philadelphia	Indep	173	87	13	2 435	Rotating	6	12	July & Sept	No	Req	43	No
Jefferson Medical College Hospital	Philadelphia	Indep	688	70	24	14 323	Rotating	28	27	June	No	Req	44	No
Jewish Hospital <sup>1</sup>	Philadelphia	Indep	422	42	58	6 556	Rotating	18	24	June	(77)	Req	44	No
Lankenau Hospital	Philadelphia	Indep	298	48	52	3 963	Rotating	10	24	July	(78)	Req	40	No
Mercy Hospital <sup>1</sup> (col)	Philadelphia	Indep	120	96	4	1 024	Rotating	5	12	July	No	Req	53	No
Methodist Episcopal Hospital <sup>1</sup>	Philadelphia	Chrch	247	55	45	3 433	Rotating	7	12	July	No	Req	34	No
Misericordia Hospital <sup>1</sup>	Philadelphia	Chrch	286	89	11	4 309	Rotating	9	12	July	No	Req	32	No
Mount Sinai Hospital	Philadelphia	Indep	316	61	39	6 063	Rotating	14	12	June	No	Op	73	No
Northeastern Hospital	Philadelphia	Indep	102	34	66	2 615	Rotating	4	12	July	No	Req	19	\$40
Pennsylvania Hospital	Philadelphia	Indep	560	87	13	9 228	Rotating	18	24	(1 w)	(79)	Req	45	No
Philadelphia General Hospital	City	Indep	2 515	98	2	27 073	Rotating	60	24	July	(77)	Req	47	No
Presbyterian Hospital	Philadelphia	Chrch	426	56	44	4 058	Rotating	12	24	July	No	Req	35	No
St. Agnes Hospital	Philadelphia	Chrch	415	68	32	5 528	Rotating	12	12	July	No	Req	22	No
St. Joseph's Hospital	Philadelphia	Chrch	221	60	40	2 008	Rotating	6	12	July	No	Req	19	No
St. Luke's and Children's Hospital	Philadelphia	Indep	263	67	33	3 507	Rotating	6	12	July	No	Req	15	No
St. Mary's Hospital	Philadelphia	Chrch	226	41	59	2 880	Rotating	7	12	July	No	Req	27	No
Temple University Hospital	Philadelphia	Indep	441	90	10	6 361	Rotating	16	24	July	(80)	Req	41	No
Woman's Hospital <sup>2</sup>	Philadelphia	Indep	125	60	40	2 488	Rotating	6	12	(1 h)	(81)	Req	36	No
Women's Homeopathic Hospital <sup>1</sup>	Philadelphia	Indep	200	77	23	2 915	Rotating	4	12	July	No	Req	22	\$20
Allegheny General Hospital <sup>1</sup>	Pittsburgh	Indep	405	58	42	5 814	Rotating	12	12	July	No	Req	25	No
Homeopathic Medical and Surgical Hospital and Dispensary <sup>1</sup>	Pittsburgh	Indep	315	56	44	4 954	Rotating	6	12	July	(82)	Req	27	No
Mercy Hospital	Pittsburgh	Chrch	670	65	35	8 541	Rotating	20	12	July	(83)	Req	30	No
Montefiore Hospital	Pittsburgh	Indep	225	52	48	4 183	Rotating	7	12	July	No	Req	20	\$10
Passavant Hospital <sup>1</sup>	Pittsburgh	Chrch	138	63	37	2 119	Rotating	5	12	July	No	Req	31	\$10
Pittsburgh Hospital	Pittsburgh	Indep	206	43	57	3 033	Rotating	5	12	July	No	Req	28	\$25
Presbyterian Hospital <sup>1</sup>	Pittsburgh	Chrch	153	51	49	2 354	Rotating	18	12	July	(84)	Req	28	No
St. Francis Hospital	Pittsburgh	Chrch	487	30	70	5 801	Rotating	14	13	July	(82)	Req	36	No
St. John's General Hospital	Pittsburgh	Chrch	202	36	64	2 729	Rotating	4	12	July	No	Req	25	\$25
St. Joseph Hospital	Pittsburgh	Chrch	140	93	7	1 753	Rotating	4	12	July	No	Req	25	No
St. Margaret Memorial Hospital	Pittsburgh	Chrch	152	82	18	1 962	Rotating	4	12	July	No	Req	40	No
South Side Hospital	Pittsburgh	Indep	225	76	24	3 640	Rotating	7	12	July	No	Req	28	No
Western Pennsylvania Hospital <sup>1</sup>	Pittsburgh	Indep	667	50	50	8 007	Rotating	18	12	July	No	Req	22	No
Pottsville Hospital <sup>1</sup>	Pottsville	Indep	140	71	29	2 617	Rotating	4	12	July	No	Req	25	\$25
Reading Hospital	Reading	Indep	268	57	43	4 209	Rotating	8	12	July	No	Req	70	No
St. Joseph's Hospital	Reading	Chrch	205	69	31	3 356	Rotating	6	12	July	(85)	Req	71	No
Robert Packer Hospital	Sayre	Indep	280	55	45	5 386	Rotating	8	12	July	No	Req	33	No
Hahnemann Hospital	Seranton	Indep	125	62	38	3 001	Rotating	4	12	July	No	Req	15	\$15 50
Moses Taylor Hospital	Seranton	Indep	100	90	10	1 490	Rotating	3	12	July	(86)	Req	29	\$27
Seranton State Hospital	Seranton	State	180	86	14	4 203	Rotating	8	12	July	No	Req	16	\$33
Uniontown Hospital	Uniontown	Indep	225	30	70	2 845	Rotating	5	12	July	No	Req	58	\$25
Washington Hospital	Washington	Indep	166	80	20	2 249	Rotating	4	12	July	No	Req	46	\$25
Chester County Hospital <sup>1</sup>	West Chester	Indep	102	64	36	2 523	Rotating	4	12	July	No	Req	34	\$25
Mercy Hospital <sup>1</sup>	Wilkes Barre	Chrch	220	71	29	4 026	Rotating	6	12	July	No	Req	23	(o)
Wilkes Barre General Hospital	Wilkes Barre	Indep	407	69	31	6 788	Rotating	10	12	July	No	Req	34	No
Columbia Hospital <sup>1</sup>	Wilkinsburg	Chrch	214	53	47	2 252	Rotating	5	12	July	No	Req	29	\$20
Williamsport Hospital <sup>1</sup>	Williamsport	Indep	275	67	33	3 226	Rotating	5	12	July	No	Req	33	\$25
Windler Hospital	Windber	Indep	111	10	90	1 319	Rotating	2	12	June	No	Req	23	No
York Hospital	York	Indep	190	72	28	3 375	Rotating	5	12	July	No	Req	21	\$25
RHODE ISLAND														
Memorial Hospital	Pawtucket	Indep	196	46	54	2 362	Rotating	6	12	(1 u)	No	Req	24	No
Homeopathic Hospital	Providence	Indep	200	87	13	3 158	Rotating	4	12	July	No	Req	21	\$40
Rhode Island Hospital	Providence	Indep	600	40	60	10 465	Rotating	28	24	Monthly	(87)	Req	41	No
St. Joseph's Hospital	Providence	Chrch	343	57	43	3 783	Rotating	6	24	(1 r)	No	Req	26	No
SOUTH CAROLINA														
Roper Hospital	Charleston	Indep	300	87	13	5 990	Rotating	15	12	July	No	Req	24	\$10
Columbia Hospital	Columbia	Co	295	59	41	3 208	Mixed	3	12	July	No	Req	19	\$40(d)
Greenville City Hospital	Greenville	City	149	74	26	3 415	Rotating	4	12	July	No	Req	34	\$25
Spartanburg General Hospital <sup>1</sup>	Spartanburg	Co	280	72	28	3 901	Rotating	5	12	July	No	Req	15	\$15(d)
TENNESSEE														
Baroness Erlanger Hospital	Chattanooga	CyCo	246	71	29	5 269	Rotating	10	12	Jan. & July	(88)	Req	23	\$25
Baptist Memorial Hospital	Memphis	Chrch	400	51	49	11 846	Rotating	12	18	(1 c)	No	None	18	\$20
Memphis General Hospital	Memphis	City	400	100		13 281	Rotating	18	18	Monthly	No	Req	16	\$20
Methodist Hospital	Memphis	Chrch	185			3 643	Mixed	2	12	Jan. & July	No	None	24	\$25
St. Joseph's Hospital	Memphis	Chrch	256	73	27	5 206	Mixed	4	12	(1 c)	No	Req	19	\$25
George W. Hubbard Hospital (col)	Nashville	Indep	163	98	2	2 367	Rotating	6	12	July	No	Req	33	\$15
Nashville General Hospital	Nashville	City	305	91	9	6 046	Rotating	10	12	July	No	Req	17	\$25
St. Thomas Hospital	Nashville	Chrch	225	64	6	4 088	Mixed	5	12	July	No	None	33	\$40
Vanderbilt University Hospital	Nashville	Indep	210	67	33	4 116	Straight	10	12	July	(89)	Req	63	\$23 75
TEXAS														
Hotel Dieu Hospital	Beaumont	Chrch	186	67	33	2 340	Mixed	2	12	July	No	Req	23	\$30
Baylor University Hospital <sup>1</sup>	Dallas	Chrch	379	23	77	8 080	Rotating	11	12	July	No	Req	36	\$25
Parkland Hospital	Dallas	CyCo	293	100		7 152	Mixed	10	12	Jan. & July	(90)	Req	17	\$25
St. Paul's Hospital	Dallas	Chrch	340	41	59	5 919	Mixed	8	12	July	No	Req	18	\$25
El Paso City County Hospital	El Paso	CyCo	165	100		3 174	Rotating	4	12	July	No	Req	60	\$50
City and County Hospital	Fort Worth	CyCo	125	100		3 713	Rotating	4	12	July	No	Req	16	\$25
Harris Clinic Hospital	Fort Worth	Indiv	100			2 106	Mixed	2	12	July	No	Req	19	No
St. Joseph's Hospital	Fort Worth	Chrch	201	53	47	2 506	Mixed	2	12	July	No	None	16	\$40

## HOSPITALS APPROVED FOR INTERNSHIPS

Name of Hospital	Location	Control	Capacity	Classification of Patients		Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free and Part Pay	Full Pay								
TEXAS—Continued													
John Sealy Hospital	Galveston	City	374			Rotating	8	12	June & July	(01)	Req	42	No
St Mary's Infirmary	Galveston	Chrch	165	33	67	Mixed	3	12	June	No	None	21	\$30
Hermann Hospital	Houston	Indep	200	92	8	Rotating	10	12	July	No	None	51	\$25
Jefferson Davis Hospital	Houston	CyCo	204	100		Rotating	6	12	July	No	None	26	\$25
Medical and Surgical Hospital	San Antonio	Indep	115	21	79	Mixed	2	12	July	No	None	24	\$25
Robert B Green Memorial Hospital	San Antonio	CyCo	237	100		Rotating	10	12	July	No	None	20	\$10
Santa Rosa Hospital	San Antonio	Chrch	386			Mixed	6	12	July	No	None	22	\$25
Gulf Colorado and Santa Fe Hospital	Temple	Indus	150			Rotating	1	12	July	No	None	20	\$25
Sings Daughters Hospital	Temple	Indep	118			Mixed	2	12	July	No	None	22	\$25
Scott and White Hospital	Temple	Indep	183			Rotating	6	12	July	(02)	Req	50	\$30
UTAH													
Thomas D Dee Memorial Hospital	Ogden	Chrch	180			Rotating	5	12	July & Oct	No	Req	20	\$25
W H Groves Latter Day Saints Hospital	Salt Lake City	Chrch	406	7	93	Mixed	8	12	July	(03)	Req	24	\$15(f)
City Cross Hospital	Salt Lake City	Chrch	210	50	60	Mixed	2	12	July	No	None	26	\$35(e)
Mark's Hospital	Salt Lake City	Chrch	150	6	94	Mixed	2	12	July	(04)	Op	15	\$25
St Lake General Hospital	Salt Lake City	Co	222	97	3	Rotating	6	12	July	No	Req	24	\$25
VERMONT													
Hop DeGoesbriand Hospital	Burlington	Chrch	132	83	17	Mixed	3	12	July & Sept	No	None	19	\$25
Fletcher Hospital	Burlington	Indep	150	60	30	Rotating	5	12	July	No	None	38	\$25
VIRGINIA													
Hospital of St Vincent de Paul	Norfolk	Chrch	250	60	30	Rotating	4	12	July	No	None	43	\$25
Norfolk Protestant Hospital	Norfolk	Indep	126	10	90	Rotating	3	12	July	No	None	28	\$25
Johnston Willis Hospital	Richmond	Indep	456	89	11	Mixed	20	12	July	(05)	Req	21	No
Medical College of Virginia Hospital Division	Richmond	Indiv	102	54	46	Mixed	3	12	July	No	None	45	\$25
Stuart Circle Hospital	Richmond	State	310	08	32	Rotating	13	12	July	(06)	Req	43	No
Jefferson Hospital	Roanoke	Chrch	236			Mixed	3	12	July	No	None	27	\$25
University of Virginia Hospital	Richmond	CyCo	445	100		Rotating	17	18	Jan & July	(07)	Req	36	\$30
Columbus Hospital	Seattle	Chrch	450			Rotating	6	12	July	(08)	None	31	\$30
King County Hospital Unit No 1	Seattle	Indep	180			Rotating	3	12	July	(09)	None	25	\$30
Harborview Hospital	Seattle	Chrch	200	31	69	Rotating	4	12	July & Oct	(10)	None	25	\$30
Providence Hospital	Seattle	Indep	225	3	97	Rotating	4	12	July	(11)	None	30	\$30
Swedish General Hospital	Spokane	Chrch	267	61	39	Rotating	4	12	June & July	(12)	None	36	\$25
Swedish Hospital	Spokane	Indep	340	61	39	Rotating	4	12	July	(13)	None	39	\$25
Deaconess Hospital	Tacoma	Chrch	200	49	51	Rotating	2	12	July	(14)	Req	18	\$25
Sacred Heart Hospital	Tacoma	Indep	116	55	45	Rotating	2	12	July	(15)	Req	32	\$25-45
St Luke's Hospital	Tacoma	Chrch	220	100		Rotating	2	12	July	(16)	Req	38	\$30
Northern Pacific Beneficial Assn Hosp	Tacoma	Indep	209	53	47	Rotating	4	12	July	(17)	Req	34	\$25
Pierce County Hospital	Charleston	Indep	165	14	86	Rotating	3	12	July	(18)	Req	44	\$40
St Joseph's Hospital	Huntington	Indus	130	49	51	Mixed	4	12	July	No	Req	28	\$25
Tacoma General Hospital	Wheeling	Chrch	327	53	47	Rotating	4	12	July	(19)	Req	28	\$40
WEST VIRGINIA													
Charleston General Hospital	Charleston	Indep	250	19	81	Rotating	2	12	June & July	No	None	31	\$25
Chesapeake and Ohio Railway Hospital	Wheeling	Chrch	150	32	68	Mixed	2	12	July	No	None	27	\$25
Ohio Valley General Hospital	Wheeling	Chrch	150	50	50	Mixed	2	12	July	No	None	33	\$25
Wheeling Hospital	Wheeling	Chrch	146	50	50	Mixed	2	12	July	No	None	26	\$12 50
WISCONSIN													
St Elizabeth Hospital	Appleton	Indep	172	22	78	Rotating	4	12	Jan & July	No	None	24	No
Luther Hospital	Eau Claire	Chrch	120	17	83	Rotating	4	12	July	No	None	26	\$25
St Agnes Hospital	Fond du Lac	State	205	33	67	Rotating	3	12	July	No	None	15	\$25
Mercy Hospital	Janesville	Chrch	652			Rotating	4	12	July	No	None	24	No
La Crosse Lutheran Hospital	La Crosse	Chrch	175	43	57	Rotating	16	12	July	No	None	38	\$25
St Francis Hospital	La Crosse	Chrch	205	18	82	Mixed	8	12	July	No	None	15	\$20
Madison General Hospital	Madison	Chrch	170	12	88	Rotating	3	12	June	(107)	Req	45	\$20
St Mary's Hospital	Madison	Indep	250	69	31	Rotating	2	12	July	No	None	15	\$25
Methodist Hospital	Madison	Chrch	170	21	308	Rotating	2	12	July	No	None	15	\$25
State of Wisconsin General Hospital	Marshfield	Chrch	395	40	60	Rotating	6	12	July	No	None	32	\$25
Columbia Hospital	Milwaukee	Indep	117	13	87	Rotating	3	12	July	No	None	19	\$15
Evangelical Deaconess Hospital	Milwaukee	Co	1 050	90	5	Rotating	39	12	July	No	None	22	\$25
Milwaukee County General Hospital	Milwaukee	Fed	880	96	4	Rotating	7	12	July	No	Op	59	\$115
Mercy and St Mary's Hospitals	Milwaukee	Indep	320	31	69	Rotating	7	12	July	(108)	Req	52	\$56 25
Milwaukee County General Hospital	Milwaukee	Fed	703	92	8	Rotating	31(v)	12	July	(109)	Req	79	No
CANAL ZONE													
Gorgas Hospital	Ancon	Co	1 050	90	5	Rotating	39	12	July	No	Op	59	\$115
HAWAII													
Queen's Hospital	Honolulu	Fed	880	96	4	Rotating	7	12	July	No	Op	59	\$115
Philippine General Hospital	Manila	Indep	320	31	69	Rotating	7	12	July	(108)	Req	52	\$56 25
PHILIPPINE ISLANDS													
HOSPITALS APPROVED FOR INTERNSHIPS IN THE DOMINION OF CANADA													
For the benefit of graduates of approved medical colleges who desire an internship in Canada the Council on Medical Education and Hospitals of the American Medical Association has declared that hospitals which conform to the standards of the Department of Hospital Service of the Canadian Medical Association should be regarded as giving an internship equivalent in educational value to that offered by hospitals in the United States approved for intern training by the Council. It is understood however that this statement applies only to hospitals that are unequally approved under the Canadian plan and does not apply to that group referred to as Recommended by the Department of Hospital Service.													
The following list of hospitals revised to Jan 1 1934 has been furnished by the Department of Hospital Service													

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The following list of hospitals revised to Jan 1 1934 has been furnished by the Department of Hospital Service

Name of Hospital	Location	Name of Hospital	Location	Name of Hospital	Location	Name of Hospital	Location	Name of Hospital	Location	Name of Hospital	Location	Name of Hospital	Location
Victoria General Hospital	Halifax N S	Grace Hospital	Toronto Ont	Hotel Dieu of St Joseph Hosp	Windsor Ont	MacKellar General Hospital	Fort William Ont	Children's General Hospital	Winnipeg Man	St Boniface Hospital	St Boniface Man	Edmonton General Hospital	Edmonton Alta
St John General Hospital	St John N B	St Joseph's Hospital	Toronto Ont	Winnipeg General Hospital	Winnipeg Man	Regina General Hospital	Regina Sask	Edmonton General Hospital	Edmonton Alta	University of Alberta Hosp	Edmonton Alta	St Paul's Hospital	Vancouver B C
Children's Memorial Hosp	Quebec Que	Toronto East General Hosp	Toronto Ont	St Boniface Hospital	Winnipeg Man	Edmonton General Hospital	Edmonton Alta	St Boniface Hospital	St Boniface Man	Edmonton General Hospital	Edmonton Alta	St Paul's Hospital	Vancouver B C
Hospital Ste Justine	Montreal Que	Toronto Western Hospital	Toronto Ont	Edmonton General Hospital	Edmonton Alta	St Boniface Hospital	St Boniface Man	Edmonton General Hospital	Edmonton Alta	St Paul's Hospital	Vancouver B C	St Paul's Hospital	Vancouver B C
Hospital Ste Luc	Montreal Que	Hamilton General Hospital	Hamilton Ont	Edmonton General Hospital	Edmonton Alta	St Boniface Hospital	St Boniface Man	Edmonton General Hospital	Edmonton Alta	St Paul's Hospital	Vancouver B C	St Paul's Hospital	Vancouver B C
Royal Victoria Hospital	Montreal Que	St Joseph's Hospital	Victoria B C	Edmonton General Hospital	Edmonton Alta	St Boniface Hospital	St Boniface Man	Edmonton General Hospital	Edmonton Alta	St Paul's Hospital	Vancouver B C	St Paul's Hospital	Vancouver B C
Ottawa Civic Hospital	Ottawa Ont	Metropolitan General Hosp	Walkerville Ont	Edmonton General Hospital	Edmonton Alta	St Boniface Hospital	St Boniface Man	Edmonton General Hospital	Edmonton Alta	St Paul's Hospital	Vancouver B C	St Paul's Hospital	Vancouver B C
Kingston General Hospital	Kingston Ont			Edmonton General Hospital	Edmonton Alta	St Boniface Hospital	St Boniface Man	Edmonton General Hospital	Edmonton Alta	St Paul's Hospital	Vancouver B C	St Paul's Hospital	Vancouver B C

Numerical and other references will be found on page 596

## NOTES

- 1 Women interns admitted
- 2 Women interns only
- (a) In lieu of maintenance
- (b) Bonus of \$110
- (c) Bonus of \$10 for satisfactory records
- (d) Bonus of \$100
- (e) Bonus of \$60
- (f) Bonus of \$30
- (g) Bonus of \$300
- (h) Bonus of \$150
- (i) Bonus of \$120
- (j) Subject to readjustment by common council
- (k) Bonus of \$240
- (m) Bonus of \$10
- (n) \$15 a month after completion of 12 months service
- (o) Bonus of \$40
- (p) Bonus of \$90 on completion of 2½ years internship
- (q) Bonus of \$20
- (r) \$15 per month for first six months \$20 for 12 months bonus of \$120
- (s) Bonus of \$125
- (t) Bonus of \$75
- (u) Bonus of \$200
- (v) All internships reserved for the fifth year students of the College of Medicine University of the Philippines
- (w) Bonus of \$75, if merited
- (1 a) January April May July August and November
- (1 b) January March, July September and November
- (1 c) Quarterly
- (1 d) January March May, July September and November
- (1 e) January April and July
- (1 f) January July and October
- (1 g) January, July and September
- (1 h) July, August and September
- (1 i) January May and September
- (1 j) February, June and October
- (1 k) April July and September
- (1 m) July August, September and October
- (1 n) January April June and October
- (1 o) Every two months
- (1 p) January July and August
- (1 q) February, May, August and November
- (1 r) March, July and November
- (1 s) January, June and September
- (1 t) June July and August
- (1 u) April June and August
- (1 v) Medicine January April June and September Surgery March, July and November
- (1 w) Every six weeks

## Affiliation as Referred to in Column Headed "Affiliated—For What Service"

- 3 Patton State Hospital Patton, psychiatry
- 4 Los Angeles Receiving Hospital emergency service
- 5 Children's Hospital and City Obstetrical Service Los Angeles
- 6 Internship in these hospitals includes service in Alameda County Hospital Oakland Fairmont Hospital San Leandro, and Arroyo Sanatorium Livermore
- 7 Woman's Hospital Pasadena obstetrics
- 8 Napa State Hospital Imola and Hassler Health Home Redwood City, psychiatry and tuberculosis
- 9 St. Francis Hospital and the University of California Hospital San Francisco obstetrics and pediatrics
- 10 Shriners Hospital for Crippled Children San Francisco orthopedics
- 11 Santa Barbara General Hospital tuberculosis psychiatry and communicable diseases
- 12 Santa Barbara Cottage Hospital diabetes and medicine
- 13 Emergency Hospital Bridgeport
- 14 Hartford Municipal Hospital Department of Communicable Diseases
- 15 Columbia Hospital for Women and Lying In Asylum and Children's Hospital Washington, obstetrics and pediatrics
- 16 Grady Hospital Atlanta pediatrics
- 17 Misericordia Hospital and Home for Infants Chicago obstetrics gynecology and pediatrics
- 18 Winfield Sanatorium Winfield tuberculosis
- 19 Winfield Sanatorium Winfield and Municipal Contagious Disease Hospital Chicago
- 20 White Memorial Hospital Los Angeles obstetrics and pediatrics
- 21 Internship in the University of Chicago Clinics includes service in Albert Merritt Billings Hospital, Bobs Roberts Memorial Hospital Nancy Adele McFlree Memorial and Gertrude Dunn Hicks Memorial Hospital and Max Epstein Clinic also Chicago Lying In Hospital
- 22 The Indiana University Hospitals include the Robert W. Long Hospital the James Whitcomb Riley Hospital for Children the William H. Coleman Hospital for Women and the Indiana Rotary Convalescent Home
- 23 Broadlawn Des Moines tuberculosis and communicable disease units
- 24 Watkins Memorial Hospital Lawrence
- 25 Sedgwick County Hospital Wichita
- 26 Salvation Army Home and Hospital and Sedgwick County Hospital Wichita obstetrics and general
- 27 Children's Free Hospital Louisville pediatrics
- 28 Johns Hopkins Hospital Baltimore urology
- 29 Johns Hopkins Hospital pathology
- 30 Baltimore City Hospital communicable diseases
- 31 Boston City Hospital includes the Main Hospital South Department for Contagious Diseases Haymarket Square Relief Station East Boston Relief Station and the Sanatorium Division for Tuberculosis
- 32 Boston State Hospital and Worcester State Hospital psychiatry
- 33 Evangeline Booth Maternity Hospital and Home Boston
- 34 Shriners Hospital for Crippled Children Health Department Hospital and Wesson Maternity Hospital Springfield orthopedics communicable diseases and obstetrics
- 35 Mercywood Sanitarium Ann Arbor psychiatry and neurology
- 36 Herman Kiefer Hospital Detroit
- 37 Children's Hospital and Herman Kiefer Hospital Detroit pediatrics obstetrics and communicable diseases
- 38 Herman Kiefer Hospital communicable diseases and St. Joseph's Retreat Dearborn neurology and psychiatry
- 39 Children's Hospital Detroit pediatrics
- 40 Sunshlne Sanatorium and Municipal Isolation Hospital Grand Rapids tuberculosis and communicable diseases
- 41 Ingham Sanatorium and Boy's Vocational School Hospital Lansing tuberculosis and otolaryngology
- 42 Miller Memorial Hospital Duluth outpatient service
- 43 Gillette State Hospital for Crippled Children St. Paul orthopedics and pediatrics
- 44 Glen Lake Sanatorium Oak Terrace tuberculosis
- 45 St. Anthony's Hospital St. Louis obstetrics gynecology and pediatrics
- 46 City Isolation Hospital St. Louis Children's Hospital and Shriners Hospital for Crippled Children communicable diseases general surgery and orthopedic surgery
- 47 Jewish Sanatorium Robertson tuberculosis
- 48 Alexian Brothers Hospital St. Louis outpatient service
- 49 Municipal Hospital Atlantic City and Atlantic County Hospital for Mental Diseases Northfield communicable diseases and psychiatry
- 50 Bergen Pines Bergen County Hospital Ridgewood tuberculosis and communicable diseases
- 51 Catherine Booth Home and Hospital Cincinnati obstetrics gynecology and pediatrics
- 52 Margaret Hague Maternity Hospital Jersey City obstetrics
- 53 Allenwood Sanatorium Allenwood tuberculosis
- 54 Jewish Maternity Hospital New York City
- 55 Anthony V. Brady Maternity Hospital Albany
- 56 Kingston Avenue Hospital Brooklyn communicable diseases
- 57 St. Mary's Hospital and Providence Retreat Buffalo, obstetrics and psychiatry
- 58 Children's Hospital Buffalo, pediatrics
- 59 New York Ophthalmic Clinic New York City
- 60 Syracuse Memorial Hospital City Hospital and Syracuse Psychopathic Hospital obstetrics communicable diseases and psychiatry
- 61 Forsyth County Tuberculosis Sanatorium Winston Salem
- 62 Children's Hospital Akron pediatrics and orthopedics
- 63 Children's Hospital Cincinnati pediatrics
- 64 Christian R. Holmes Hospital Hamilton County Tuberculosis Sanatorium and Hamilton County Home and Chronic Disease Hospital Cincinnati
- 65 Longview State Hospital Cincinnati psychiatry
- 66 Cincinnati General Hospital pediatrics and otolaryngology
- 67 St. Anne's Maternity Hospital Cleveland
- 68 City Hospital Cleveland psychiatry and communicable diseases
- 69 University Hospitals of Cleveland include the Lakeside Hospital, Maternity Hospital Babies and Children's Hospital Cleveland and the Rainbow Hospital for Crippled and Convalescent Children South Euclid
- 70 Mt. Sinai Hospital Cleveland, gynecology
- 71 Children's Hospital Columbus pediatrics
- 72 Starling Loving University Hospital and Children's Hospital, Columbus obstetrics and pediatrics
- 73 Stillwater Sanatorium Dayton tuberculosis
- 74 Shriners Hospital for Crippled Children Portland orthopedics
- 75 University of Oregon Medical School Hospitals include Multnomah Hospital and Doernbecher Memorial Hospital for Children
- 76 Hospital of the University of Pennsylvania Philadelphia obstetrics
- 77 Philadelphia Hospital for Contagious Diseases
- 78 Children's Hospital of the Mary J. Drexel Home Philadelphia pediatrics
- 79 Children's Hospital Philadelphia pediatrics
- 80 Shriners Hospital for Crippled Children and Philadelphia Hospital for Contagious Diseases
- 81 Pennsylvania Hospital Department for Mental and Nervous Diseases
- 82 Municipal Hospital for Contagious Diseases Pittsburgh
- 83 Rosalia Foundling and Maternity Hospital and Municipal Hospital for Contagious Diseases Pittsburgh
- 84 Elizabeth Steel Magee Hospital Children's Hospital and Eye and Ear Hospital Pittsburgh obstetrics gynecology pediatrics and eye and ear
- 85 Berks County Tuberculosis Sanatorium Reading
- 86 Pittston Hospital Pittston obstetrics
- 87 Providence Lying In Hospital
- 88 Children's Hospital and Pine Breeze Sanatorium Chattanooga pediatrics and tuberculosis
- 89 Willard Parker Hospital New York City pediatrics
- 90 Woodlawn Sanatorium and Bradford Memorial Hospital for Babies Dallas tuberculosis and pediatrics
- 91 Galveston State Psychopathic Hospital
- 92 Gulf Colorado and Santa Fe Hospital and the Scott and White Hospital affiliated furnish one internship
- 93 Salt Lake City Emergency Hospital general emergency service and Utah State Hospital Provo, psychiatry
- 94 Salt Lake General Hospital pathology and obstetrics
- 95 Pine Camp Hospital Brook Hill tuberculosis
- 96 Blue Ridge Sanatorium Charlottesville tuberculosis
- 97 Includes service in King County Hospital Unit No. 2 Seattle
- 98 King County Hospital Unit No. 1 Seattle outpatient service
- 99 Children's Orthopedic Hospital and Florence Crittenton Home Seattle orthopedics pediatrics and obstetrics
- 100 Children's Orthopedic Hospital Seattle and Firland Sanatorium Richmond Highlands pediatrics, orthopedics tuberculosis and communicable diseases
- 101 Edgecliff Sanatorium and Shriners Hospital for Crippled Children Spokane tuberculosis and orthopedics
- 102 Edgecliff Sanatorium and St. Luke's Hospital Spokane tuberculosis and psychiatry
- 103 Edgecliff Sanatorium Rivercrest Hospital Salvation Army Women's Hospital and Home and Florence Crittenton Home, Spokane tuberculosis communicable diseases and obstetrics
- 104 Pierce County Hospital Tacoma obstetrics
- 105 Pierce County Hospital Tacoma general and Western State Hospital Fort Steilacoom psychiatry
- 106 Hill Crest Sanatorium Charleston tuberculosis
- 107 Milwaukee Children's Hospital and South View Isolation Hospital Milwaukee
- 108 Kaulkeolani Children's Hospital Honolulu pediatrics
- 109 Santol Tuberculosis Sanatorium Santol
- 110 St. Elizabeth Hospital Elizabeth obstetrics
- 111 Allentown State Hospital Allentown psychiatry and Philadelphia Hospital for Contagious Diseases
- 112 Rockford Municipal Tuberculosis Sanatorium

# HOSPITALS APPROVED FOR RESIDENCIES IN SPECIALTIES

By the Council on Medical Education and Hospitals of the American Medical Association

Revised to Aug 20, 1934

**NOTE**—The following hospitals are considered in position to furnish acceptable residencies in the several specialties designated, for graduates who have already had a general internship or its equivalent in practice. A list of hospitals approved for internships will be found on page 588. Statistical material is based on reports received for the calendar year 1933. Reported salaries should be verified through correspondence with individual hospitals.

The abbreviations under the column headed "Control" are as follows:

Chrch Co	Church City and county County	Fed Frat Indep	Federal Fraternal Independent	Indiv Indus USPH	Individual Industrial United States Public Health Service
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## HOSPITALS 377 RESIDENCIES 2 373

### ANESTHESIA

Massachusetts General Hospital	Boston	Indep	400	53	34	13			1	Varies	12	289	57	\$41.66 and up
Grasslands Hospital	Valhalla N Y	Co	603	89	2	9			1	Jan & July	12	296	67	\$80 and up
Philadelphia General Hospital	Philadelphia	City	2,515						2	July	12	1,625	47	\$100 and up
State of Wisconsin General Hospital	Madison	State	652						2	Jan	18 36	281	72	\$43.66 and up

### CARDIOLOGY

Indiana University Hospitals	Indianapolis	State	480	82	4	14		Yes	1	Jan	12	157	49	\$33.33
St. Francis Hospital	Pittsburgh	Chrch	467	22	6	70		Yes	1	Nov	12	100	36	\$40-150

### COMMUNICABLE DISEASES

Los Angeles County Hospital	Los Angeles	Co	3 572	100			3 218	2	Jan & July	Indef	1 942	53	\$10 75
Hospita for Chi dren	San Francisco	Indep	209	13	22	60	101	1	Jan	12	33	41	\$25
Hartford Municipal Hospital, Depart ment of Commun cable Disen eses	Hartford, Conn	City	65	40	11	49	506	1	April	12	6	16	\$100 125
Municipal Contagious Disease Hospital	Chicago	City	428	99	1	3 890		6	Jan & July	6	79	53	\$150
Boston City Hospital	Boston	City	1 838	88	12	1 936		3	Varies	Indef	774	27	\$7 19 and up
Belmont Hospital	Worcester Mass	City	2 5	100				1	Varies	Indef	25	40	\$1 3
Herman Kiefer Hospital	Detroit	City	1 400	98		2		6	July	12	174	86	\$120-200
City Island on Hospital	St Louis	City	2 0	94	2	4	1 903	1	May	12	54	38	\$150
Essex County Hosp for Contag Dis	Belleville N J	Co	550	93	6	1	3 212	1	Varies	6	38	31	\$50
Kingston Avenue Hospital	Brooklyn	City	410				4 527	4	Varies	Indef	57	23	\$110-135
Willard Parker Hospital	New York City	City	424	99	1			8	Varies	12	106	46	\$100 130 83

### DERMATOLOGY SYPHILOLOGY

Los Angeles County Hospital	Los Angeles	Co	3,572	100			407	Yes	2	Jan & July	24	1,942	53	\$10-75
Cook County Hospital	Chicago	Co	3,300	100				No	2	Jan & July	12	1,192	18	None
University of Chicago Clinics	Chicago	Indep	406	27	67	6		Yes	1	July	12	149	70	\$112.50-220
Massachusetts General Hospital	Boston	Indep	405	53	34	13		Yes	1	Varies	12	289	57	\$41.66 and up
University Hospital	Ann Arbor Mich	State	1,287				1,800	Yes	2	March	12	348	50	\$25
Minneapolis General Hospital	Minneapolis	City	674	98	2		284	Yes	1	Jan & July	12 36	508	47	\$20-50
Barnard Free Skin and Cancer Hosp	St. Louis	Indep	44	100				Yes	1	Jan	12	17	44	\$25
Buffalo City Hospital	Buffalo	City	1,064	71	27	2	892	Yes	2	June	24	302	34	\$30
Metropolitan Hospital	New York City	City	1,620	100			497	Yes	1	Jan & July	18	295	24	\$75-117 90
Montefiore Hosp for Chronic Diseases	New York City	Indep	706	84	5	11		Yes	1	Varies	12	340	63	\$50-100
Stuyvesant Square Hospital	New York City	Indep	93	27	1	72		Yes	2	April & Oct	12	4	13	\$25 4
Sea View Hospital	Staten Island N Y	City	1,642	100				Yes	1	Jan & July	12	323	63	\$100-117 90
Cincinnati General Hospital	Cincinnati	City	925	90	5		330	Yes	1	May	Indef	675	45	None
City Hospital	Cleveland	City	1,580					Yes	2	Jan	12	621	44	\$46.50
University Hospitals	Cleveland	Indep	539	47	8	40	400	Yes	1	Jan	12 5	335	65	\$20.75
University of Virginia Hospital	University	State	315	22	46	32	111	Yes	1	Dec	24	116	43	\$25-75

### EPILEPSY

Monson State Hospital	Palmer, Mass	State	1,510	90			5	1,805	2	Varies	Indef	20	21	\$160 and up
New Jersey State Village for Epileptics	Skillman	State	1,357					No	4	Varies	Indef	0	0	\$160.00
Craig Colony	Sonyea N Y	State	2,247	90	4	1		No	1	Varies	Indef	44	48	

### FRACTURES

Cook County Hospital	Chicago	Co	3,300	100				No	2	Jan & July	12	1,192	18	None
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### GYNECOLOGY

(Also see Obstetrics Gynecology)														
Los Angeles County Hospital	Los Angeles	Co	3,572	100			1,225	Yes	2	Jan & July	24 36	1,942	53	\$10.75
Paravant Memorial Hospital	Chicago	Indep	200	5	1	94	773	Yes	1	Jan & July	12	44	60	None
Indiana University Hospitals	Indianapolis	State	480	82	4	14	707	Yes	1	Jan	12	157	49	\$33.33
Touro Infirmary	New Orleans	Indep	368	30	39	26	807	Yes	1	Jan & Feb	24	99	38	\$20
Johns Hopkins Hospital	Baltimore	Indep	1,004	58	30	12		Yes	5	June	Indef	438	72	\$41.66 63 33
Mercy Hospital	Baltimore	Chrch	264	46	14	40	473	Yes	1	Jan	12	46	21	\$10-25
University Hospital	Baltimore	State	275	56	25	19		Yes	1	Jan	12	127	39	\$25
City of Detroit Receiving Hospital	Detroit	City	764	100				Yes	2	April	12	430	41	\$83.33 125
Jersey City Hospital	Jersey City	City	1,200	90	5	5	994	Yes	1	April & Nov	12	197	22	\$100 and up
Buffalo City Hospital	Buffalo	Co	1,060	71	27	2	1,153	Yes	2	June	24	302	34	\$30
Buffalo General Hospital	Buffalo	Indep	462	14	35	51	933	Yes	1	Dec	12	171	88	\$25-50
Mount Sinai Hospital	New York City	Indep	700	90	5	5		Yes	2	Varies	12 24	435	53	\$45-120
New York Hospital	New York City	Indep	823	18	58	24	4,439	Yes	4	Feb	12 6	183	58	\$8.33 25
N Y Post Grad Med School and Hosp	New York City	Indep	415	12	4	84	447		1	March	12	115	36	\$50-25
Sloan Hospital for Women	New York City	Indep	322					Yes	1		42	11	15	\$50-125
University Hospitals	Cleveland	Indep	539	47	8	45	1,127	Yes	3	Jan	12 5	335	65	\$20.75
Graduate Hospital of the Univ of Pa	Philadelphia	Indep	470	31	12	57	813	Yes	1	Jan	12	82	49	None
Hospital of the Univ of Pennsylvania	Philadelphia	State	594	37	23	40	1,182	Yes	1	March	12	197	54	None
Elizabeth Seton Hospital	Pittsburgh	Indep	427	63	4	33	836	Yes	1	April	12	57	25	\$41.50

### INDUSTRIAL SURGERY

Golden State Hospital	Los Angeles	Indiv	71	2			964	Yes	1	Varies	Indef	10			
Indianapolis City Hospital	Indianapolis	City	566					Yes	1	March	12	314	38		\$100

LEPROSY															
P. S. M.															\$20 83

### LEPROSY

U S Marine Hospital	Orville La	USPH	425	100			869		1	Varies	Indef	12	50	\$316.66
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Numerical references will be found on page 608

		Control	Capacity	Classification of Patients			Patients Treated Under Listed Specialty	Outpatient Service	Number of Residues	Time of Appointment	Length of Service in Months	Number of Autopsies	Autopsy Percentage	Salary per Month								
				Percentage																		
				Free	Part Pay	Full Pay																
MALIGNANT DISEASES																						
Los Angeles County Hospital	Los Angeles	Co	3 572	100				Yes	2	Jan & July	24	1 942	53	\$10 40								
Albert Steiner Clinic for Cancer and Allied Diseases	Atlanta Ga	City	30					Yes	2	July	12 18	20	100	\$0-75								
Michael Reese Hospital	Chicago	Indep	629	62	20	18		Yes	3	Jan & July	12	214	49	Up to \$90								
Collis P Huntington Memorial Hosp	Boston	Indep	20	15	4	81	1 616	Yes	4	Varies	Indef	10										
Pondville Hospital	Wrentham Mass	State	115				1 203	Yes	6	Varies	24	154	60	\$130								
Barnard Free Skin and Cancer Hosp	St Louis	Indep	44	100				Yes	1	Jan	12	17	44	\$20								
Jersey City Hospital	Jersey City	City	1 200	90	5	5	213	Yes	1	April & Nov	18	197	22	\$100 and up								
Memorial Hospital for the Treatment of Cancer and Allied Diseases	New York City	Indep	109	6	47	47		Yes	9	Varies	12 48	68	58	\$100 and up								
New York City Cancer Institute Hosp	New York City	City	202	100			1 008	Yes	5	Jan	12	61	14	\$114								
Jeunes Hospital	Philadelphia	Indep	72	32	43	20		Yes	1	April	24	57	63	None to \$30								
MAXILLOFACIAL SURGERY																						
Graduate Hospital of the Univ of Pa	Philadelphia	Indep	475	81	12	57		Yes	1	Jan	24	82	49	None								
MEDICINE																						
Hillman Hospital	Birmingham Ala	Co	470	100			1 750	Yes	1	Jan	12	266	31	\$36 40								
Fresno County General Hospital	Fresno Calif	Co	523	98	2		1 304	Yes	1	Jan	12		34	\$75-130								
Cedars of Lebanon Hospital	Los Angeles	Indep	280	21	6	73	900	Yes	1	Dec	12	80	30	\$100								
Los Angeles County Hospital	Los Angeles	Co	3 572	100			6 873	Yes	5	Jan & July	36	1 942	53	\$10-70								
White Memorial Hospital	Los Angeles	Chrch	134	1	69	30	1 027	Yes	2	July	12 60	38	30	\$60-146.20								
Las Encinas Sanitarium	Pasadena Calif	Indep	80			100		No	1	Varies	12	10		\$100 and up								
San Bernardino County Charity Hosp	San Bernardino Calif	Co	302	100			630	Yes	1	Jan or Feb	12	149	50	\$70								
Hospital for Children	San Francisco	Indep	209	13	22	65	402	Yes	1	Jan	12	33	41	\$20								
Mount Zion Hospital	San Francisco	Indep	195	22	15	63	1 161	Yes	1	Feb	12	87	50	\$00								
San Francisco Hospital	San Francisco	CyCo	1 403	100			2 806	Yes	8	Jan	12	843	62	\$00								
Stanford University Hospitals	San Francisco	Indep	329	8	43	49	1 689	Yes	5	Jan	12	71	48	\$60 50								
University of California Hospital	San Francisco	State	287				923	Yes	6	Feb	12	131	69	\$20-70								
Santa Clara County Hospital	San Jose Calif	Co	499	100			1 904	Yes	1	Dec	12	228	56	\$120								
Colorado General Hospital	Denver	State	178	67	33		877	Yes	1	Dec	12	162	82	\$15								
New Haven Hospital	New Haven Conn	Indep	504	12	76	12	992	Yes	6	Jan & July	12	184	46	\$100								
Gallinger Municipal Hospital	Washington D C	City	820	99			2 640	No	2	Jan	12 24	644	53	\$30-50								
James M Jackson Memorial Hosp	Miami Fla	City	300	67			2 219	Yes	1	July	12	94	19	\$100								
Grady Hospital Emory University Division (Colored Unit)	Atlanta Ga	City	266	100			1 491	Yes	2	Jan or Feb	12	161	22	Varies								
University Hospital	Augusta Ga	City	267	70	30		1 427	Yes	3	Nov or Dec	12	143	27	\$0-125								
Cook County Hospital	Chicago	Co	3 300	100				No	3	Jan & July	12	1 192	18	None								
Passavant Memorial Hospital	Chicago	Indep	250	5	1	94	1 124	Yes	2	Jan & July	12	44	60	None								
Presbyterian Hospital	Chicago	Chrch	462	26	46	28	2 711	Yes	1	Varies	12	127	47	\$00								
Provident Hospital (col)	Chicago	Indep	150	7	50	43	355	Yes	1	July	12	50	40	\$00								
Research and Educational Hospital	Chicago	State	382	100			1 330	Yes	2	Varies	24 36	152	76	\$00								
St Luke's Hospital	Chicago	Chrch	714	7	18	70	1 174	Yes	4	Jan	12	96	37	None								
University of Chicago Clinics	Chicago	Indep	408	27	67	6		Yes	4	July	12	149	76	\$112 50 220								
Evanston Hospital	Evanston Ill	Indep	271	7	53	40	780	Yes	1	March	12	68	66									
Indianapolis City Hospital	Indianapolis	City	566				1 462	Yes	3	March	12	314	38	\$70 83								
Indiana University Hospitals	Indianapolis	State	480	82	4	14	640	Yes	2	Jan	12	157	49	\$33 33								
University Hospitals	Iowa City	State	1 008	89	6	5	1 874	Yes	6	Jan	12 36	301	57	Up to \$70 63								
Bell Memorial Hospital	Kansas City Kan	State	200	15	74	11	703	Yes	2	Dec	12	173	83	\$40 90								
Louisville City Hospital	Louisville Ky	City	444	100			1 908	Yes	8	Feb	12	337	36	\$23 and up								
Charity Hospital	New Orleans	State	1 609	100				Yes	6	May or June	Indef	1 400	46	Varies								
Touro Infirmary	New Orleans	Indep	366	35	39	26	731	Yes	1	Jan or Feb	12	99	38	\$20								
Baltimore City Hospitals (General)	Baltimore	City	706	100				Yes	3	Dec	12	280	29	\$00								
Church Home and Infirmary	Baltimore	Chrch	184	15	66	19	299	Yes	1	Jan	12	48	46	\$75								
Johns Hopkins Hospital	Baltimore	Indep	1 004	58	30	12		Yes	9	June	Indef	438	72	\$41 66-83 33								
Maryland General Hospital	Baltimore	Chrch	228	40	6	49	596	Yes	1	Dec	12	37	16	\$00								
Mercy Hospital	Baltimore	Chrch	264	46	14	40	710	Yes	2	Jan	12	46	21	\$10 20								
Provident Hosp and Free Disp (col)	Baltimore	Indep	129	88	3	9		Yes	1	Oct	12	33	18	\$70								
St Agnes Hospital	Baltimore	Chrch	212	39	36	25	772	Yes	1	Dec	12	39	20	\$00								
St Joseph's Hospital	Baltimore	Chrch	290	48	10	42	616	Yes	1	Jan	12	57	30	None								
Sinal Hospital	Baltimore	Indep	269	51	10	39	969	Yes	1	Jan	12	71	29	\$00								
South Baltimore General Hospital	Baltimore	Indep	115	34	40	26	239	Yes	1	Dec	12	20	16	\$00								
Union Memorial Hospital	Baltimore	Indep	332	22	53	20	707	Yes	3	Jan	24-48	89	39	\$30 40								
University Hospital	Baltimore	State	275	56	20	19		Yes	1	Jan	12	127	39	\$20								
West Baltimore General Hospital	Baltimore	Indep	200	39		61	298	Yes	1	Jan	12	21	22	\$70 50								
Beth Israel Hospital	Boston	Indep	200	22	7	71	1 121	Yes	1	Varies	12	96	41	\$33.33								
Boston City Hospital	Boston	City	1 838	88		12	9 516	Yes	11	Varies	12 36	774	30	\$79 17 and up								
Long Island Hospital	Boston	City	550	100			1 432	Yes	2	July	12 24	71	47	\$112 50 & up								
Massachusetts General Hospital	Bo ton	Indep	400	53	34	13	2 860	Yes	6	Varies	12 36	289	57	\$41 66 & up								
Massachusetts Memorial Hospitals	Boston	Indep	367	22	46	32		Yes	2	March	12	98	45	\$100								
Peter Bent Brigham Hospital	Boston	Indep	247	37	27	36	1 830	Yes	6	Varies	Indef	170	64	\$41 66-83 33								
Truesdale Hospital	Fall River Mass	Indep	125	16	44	40	397	No	1	Jan & July	12	48	43	None								
University Hospital	Ann Arbor Mich	State	1 287				6 897	Yes	8	March	12	348	50	\$00								
Battle Creek Sanitarium	Battle Creek Mich	Indep	1 013	5	30	60		No	1	Jan or Feb	12	7	26	\$120-150								
City of Detroit Receiving Hospital	Detroit	City	764	100				Yes	2	April	12	430	41	\$83 33-120								
Grace Hospital	Detroit	Indep	398	30	48	22	917	Yes	1	March	12	127	34	\$20								
Harper Hospital	Detroit	Indep	750	13	48	39	1 045	Yes	1	Feb	Indef	82	20	\$72								
Henry Ford Hospital	Detroit	Indep	610		42	58	1 483	No	2	Jan	12 48	109	43	\$110-120								
Jefferson Clinic and Diagnostic Hosp	Detroit	Indep	62	3	6	91	774	Yes	1	Feb	12	5	13	\$00								
Providence Hospital	Detroit	Chrch	400	33	50	12		No	1	Jan	12	90	33	\$75								
Hurley Hospital	Flint Mich	City	423				3 880	No	1	Feb	12	183	30	\$00								
Minneapolis General Hospital	Minneapolis	City	674	98	2		2 522	Yes	12	Jan & July	12 36	503	47	\$20-00								
Ancker Hospital	St Paul	CyCo	1 000	98	1		1 735	Yes	4	March	12	492	64	\$40								
Barnea Hospital	St Louis	Chrch	270	29	6	65	2 141	Yes	2	Dec	12	179	66	\$70								
Jewish Hospital	St Louis	Indep	290	39	47	14	1 320	Yes	1	Dec	12	63	88	\$80								
St Louis City Hospital	St Louis	City	880	100			6 687	Yes	2	March	12	382	20	\$120								
St Louis City Hospital No 2 (col)	St Louis	City	330	100			2 210	No	1	July	12	122	16	\$00								
St Luke's Hospital	St Louis	Chrch	210	20	29	51	771	Yes	1	Dec	12	32	26	\$00								
St Mary's Group of Hospitals	St Louis	City	1 900	90			4 901	Yes	6	Varies	24 36	155	47	\$00 00								
Jersey City Hospital	Jersey City	City	537	6	80	14	1 487	Yes	1	April & Nov	12	197	22	\$100 and up								
Albany Hospital	Albany N Y	City	321	100			1 560	Yes	1	Feb	12	278	68	\$00								
Cumberland Hospital	Brooklyn	City	1 660				7 827	Yes	4	Jan & July	12	240	40	\$120								
Kings County Hospital	Brooklyn	Indep	450	17	32	51	1 177	Yes	2	Feb	12	175	46	\$40								
Long Island College Hospital	Buffalo	CyCo	1 060	71	27	2	1 517	Yes	4	June	24	302	34	\$00								
Buffalo City Hospital	Buffalo	Indep	462	14	30	51	1 431	Yes	4	Dec	12	171	33	\$00-50								
Buffalo General Hospital	Buffalo	Indep	309	26	32	42	735	Yes	2	Dec	12 24	119	49	\$00								
Millard Fillmore Sanitarium and Clinic	Clifton Springs N Y	Indep	460				1 749	No	1	July	Indef	82	67	\$00 and up								

## MEDICINE—(Continued)

	Control	Capacity			Percentage			Patients Treated Under Listed Specialty	Outpatient Service	Number of Residencies	Time of Appointment	Length of Service In Months	Number of Autopsies	Autopsy Percentage	Salary per Month
		Free	Part Pay	Full Pay	Free	Part Pay	Full Pay								
Charles S. Wilson Memorial Hospital	Johnson City N Y	Indep	210	2	3	95	1 232	Yes	1	Dec	12	53	40		\$75
Metropolitan Life Insurance Co Sanat	Mt McGregor N Y	Indep	360	100			350	No	1	Varies	Indef	12	903	23	\$125 and up
Bellevue Hospital	New York City	City	2 084	100			13,188	Yes	3	Jan & July	12	23	15		\$83 33
Fifth Avenue Hospital	New York City	Indep	300	20	20	55	912	Yes	1	Jan	12	205	24		\$0
Metropolitan Hospital	New York City	City	1 620	100			3 120	Yes	2	Jan & July	12	345	63		\$70 117 90
Montefiore Hosp for Chronic Diseases	New York City	Indep	706	84	5	11		Yes	2	Jan & July	12	435	53		\$50
Mount Sinai Hospital	New York City	Indep	754	90	5	5	4 085	Yes	1	Varies	12	435	53		\$40 120
New York Hospital	New York City	Indep	823	18	68	24	1 293	Yes	8	Feb	12	183	58		\$8 33 25
N Y Post Grad Med School and Hosp	New York City	Indep	410	12	4	84	1 063	Yes	1	March	12	110	36		\$90 25
Presbyterian Hospital	New York City	Indep	641					Yes	3	Jan & July	36 72	190	43		\$41 66-125
Rochester General Hospital	Rochester N Y	Indep	360	56	11	33	760	Yes	1	April	12	171	64		\$50
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	Indep	500	56	24	20		Yes	6	Feb	12 36	352	63		\$41 66 and up
Hospital of the Good Shepherd	Syracuse N Y	Indep	242	4	32	64	1,451	No	2	Dec	12	81	34		\$37 50-75
Grasslands Hospital	Vulhalla, N Y	Co	903	89	2	9	90	Yes	2	Jan & July	Indef	296	67		\$50 and up
Duke Hospital	Durham N C	Indep	456	90		5	2 322	Yes	6	Dec	12	269	59		\$18 75-75
Davis Hospital	Statesville N C	Indep	142					Yes	1	Jan	12	6	15		\$0
City Hospital	Akron, O	Indep	300	48	12	40	1 076	Yes	1	Feb	12	223	64		\$50 100
Cincinnati General Hospital	Cincinnati	City	920	80	5	3	3 010	Yes	9	May	12-60	675	40		None
Deaconess Hospital	Cincinnati	Chrch	175	4	53	43	707	No	1	Dec	12	68	38		\$75
Good Samaritan Hospital	Cincinnati	Chrch	535	9	62	29	1 665	Yes	1	Dec	12	62	24		\$0 75
Jewish Hospital	Cincinnati	Indep	262	20	37	38	725	No	1	Dec	12	34	23		\$110
Charity Hospital	Cleveland	Chrch	301	51		49		Yes	3	Jan	12	121	38		\$50
City Hospital	Cleveland	City	1 555				2 345	Yes	5	Jan	12	621	44		\$46 50
Mount Sinai Hospital	Cleveland	Indep	200	30	57	13		Yes	1	Dec	12	66	33		\$0-85
St Alexis Hospital	Cleveland	Chrch	220	20	3	72	862	Yes	1	Dec	12	33	15		\$0
St John's Hospital	Cleveland	Chrch	207	11	83	6	586	No	1	Dec	12	32	18		\$0 100
St Luke's Hospital	Cleveland	Chrch	304	14	6	80	1 089	Yes	2	Dec	12	83	28		\$25-75
University Hospitals	Cleveland	Indep	639	47	8	45	1 791	Yes	8	Jan	12	335	60		\$20 75
Starling Loving University Hospital	Columbus O	State	276	60	14	26		No	2	Dec	12 24	132	41		\$33.33
Miami Valley Hospital	Dayton O	Indep	383	54	20	26	1 256	Yes	1	Jan	12	286	66		\$100
State University Hospitals	Oklahoma City	Indep	467	57	34	9	1 127	Yes	2	Dec	12	186	42		\$25 50
Univ of Ore Med School Hospitals	Portland Ore	Co	408	90	4	1	1 286	Yes	2	Feb	24	182	42		\$30-45
Geo F Giesinger Memorial Hospital	Danville Pa	Indep	200	24	10	66	1 002	Yes	1	Jan	12	78	36		
Graduate Hospital of the Univ of Pa	Philadelphia	Indep	470	31	12	57	1 044	Yes	1	Jan	12	82	40		None
Hospital of the Univ of Pennsylvania	Philadelphia	State	594	37	23	40	1 594	Yes	1	March	12	197	54		None
Jewish Hospital	Philadelphia	Indep	422	33	9	58	1 143	Yes	1	Jan or Feb	12	152	44		None
Philadelphia General Hospital	Philadelphia	City	2 515				5 697	Yes	1	July	12	1,625	47		\$100-150
Allegheny General Hospital	Pittsburgh	Indep	400	57	1	42	772	Yes	1	Feb	12	91	25		\$81
Mercy Hospital	Pittsburgh	Chrch	670	40	25	30	1 452	Yes	1	Jan	12	103	30		None 11
St Francis Hospital	Pittsburgh	Chrch	487	22	8	70	736	Yes	1	Nov	12	100	36		\$50-100
Western Pennsylvania Hospital	Pittsburgh	Indep	667	50	60	23	300	Yes	1	Jan	12	92	22		\$33.33
Reading Hospital	Reading Pa	Indep	268	55	2	43	581	Yes	1	Jan	12	155	70		\$90-200
Memphis General Hospital	Memphis Tenn	City	400	80	5		2 528	Yes	2	July	12	222	16		\$81
Nashville General Hospital	Nashville Tenn	City	303	91	3	9	1 849	Yes	2	Dec	12	60	17		\$75
Vanderbilt University Hospital	Nashville Tenn	Indep	210	31	36	33	982	Yes	4	July	12	144	63		\$41 66
Baylor University Hospital	Dallas Tex	Chrch	379	12	11	77	2 039	Yes	1	April	12	97	36		\$100
Parkland Hospital	Dallas Tex	Chrch	293	92	7		1 423	Yes	1	June	12	113	17		\$90
Medical College of Va Hosp Division	Richmond Va	CyCo	456	10	70	11	1 342	Yes	2	Feb	12	117	21		\$50
University of Virginia Hospital	University	State	315	22	46	32	1 164	Yes	1	Dec	12	116	43		\$25-75
State of Wisconsin General Hospital	Madison	State	652					Yes	3	Jan	12 36	251	72		\$43 66 and up
St Joseph's Hospital	Milwaukee	Chrch	390	22	18	60	4 314	Yes	1	Dec	Indef	26	17		\$100
MENTAL DEFICIENCIES															
Michigan Home and Training School	Lapeer Mich	State	3,720	98	1	1		No	1	Varies	Indef	17	26		\$150
Rome State School	Rome, N Y	State	2 840	90			4,266	No	4	Varies	Indef	21	37		\$166 66
Polk State School	Polk Pa	State	3 000	92	6	2		Yes	1	June	Indef	20	25		\$75
METABOLIC DISEASES															
Sea View Hospital	Staten Island N Y	City	1 642	100				Yes	2	Jan & July	12	323	53		\$100 117 90
Philadelphia General Hospital	Philadelphia	City	2 010					Yes	1	July	12	1 625	47		\$100-150
MIXED															
St Luke's Hospital	San Francisco	Chrch	220	10	9	81	4 327	Yes	6	Jan	12	55	31		\$0-100
San Francisco Hospital	San Francisco	CyCo	1,408	100				Yes	3	Jan	12	543	62		\$0
St Francis Hospital and Sanitarium	Colorado Springs Colo	Chrch	138	18	57	25	805	Yes	1	Jan	12	17	24		\$30
Emory University Hospital	Emory University, Ga	Indep	180	6	29	65	2 369	No	1	Dec	12	32	37		\$100
West Suburban Hospital	Oak Park Ill	Indep	427	4	3	93	5 040	Yes	1	March or April	12	84	39		\$25
Indianapolis City Hospital	Indianapolis	City	566				2 629	Yes	4	March	12	314	38		\$20 83
Arnot Ogden Memorial Hospital	Elmira, N Y	Indep	213	9	54	37	3 946	Yes	1	March	12	48	29		\$62 50
Jamaica Hospital	Richmond Hill N Y	Indep	171	31	1	68	3 538	Yes	1	Jan & July	12	50	25		\$140
Genesee Hospital	Rochester N Y	Indep	220	33	33	34	4 109	Yes	2	Jan	12	64	35		\$0
James Walker Memorial Hospital	Wilmington, N C	Indep	162	60	6	29	3 551	Yes	1	Jan	12	33	15		\$100
Women's and Children's Hospital	Toledo O	Indep	141	16	58	26	1 400	Yes	2	Feb	12	32	43		\$25
NEUROLOGY															
Los Angeles County Hospital	Los Angeles	Co	3 572	100			816	Yes	2	Jan & July	24	1,942	53		\$10-75
Research and Educational Hospital	Chicago	State	382	100				Yes	1	Varies	12	102	76		\$50
University Hospitals	Iowa City	State	1 005	89	6	5	761	Yes	2	Jan	12	301	57		Up to \$70 83
Boston City Hospital	Boston	City	1 838	88		12	1 047	Yes	2	Sept	12	774	27		\$70 17 and up
Masaachusetts General Hospital	Boston	Indep	460	53	34	13		Yes	1	Varies	12	289	57		\$41 66 and up
University Hospital	Ann Arbor Mich	State	1 287					Yes	1	March	12	348	50		\$25
Bellevue Hospital	New York City	City	2 084	100				Yes	4	Jan & July	12	903	23		\$83 33
Central Neurological Hospital	New York City	City	400	100			1 477	No	6	Jan	12 24	108	31		\$114
Metropolitan Hospital	New York City	City	1 690				697	Yes	1	Jan & July	12 24	295	24		\$15-117 91
Montefiore Hosp for Chronic Diseases	New York City	Indep	706	84	5	11		Yes	2	Jan & July	18	340	63		\$0
Mount Sinai Hospital	New York City	Indep	754	90	5	5		Yes	3	Varies	12	435	53		\$10-120
Neurological Institute of New York	New York City	Indep	211	12	18	70	4 112	No	12	Jan & July	24	75	51		\$40 and up
Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases	Philadelphia	Indep	140	35	30	30	342	Yes	1		12	10			\$40
NEUROSURGERY															
University of California Hospital	San Francisco	State	287				279	Yes	1	Feb	12	131	69		\$25 75
Presbyterian Hospital	Chicago	Chrch	462	26	46	28		Yes	1	Varies	12 24	127	47		\$0
Boston City Hospital	Boston	City	1,838	88		12	1 047	Yes	1	Sept	12	774	27		\$70 17 and up
Neurological Institute of New York	New York City	Indep	211	12	18	70		No	3	Jan & July	24	75	51		\$40 and up
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	Indep	560	56	24	20		Yes	1	Feb	12 36	352	63		\$41 66 and up
Medical College of Va Hosp Division	Richmond	Indep	406	10	79	11		Yes	2	Feb	12	117	21		\$0



	Control	Capacity	Percentage of Patients				Patients treated Under List Specialty	Outpatient Service	Number of Residents	Time of Appointment	Length of Service in Months	Number of Autopsies	Autopsy Percentage	Salary per Month								
			Free	Part Pay	Full Pay	Patients treated Under List Specialty																
<b>OBSTETRICS</b> (Also see Obstetrics Gynecology)																						
Los Angeles County Hospital	Los Angeles	Co	3 572	100		3 644	Yes	3	Jan & July	12 24	1 942	53		\$10-75								
Hospital for Children	San Francisco	Indep	259	13	22 65	676	Yes	1	Jan	12	33	41		\$25								
Santa Clara County Hospital	San Jose, Calif	Co	499	100		700	Yes	1	Dec	12	228	66		\$125								
Chicago Maternity Center <sup>17</sup>	Chicago	Indep		100		3 365	Yes	2		12	6	100		None								
Cook County Hospital	Chicago	Co	3 300	100			No	4	Jan & July	12	1 192	18		None								
Provident Hospital (col)	Chicago	Indep	150	7	50 43	264	Yes	1	July	12	50	40		\$30								
Research and Educational Hospital	Chicago	State	382	100		744	Yes	2	Varies	12	152	76		\$33.33								
Indiana University Hospitals <sup>1</sup>	Indianapolis	State	480	82	4 14	1 044	Yes	1	Jan	12	157	49		\$23 and up								
Louisville City Hospital	Louisville Ky	City	444	100		1 631	Yes	2	Feb	12	337	36		Varies								
Charity Hospital	New Orleans	State	1 809	100		9 035	Yes	2	May or June	24	1,400	46		\$25								
Touro Infirmary	New Orleans	Indep	366	35	39 26	911	Yes	1	Jan or Feb	12	99	38		\$41.66-\$3.33								
Johns Hopkins Hospital	Baltimore	Indep	1 004	58	30 12		Yes	3	June	Indef.	438	72		\$25								
Provident Hosp and Free Disp (col)	Baltimore	Indep	129	88	3 9		Yes	1	Oct	36	33	18		\$30								
Sinai Hospital	Baltimore	Indep	269	51	10 39	840	Yes	1	Jan	12	71	29		\$25								
University Hospital	Baltimore	State	275	56	25 19		Yes	2	Jan	12	127	39		\$125								
Boston Lying In Hospital	Boston	Indep	217	10	60	2 610	Yes	2	May & Nov	12	40	52		\$100								
Providence Hospital	Detroit	Chrch	450	33	55 12		No	1	Jan	12	95	33		\$100								
Margaret Hague Maternity Hospital	Jersey City	Co	284	69	28 3		Yes	5	Varies	12	101	74		\$130								
Cumberland Hospital	Brooklyn	City	321	100		1 258	Yes	1	July	12	240	40		None								
Jewish Hospital	Brooklyn	Indep	674	38	11 51	2 536	Yes	1	Dec	12	225	43		\$180								
Long Island College Hospital	Brooklyn	Indep	480	17	32 51	750	Yes	1	Feb	12	175	46		\$100								
Methodist Episcopal Hospital	Brooklyn	Chrch	480	37	4 59	1,093	No	1	July	12	109	31		\$30								
Buffalo City Hospital <sup>5</sup>	Buffalo	CyCo	1 065	71	27 2	981	Yes	2	June	24	352	34		\$30-50								
Buffalo General Hospital	Buffalo	Indep	462	14	35 51		Yes	1	Dec	12	171	38		\$90-125								
Lenox Hill Hospital	New York City	Indep	477	18	62 314		Yes	1	Varies	24	124	39		\$83-25								
New York Hospital	New York City	Indep	823	18	68 24	1 485	Yes	9	Feb	12	183	58		\$30-75								
New York Nursery and Child's Hosp	New York City	Indep	256	28	25 47	1 878	Yes	2	Varies	12	36	40		\$50-125								
Sloane Hospital for Women	New York City	Indep	322				Yes	0		21 36	11	15		None								
Cincinnati General Hospital	Cincinnati	City	925	95	5	2 427	Yes	1	May	12	675	45		\$30-85								
Mt Sinai Hospital	Cleveland	Indep	270	30	57 13		Yes	1	Dec	12	66	33		\$30								
St Ann's Maternity Hospital	Cleveland	Chrch	118	18	39 43			2	Feb	12	8	21		\$0-100								
St John's Hospital	Cleveland	Chrch	207	11	83 6	713	No	1	Dec	12	32	18		\$25-75								
St Luke's Hospital	Cleveland	Chrch	394	14	6 80	1,144	Yes	1	Dec	12	83	23		\$20-75								
University Hospitals	Cleveland	Indep	539	47	8 45	1,938	Yes	5	Jan	12	335	65		\$100								
Miami Valley Hospital	Dayton O	Indep	383	54	20 26	1,150	Yes	1	Jan	24	286	66		None								
Hospital of the Univ of Pennsylvania	Philadelphia	State	594	37	23 40	820	Yes	1	March	12	197	54		\$41.50								
Elizabeth Steele Magee Hospital	Pittsburgh	Indep	427	63	4 33	3 068	Yes	3	April	12	57	25		\$81								
Memphis General Hospital	Memphis Tenn	City	400	95	5	1 710	Yes	1	July	12	222	16		\$100								
Baylor University Hospital	Dallas Tex	Chrch	379	12	11 77	989	Yes	1	April	12	97	36		\$30								
Medical College of Va Hosp Division	Richmond	Indep	456	10	79 11	861	Yes	1	Feb	12	117	21										
<b>OBSTETRICS GYNECOLOGY</b> (Also see Obstetrics and Gynecology)																						
Hillman Hospital	Birmingham Ala	Co	475	100		2 741	Yes	2	Jan	12	266	31		\$36-45								
White Memorial Hospital	Los Angeles	Chrch	134	1	69 30	444	Yes	2	July	48	38	30		\$60-146.25								
San Francisco Hospital	San Francisco	CyCo	1 408	100		2 140	Yes	1	Jan	12	843	62		\$30								
Stanford University Hospitals	San Francisco	Indep	379	8	43 49	992	Yes	2	Jan	12	71	48		\$87.50								
University of California Hospital	San Francisco	State	287			1 060	Yes	3	Feb	12	131	99		\$25-75								
New Haven Hospital	New Haven, Conn	Indep	504	12	76 12	1 294	Yes	1	Jan & July	12 18	184	46		\$100								
Columbia Hospital for Women and Lying In Asylum	Washington D C	Indep	200		54 46	2 660	Yes	4	Jan & July	12 18	15	32		None								
Gallinger Municipal Hospital	Washington D C	City	825	99		5 313	No	2	Jan	12	644	53		\$30-50								
Grady Hospital Emory University Division (Colored Unit)	Atlanta Ga	City	266	100		2 304	Yes	2	Jan or Feb	12	161	22		Varies								
University Hospital	Augusta Ga	City	267	70	30 7	1 006	Yes	1	Nov or Dec	12	143	27		\$30-125								
Chicago Lying In Hosp and Disp	Chicago	Indep	322	27	47 26	3 884	Yes	7	Jan & July	24 36	8	67		\$25-75								
Presbyterian Hospital	Chicago	Chrch	462	26	46 28	1 300	Yes	1	Varies	12 24	127	47		\$30								
St Luke's Hospital	Chicago	Chrch	714	7	18 75	1 262	Yes	2	Jan	12	96	37		None								
University of Chicago Clinics (see Chicago Lying In Hosp and Disp)	Chicago																					
University Ho.p tals	Iowa City	State	1 008	89	6 5	2 843	Yes	6	Jan	12 36	801	57		Up to \$70.83								
Bell Memorial Hospital	Kansas City Kan	State	250	15	74 11	840	Yes	2	Dec	12	173	83		\$40-90								
St Joseph's Hospital	Baltimore	Chrch	290	48	10 42	945	Yes	1	Jan	12	57	30		None								
Massachusetts Memorial Hospitals	Boston	Indep	367	22	46 32		Yes	1	March	12	98	45		\$100								
University Hospital	Ann Arbor Mich	State	1 287			2 550	Yes	2	March	12	348	50		\$25								
Grace Hospital	Detroit	Indep	398	30	48 22	1 403	Yes	1	March	12	127	34		\$25								
Harper Hospital	Detroit	Indep	750	13	48 39		Yes	2	Feb	12 48	82	20		\$12								
Herman Kiefer Hospital <sup>14</sup>	Detroit	City	1 400	98			No	2	July	12-48	174	36		\$125-200								
Woman's Hospital	Detroit	Indep	320	11	10 79		Yes	8	Jan	12 24	22	20		\$30-50								
Minneapolis General Hospital <sup>1</sup>	Minneapolis	City	674	98	2	1 240	Yes	2	Jan & July	12 36	508	47		\$40								
Ancker Hospital <sup>1</sup>	St Paul	CyCo	1 050	98	1	2 283	Yes	1	March	Indef	492	64		\$25								
Jewish Hospital	St Louis	Indep	290	49	47 14	803	Yes	1	Dec	12	63	38		\$30								
St Louis City Hospital	St Louis	City	685	100			Yes	1	March	12	382	25		\$125								
St Louis Maternity Hospital <sup>15</sup>	St Louis	Indep	204	40	37 23	2 621	Yes	11	Varies	12 36	15	16		\$25-57								
St Luke's Hospital	St Louis	Chrch	210	20	29 61	730	Yes	1	Dec	12	33	26		\$30								
St Mary's Group of Hospitals	St Louis	Chrch	437	39	19 42	1 074	Yes	6	Varies	24 36	155	47		\$30-55								
Albany Hospital	Albany N Y	Indep	537	6	80 14	2 310	Yes	1	Feb	12	218	68		\$30								
Kings County Hospital	Brooklyn	City	1 660			5 456	Yes	4	Jan & July	12	727	19		\$45								
Long Island College Hospital	Brooklyn	Indep	480	17	32 51	1 317	Yes	1	Feb	12	175	46		\$33.33								
Bellevue Hospital	New York City	City	2 084	100		4 728	Yes	2	Jan & July	12	903	23		\$10-117.91								
Metropolitan Hospital	New York City	City	1 620	100		4 099	Yes	2	Jan & July	24	295	24		\$30-125								
Sloane Hospital for Women	New York City	Indep	322				Yes	6		12 24	11	15		\$118.75								
Woman's Hospital	New York City	Indep	303	7	60 33		Yes	9	Varies	24	7	63		\$30								
Rochester General Hospital	Rochester N Y	Indep	365	56	11 33		Yes	1	April	12	171	64										
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	Indep	560	56	24 20		Yes	5	Feb	12 36	352	63		\$41.66 and up								
Duke Hospital	Durham N C	Indep	456	85	4 5	1 109	Yes	2	Dec	12	160	59		\$18.10-10								
Univ of Ore Med School Hospitals <sup>10</sup>	Portland Ore	Co	408	95	4 1	1 629	Yes	3	Feb	36	182	42		\$30-55								
Kennington Hospital for Women	Philadelphia	Indep	101	27	16 57	1 463	Yes	2	July	12 24	12	32		\$30-100								
Pennsylvania Hospital	Philadelphia	Indep	560	61	36 13	2 423	Yes	2	Varies	12	107	45		\$100-150								
Philadelphia General Hospital	Philadelphia	City	2 515			4 721	Yes	1	July	12	1 625	47		\$33.33								
Nashville General Hospital	Nashville Tenn	City	205	91	9 1,526	Yes	2	Dec	12	12	65	17		\$10								
Vanderbilt University Hospital	Nashville Tenn	Indep	210	31	36 33	611	Yes	3	July	12	144	63		\$41.66								
John Sealy Hospital	Galveston Tex	City	374	78	22 921	Yes	1	March	12	132	42		None									
University of Virginia Hospital	University	State	315	22	46 32	1 119	Yes	1	Dec	12	116	43		\$25-15								
State of Wisc Genl Hospital	Madison	State	652				Yes	2	Jan	12 24	281	72		\$43.66 and up								
Milwaukee County General Hospital	Wauwatosa Wis	Co	1 050	94	1 5	3 232	Yes	1	May	12	283	25		\$100								

	Control	Classification of Patients			Patients Treated Under Listed Specialty	Outpatient Service	Number of Residencies	Time of Appointment	Length of Service in Months	Number of Autopsies	Autopsy Percentage	Salary per Month									
		Capacity	Free	Part Pay																	
OPHTHALMOLOGY																					
(Also see Ophthalmology Otolaryngology)																					
Los Angeles County Hospital	Los Angeles	Co	3 572	100		395	Yes	2	Jan & July	24	1 042	53	\$10 75								
White Memorial Hospital	Los Angeles	Chrch	134	1	69	30	Yes	1	July	30	33	30	\$6. 146 25								
Stanford University Hospitals	San Francisco	Indep	329	8	43	49	425	Yes	2	Jan	12	71	48	\$61. 50							
University of California Hospital	San Francisco	State	287				116	Yes	1	Feb	12	131	69	\$23. 75							
Colorado General Hospital	Denver	State	178	67	33		39	Yes	1	Dec	24	162	62	\$1. 50							
New Haven Hospital	New Haven Conn	Indep	504	12	70	12	181	Yes	1	Jan & July	12	184	46	\$100. 12							
Lepical Eye Ear and Throat Hosp	Washington D C	Chrch	100	23	29	43	1 030	Yes	3	Mar	July, Nov	12									
Grady Hospital (Major University Division) (Colored Unit)	Atlanta Ga	City	266	100			171	Yes	1	Jan or Feb	12	161	22	Varies							
Illinois Eye and Ear Infirmary	Chicago	State	200				Yes	1	Nov	12			None								
Michael Reese Hospital	Chicago	Indep	629	62	20	18	341	Yes	1	Jan & July	12	214	49	Up to \$95							
Presbyterian Hospital	Chicago	Chrch	462	26	46	28	Yes	2	Varies	12	127	47	None								
University of Chicago Clinics	Chicago	Indep	408	27	67	6	Yes	3	July	12 24	149	70	\$112. 00-220								
Indianapolis City Hospital	Indianapolis	City	566				212	Yes	1	March	12	214	38	\$70 83							
University Hospitals	Iowa City	State	1 008	89	6	5	793	Yes	6	Jan	36	301	67	Up to \$70 83							
Johns Hopkins Hospital	Baltimore	Indep	1 004	58	30	12	Yes	5	June	Indef	438	72	\$41 66 83 33								
Massachusetts Eye and Ear Infirmary	Boston	Indep	231	17	20	63	2 647	Yes	7	Varies	21	23	44	None							
University Hospital	Ann Arbor Mich	State	1 287				1 785	Yes	1	March	12	348	00	\$25							
Barnes Hospital	St Louis	Chrch	2 00	29	6	6	Yes	1	Dec	12	179	66	\$75								
Brooklyn Eye and Ear Hospital	Brooklyn	Indep	143	8	82	10	Yes	6	May & Nov	12-18			None								
Kings County Hospital	Brooklyn	City	1 660				126	Yes	1	Jan & July	12	727	19								
Bellevue Hospital	New York City	City	2 084	100			7 0	Yes	5	Jan & July	20	90	23	\$83 33							
Herman Knapp Memorial Eye Hosp	New York City	Indep	0	21	66	13	790	Yes	2		12										
Metropolitan Hospital	New York City	City	1 620	100			65	Yes	1	Jan & July	12 24	295	24	\$75 117 91							
Mount Sinai Hospital	New York City	Indep	1 154	90	5		Yes	1	Varies	12	425	63	\$45 120								
New York Eye and Ear Infirmary	New York City	Indep	175	18	64	18	Yes	6	March & Sept	18 21			None								
Presbyterian Hospital	New York City	Indep	611				Yes	6	Jan & July	36	199	43	\$41 66 and up								
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	Indep	560	6	24	20	Yes	1	Feb	12 36	352	63	\$41 66 and up								
Cleveland General Hospital	Cleveland	City	925	95	5		291	Yes	2	May	12 24	675	45	None							
University Hospitals	Cleveland	Indep	539	41	6	4	328	Yes	2	Jan	12	335	65	\$20 75							
Univ of Ore Med School Hospitals	Portland Ore	Co	408	95	4	1	87	Yes	1	Feb	12	182	42	\$40							
Graduate Hospital of the Univ of Pa	Philadelphia	Indep	4	11	12	67	34	Yes	1	Jan	12	82	49	None							
Wills Hospital	Philadelphia	Indep	200	86	14	3 393	Yes	7	Quarterly	18			None								
Medical College of Va Hosp Division	Richmond	Indep	456	10	70	11	171	Yes	1	Feb	12	117	21	\$50							
OPHTHALMOLOGY OTOLARYNGOLOGY																					
(Also see Ophthalmology and Otolaryngology)																					
Hospital for Children	San Francisco	Indep	250	13	22	65	Yes	1	Jan	12	33	41	\$25								
Cook County Hospital	Chicago	Co	3 300	100			No	6	Jan & July	12	1 192	18	None								
Illinois Eye and Ear Infirmary	Chicago	State	200				4 767	Yes	11	Nov	12 30		None								
Passavant Memorial Hospital	Chicago	Indep	250	5	1	94	Yes	1	Jan & July	12	44	60	None								
St Luke's Hospital	Chicago	Chrch	714	7	18	75	1 593	Yes	2	Jan	12	96	37	None							
Indiana University Hospitals	Indianapolis	State	480	82	4	14	1 675	Yes	1	Jan	12	157	49	\$33 33							
Eye Ear Nose and Throat Hospital	New Orleans	Indep	70	15	50	35	Yes	7	Varies	12	3	33	None								
Touro Infirmary	New Orleans	Indep	366	35	39	26	1 413	Yes	1	Jan or Feb	12	99	88	\$25							
Baltimore Eye Ear and Throat Charity Hospital	Baltimore	Indep	60				2 470	Yes	3	Jan	12 24			None							
City of Detroit Receiving Hospital	Detroit	City	764	100			Yes	1	April	12	430	41	\$-3 33								
Grace Hospital	Detroit	Indep	325	30	48	22	1 097	Yes	1	March	12	127	34	\$25							
Harper Hospital	Detroit	Indep	750	13	48	39	2 382	Yes	3	Feb	12 48	82	20	\$73							
Minneapolis General Hospital	Minneapolis	City	674	98	2		605	Yes	2	Jan & July	12 36	508	47	\$25-50							
Anchor Hospital	St Paul	Co	1 050	98	1	1	1 023	Yes	1	March	12	492	64	\$40							
Jewish Hospital	St Louis	Indep	290	39	47	14	944	Yes	1	Dec	12	63	38	\$80							
St Louis City Hospital	St Louis	City	885	100			1 643	Yes	1	March	12	352	25	\$125							
Jersey City Hospital	Jersey City	City	1 200	50	5	5	3 818	Yes	1	April & Nov	20	107	22	\$100 and up							
Newark City Hospital	Newark N J	City	770	100			No	1	July	12	368	30	None								
Newark Eye and Ear Infirmary	Newark N J	Indep	66	33	4	63	Yes	3	Feb, June Oct	12	13	43	None								
Kings County Hospital	Brooklyn	City	1 660				2 254	Yes	1	Jan & July	12	727	19								
Long Island College Hospital	Brooklyn	Indep	450	17	32	51	1 215	Yes	1	Feb	12	175	46	\$45							
Buffalo City Hospital	Buffalo	Co	1 067	71	21	2	1 319	Yes	5	June	24	352	34	\$50							
Harkness Eye and Ear Hospital	New York City	Indep	60				1 112	Yes	3	Jan June Sept	12			None							
Manhattan Eye Ear and Throat Hosp	New York City	Indep	216	14	69	17	Yes	13	June & Dec	18 60	9	19	None								
New York Polyclinic Medical School and Hospital	New York City	Indep	345	20	22	58	2 125	Yes	4	Jan May Sept	12 24	45	24	None							
Grasslands Hospital	Valhalla N Y	Co	903	89	2	9	764	Yes	1	Jan & July	12	296	67	\$80-200							
Duke Hospital	Durham N C	Indep	456	85	5		Yes	1	Dec	12	160	59	\$18 75 75								
State Univer ity Hospitals	Oklahoma City	State	467	57	34	9	515	Yes	1	Dec	12	166	42	\$25 50							
Eye and Ear Hospital	Pittsburgh	Indep	55	19	49	32	2 684	No	3	Varies	24			None							
Memphis Eye Ear Nose and Throat Hospital	Memphis Tenn	Indep	69	47	11	42	2 000	Yes	3	May & Oct	18			None							
University of Virginia Hospital	University	State	315	22	46	32	900	Yes	1	Dec	12	116	43	\$25 75							
State of Wisconsin General Hospital	Madison	State	652				Yes	2	Jan	24	281	72	\$43 66 and up								
Milwaukee County General Hospital	Wauwatosa Wis	Co	1 050	94	1	5	732	Yes	1	May	12	253	25	\$100							
ORTHOPEDICS																					
Hillman Hospital	Birmingham Ala	Co	475	100			209	Yes	1	Jan	12	266	31	\$36 45							
Children's Hospital	Los Angeles	Indep	230	61	29	10	265	Yes	1	March or April	16	154	92	\$40 140							
Los Angeles County Hospital	Los Angeles	Co	3 572	100			3 249	Yes	3	Jan & July	24	1 042	53	\$10 75							
Orthopaedic Hospital School	Los Angeles	Indep	85	83	12	5	1 727	Yes	4		24 60		\$50 and up								
Shriners Hospital for Crippled Children	San Francisco	Frat	60	100			329	Yes	1	Jan	12			\$60							
University of California Hospital	San Francisco	State	287				204	Yes	1	Feb	12	131	69	\$23. 75							
New Haven Hospital	New Haven Conn	Indep	504	12	76	12	444	Yes	1	Jan & July	12	184	46	\$100							
Children's Memorial Hospital	Chicago	Indep	264	68	31	1	Yes	1	Varies	18	120	68	\$64 13								
Cook County Hospital	Chicago	Co	3 500	100			No	1	Jan & July	12	1 192	18	None								
Research and Educational Hospital	Chicago	State	382	100			194	Yes	2	Varies	12	152	76	\$50							
University of Chicago Clinics	Chicago	State	408	27	67	6	Yes	4	July	12 24	149	70	\$112. 00-220								
Indiana University Hospitals	Indianapolis	State	480	82	4	14	818	Yes	2	Jan	12	157	49	\$33 33							
Shriners Hospital for Crippled Children	Iowa City	Frat	1 008	89	6	5	2 459	Yes	3	Jan	12 36	301	57	Up to \$50 83							
Johns Hopkins Hospital	Baltimore	Indep	1 004	58	30	12	187	Yes	1	Varies	12			\$100							
Bo ton City Hospital	Baltimore	City	1 858	88			Yes	3	June	Indef	438	72	\$41 66 83 33								
Children's and Infants Hospitals	Boston	Indep	335	3	48	49	554	Yes	1	Varies	Indef	774	27	\$79 17 and up							
Massachusetts General Hospital	Boston	Indep	405	53	34	13	526	Yes	1	Varies	12	118	78	\$56							
City of Detroit Receiving Hospital	Detroit	City	764	100			Yes	1	April	12	239	57	\$41 66 and up								

Numerical references will be found on page 608

	Control	Capacity	Classification of Patients				Patients Under Specialty	Outpatient Service	Number of Residences	Time of Appointment	Length of Service in Months	Number of Autopsies	Autopsy Percentage	Salary per Month							
			Percentage																		
ORTHOPEDICS—(Continued)																					
Gillette State Hospital for Crippled Children	St Paul	State	200	100				Yes	1	Jan & July	12	14		\$100							
Shriners Hospital for Crippled Children	St Louis	Frat	120	100		504	Yes	1			24	14		\$150							
Jersey City Hospital	Jersey City	City	1 200	90	5	5	1 100	Yes	1	April & Nov	18	197	22	\$100 and up							
New Jersey Orthopaedic Hospital and Dispensary	Orange N J	Indep	86	53	38	4	447	Yes	1	Jan	18	0	0	\$50-100							
Long Island College Hospital	Brooklyn	Indep	480	17	32	51	388	Yes	2	Feb	12	170	46	\$40							
Bellevue Hospital	New York City	City	2 084	100			120	Yes	3	Jan & July	18	903	23	\$53 33							
Hospital for Joint Diseases	New York City	Indep	305	20	30	40	2 215	Yes	8	Feb	12 24	36	46	\$70-90							
Metropolitan Hospital	New York City	City	1 620	100			447	Yes	1	Jan & July	12 24	230	24	\$10-117 91							
N Y Orthopaedic Disp and Hospital <sup>1</sup>	New York City	Indep	302	3	62	30	1 953	Yes	6	Varies	36 60	10		\$50 100							
N Y Post Grad Med School and Hosp	New York City	Indep	415	12	4	84	290	Yes	1	March	12	115	36	\$90 20							
New York Society for the Relief of the Ruptured and Crippled <sup>1</sup>	New York City	Indep	269	22	30	48	1 461	Yes	7	Jan & July	12 18	14	34								
Rochester General Hospital	Rochester N Y	Indep	360	56	11	33	242	Yes	1	April	12	171	64	\$0							
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	Indep	560	56	24	20		Yes	1	Feb	12 36	302	63	\$41 66 and up							
Sea View Hospital	Staten Island N Y	City	1 642	100				Yes	2	Jan & July	12	323	53	\$100-11, 00							
New York State Reconstruction Home	West Haverstraw N Y	State	170	99		1	153	Yes	3	Jan & July	18	10		\$120-150							
Cincinnati General Hospital	Cincinnati	City	920	90	5		303	Yes	1	May	24	670	40	None							
Mount Sinai Hospital	Cleveland	Indep	270	30	57	13		Yes	1	Dec	12	68	33	\$40-85							
University Hospitals	Cleveland	Indep	539	47	8	40	1 724	Yes	1	Jan	12	235	65	\$70 10							
State University Hospitals	Oklahoma City	State	467	57	34	9	779	Yes	3	Dec	12	186	42	\$20-30							
Shriners Hospital for Crippled Children	Portland Ore	Frat	50	100				Yes	1	March	12	10		\$0							
Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases	Philadelphia	Indep	140	30	30	30	230	Yes	1		12	10		\$40							
Children's Hospital	Pittsburgh	Indep	106	60	11	29	174	Yes	1	July	12	40	29	\$41							
Texas Scottish Rite Hospital for Crippled Children	Dallas	Frat	40	100			486	Yes	1	July	18	10		\$90							
University of Virginia Hospital	University	State	310	22	46	32	319	Yes	1	Dec	24	116	43	\$20-10							
State of Wisconsin General Hospital	Madison	State	602					Yes	2	Jan	24	281	72	\$43 66 and up							
OTOLARYNGOLOGY																					
(Also see Ophthalmology Otolaryngology)																					
Hillman Hospital	Birmingham Ala	Co	470	100			583	Yes	1	Jan	12	266	31	\$30-40							
Children's Hospital	Los Angeles	Indep	230	61	29	10		Yes	1	March or April	12	154	92	\$40-140							
Los Angeles County Hospital	Los Angeles	Co	3 572	100			1 249	Yes	3	Jan & July	12 24	1 942	53	\$10-70							
White Memorial Hospital	Los Angeles	Chrch	131	1	69	30		Yes	1	July	12	38	30	\$60-146 20							
San Francisco Hospital	San Francisco	CyCo	843	100			1 441	Yes	2	Jan	12	843	62	\$0							
Stanford University Hospitals	San Francisco	Indep	329	8	43	49	1 106	Yes	2	Jan	12	71	48	\$6, 50							
University of California Hospital	San Francisco	State	287				607	Yes	1	Feb	12	131	69	\$70-70							
New Haven Hospital	New Haven Conn	Indep	504	12	76	12	1 014	Yes	1	Jan & July	12	184	46	\$100							
Episcopal Eye Ear and Throat Hosp	Washington D C	Chrch	100	28	29	43	4 090	Yes	3	Mar July Nov	12	10		10							
Grady Hospital Emory University Division (Colored Unit)	Atlanta Ga	City	266	100			620	Yes	2	Jan or Feb	12	161	22	Varies							
Illinois Eye and Ear Infirmary	Chicago	State	200					Yes	1	Nov	18	10		None							
Presbyterian Hospital	Chicago	Chrch	462	26	46	28		Yes	1	Varies	12	127	47	\$0							
Research and Educational Hospital	Chicago	State	352	100			1 132	Yes	1	Varies	12	152	76	\$0							
University of Chicago Clinics	Chicago	Indep	408	27	67	6		Yes	1	July	12	149	76	\$112 50 220							
Indianapolis City Hospital	Indianapolis	City	566				1 816	Yes	1	March	12	314	38	\$0 83							
University Hospitals	Iowa City	State	1 008	89	6	5	1 891	Yes	8	Jan	27-60	301	57	Up to \$0 83							
Charity Hospital	New Orleans	State	1 809	100				Yes	3	May or June	24	1 400	46	Varies							
Johns Hopkins Hospital	Baltimore	Indep	1 004	58	30	12		Yes	3	June	Indef	438	72	\$41 66-83 33							
University Hospital	Baltimore	State	270	56	25	19		Yes	1	Jan	12	127	29	\$20							
Beth Israel Hospital	Boston	Indep	200	22	7	71	1 009	Yes	1	Varies	12	96	41	\$83 33							
Massachusetts Eye and Ear Infirmary	Boston	Indep	231	17	20	63	4 627	Yes	7	Varies	21	23	44	None							
Memorial Hospital	Worcester Mass	Indep	215	17	9	74	1 217	Yes	1	March	12	75	54	\$41 66							
University Hospital	Ann Arbor Mich	State	1 287				2 604	Yes	2	March	12	348	50	\$20							
Barnes Hospital	St Louis	Chrch	270	29	6	60		Yes	1	Dec	12	179	66	\$70							
Brooklyn Eye and Ear Hospital	Brooklyn	Indep	143	8	82	10		Yes	8	May & Nov	16	3	21	None							
Kings County Hospital	Brooklyn	City	1 660				2 128	Yes	1	Jan & July	12	727	19	\$							
Buffalo General Hospital	Buffalo	Indep	462	14	35	51	1 012	Yes	1	Dec	12	171	38	\$20-50							
Bellevue Hospital	New York City	City	2 084	100			3 442	Yes	6	Jan & July	24	903	23	\$83 33							
Lenox Hill Hospital	New York City	Indep	477	18		82	813	Yes	1	Varies	24	124	39	\$90-123							
Metropolitan Hospital	New York City	City	1 620	100			809	Yes	1	Jan & July	12 24	290	24	\$75-117 91							
Mount Sinai Hospital	New York City	Indep	704	90	5	5		Yes	2	Varies	12 24	430	53	\$40-190							
New York Eye and Ear Infirmary	New York City	Indep	170	18	64	18		Yes	6	March & Sept	18 21	0	0	None							
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	Indep	560	56	24	20		Yes	1	Feb	12 36	302	63	\$41 66 and up							
Sea View Hospital	Staten Island N Y	City	1 642	100				Yes	2	Jan & July	12	323	53	\$100-117 90							
Cincinnati General Hospital	Cincinnati	City	925	90	5		1 460	Yes	2	May	12 24	675	45	None							
St Luke's Hospital	Cleveland	Chrch	394	14	6	80	1 160	Yes	2	Dec	12	83	28	\$20-50							
University Hospitals	Cleveland	Indep	539	47	8	45	1 724	Yes	3	Jan	12	335	60	\$20 75							
Univ of Ore Med School Hospitals <sup>10</sup>	Portland Ore	Co	408	90	4	1	402	Yes	1	Feb	12	182	40	\$40							
Graduate Hospital of the Univ of Pa	Philadelphia	Indep	475	31	12	57	2 967	Yes	1	Jan	24	82	49	None							
Medical College of Va Hosp Division	Richmond	Indep	406	10	79	11	1 172	Yes	1	Feb	12	117	21	\$0							
PATHOLOGY																					
Hillman Hospital	Birmingham Ala	Co	470	100				Yes	1	Jan	12	266	31	\$30-40							
Los Angeles County Hospital	Los Angeles	Co	3 572	100				Yes	4	Jan & July	24	1 942	53	\$10 70							
Mount Zion Hospital	San Francisco	Indep	168	22	15	63		Yes	2	Feb	12	87	50	\$0							
San Francisco Hospital	San Francisco	CyCo	1 403	100				Yes	1	Jan	12	843	62	\$0							
University of California Hospital	San Francisco	State	287					Yes	1	Feb	12	131	69	\$70 70							
New Haven Hospital	New Haven Conn	Indep	504	12	76	12		Yes	4	Jan & July	12	184	46	\$100							
Gallinger Municipal Hospital	Washington D C	City	820	99				No	1	Jan	12	644	53	\$30-50							
Children's Memorial Hospital	Chicago	Indep	264	68	31	1		Yes	1	Varies	12	120	66	\$04 13							
Cook County Hospital	Chicago	Co	3 300	100				No	4	Jan & July	12	1 192	18	None							
Michael Reese Hospital	Chicago	Indep	629	62	20	18		Yes	1	Jan & July	12	214	49	Up to \$90							
Presbyterian Hospital <sup>1</sup>	Chicago	Chrch	462	26	46	23		Yes	1	Varies	12 24	127	47	\$0							
Research and Educational Hospital	Chicago	State	352	100				Yes	1	Varies	12	152	76	\$0							
St Luke's Hospital <sup>1</sup>	Chicago	Chrch	714	7	18	70		Yes	1	Jan	12	96	37	Varies							
University of Chicago Clinics	Chicago	Indep	408	27	67	6		Yes	1	July	24	149	76	\$112 50-220							
Evanston Hospital	Evanston Ill	Indep	271	7	53	40		Yes	1	March	12	68	66								
Indianapolis City Hospital	Indianapolis	City	566					Yes	1	March	12	314	38	\$20 83							
Indiana University Hospitals	Indianapolis	State	450	82	4	14		Yes	1	Jan	12	157	49	\$33 33							
Methodist Episcopal Hospital	Indianapolis	Chrch	426					Yes	1	July	12	123	31	\$120							

		Control	Capacity	Percentage of Patients			Patients Treated Under Listed Specialty	Outpatient Service	Number of Residencies	Time of Appointment	Length of Service in Months	Number of Autopsies	Percentage	Salary per Month		
				Free	Part Pay	Full Pay										
PATHOLOGY—(Continued)																
University Hospitals	Iowa City	State	1 008	89	6	5	Yes	2	Jan	12	301	57	Up to \$70 83			
Bell Memorial Hospital	Kansas City Kan	State	2,0	15	74	11	Yes	1	Dec	12	173	83	\$40 90			
Louisville City Hospital	Louisville Ky	City	444	100			Yes	2	Feb	12	337	36	\$23 and up			
Touro Infirmary	New Orleans	Indep	366	35	30	26	Yes	1	Jan or Feb	12	99	38	\$25			
Baltimore City Hospitals (General)	Baltimore	City	766	100			Yes	1	Dec	12	260	29	\$50			
Johns Hopkins Hospital	Baltimore	Indep	1 004	58	30	12	Yes	1	June	Indef	438	72	\$41 66 83 33			
Beth Israel Hospital	Boston	Indep	200	22	7	71	Yes	2	Varies	Indef	96	41	\$83 33			
Boston City Hospital	Boston	City	1 838	88	12		Yes	3	Varies	12	744	27	\$70 17 and up			
Children's and Infants Hospitals	Boston	Indep	3,3	3	48	49	Yes	1	Varies	12	118	78	\$56			
Massachusetts General Hospital	Boston	Indep	405	53	34	13	Yes	1	Varies	24	289	57	\$41 66 and up			
New England Deaconess Hospital	Boston	Chrch	266	10	59	31	No	1	Feb	12	128	59	\$50			
Peter Bent Brigham Hospital	Boston	Indep	247	87	27	36	Yes	1	Varies	Indef	170	64	\$41 66 and up			
University Hospital	Ann Arbor Mich	State	1 287				Yes	1	March	24	348	50	\$25			
City of Detroit Receiving Hospital	Detroit	City	764	100			Yes	1	April	12	430	41	\$83 33 125			
Harper Hospital	Detroit	Indep	750	13	48	39	Yes	1	Feb	Indef	82	20	\$12			
Aaker Hospital	St Paul	City	1 000	98	1	1	Yes	1	March	12	492	64	\$40			
Barnes Hospital	St Louis	Chrch	270	23	6	65	Yes	1	Dec	12	179	66	\$75			
St Louis City Hospital	St Louis	City	885	100			Yes	1	March	12	382	25	\$125			
Newark Beth Israel Hospital	Newark N J	Indep	414	20	24	56	Yes	1	Varies	24	173	40	\$50			
Albany Hospital	Albany N Y	Indep	537	6	80	14	Yes	1	Feb	12	278	68	\$50			
Buffalo City Hospital	Buffalo	City	1 065	71	27	2	Yes	3	June	24	332	34	\$50			
Buffalo General Hospital	Buffalo	Indep	402	14	35	51	Yes	1	Dec	12	171	38	\$25 50			
Lincoln Hospital	New York City	City	213	100			Yes	1	May	12	207	37	None			
Metropolitan Hospital	New York City	City	1 620	100			Yes	1	Jan & July	12 24	295	24	\$70-117 91			
Montefiore Hosp for Chronic Diseases	New York City	Indep	766	84	5	11	Yes	1	July	12	345	63	\$50			
Mount Sinai Hospital	New York City	Indep	754	90	5	5	Yes	2	Varies	12	435	58	\$45 120			
New York Hospital	New York City	Indep	823	18	58	24	Yes	3	Feb	12	183	58	\$83 32 25			
Presbyterian Hospital	New York City	Indep	6 1				Yes	2	Jan & July	12	199	43	\$41 66 and up			
St Luke's Hospital	New York City	Chrch	540	69	1	31	Yes	1	Jan May Sept	12	169	46	\$83 33			
Willard Parker Hospital	New York City	City	424	99	1		No	1	Varies	6	106	46	\$100 135 83			
Strong Memorial and Rochester Munfelpal Hospitals	Rochester N Y	Indep	560	66	24	20	Yes	4	Feb	12 36	352	63	\$41 66 and up			
Grasslands Hospital	Valhalla, N Y	Co	905	89	2	9	Yes	1	Jan & July	Indef	296	67	\$80-200			
Duke Hospital	Durham N C	Indep	400	95		5	Yes	3	Dec	12	160	59	\$18 75 75			
Cincinnati General Hospital	Cincinnati	City	925	95	5		Yes	4	May	12 24	675	45	None			
City Hospital	Cleveland	City	1 585				Yes	3	Jan	12	621	44	\$46 50			
Mount Sinai Hospital	Cleveland	Indep	270	80	57	13	Yes	1	Dec	12	66	33	\$50 85			
University Hospitals	Cleveland	Indep	539	47	8	45	Yes	2	Jan	12 5	335	65	\$70-75			
Miami Valley Hospital	Dayton O	Indep	883	54	20	26	Yes	1	Jan	12	286	66	\$100			
Univ of Ore Med School Hospitals	Portland, Ore	Co	333	95	4	1	Yes	1	Feb	12	162	42	\$40			
Graduate Hospital of the Univ of Pa	Philadelphia	Indep	475	31	12	57	Yes	1	Jan	12	82	49	None			
Hospital of the Univ of Pennsylvania	Philadelphia	State	594	37	23	40	Yes	1	March	24	197	64	None			
Philadelphia General Hospital	Philadelphia	City	2 515				Yes	2	July	12	1 625	47	\$100 150			
Presbyterian Hospital	Philadelphia	Chrch	426	46	10	44	Yes	1	Varies	12	97	35	\$125			
Allegheny General Hospital	Pittsburgh	Indep	405	57	1	42	Yes	2	Feb	12	91	25	\$51			
Children's Hospital	Pittsburgh	Indep	196	60	11	29	Yes	1	July	12	40	29	\$47			
Mercy Hospital	Pittsburgh	Chrch	670	40	25	35	Yes	4	Jan	12 48	105	30	None 11			
St Francis Hospital	Pittsburgh	Chrch	487	22	8	70	Yes	1	Nov	12	105	36	\$50-100			
Reading Hospital	Reading Pa	Indep	268	55	2	43	Yes	1	Jan	12	155	70	\$80 250			
Rhode Island Hospital	Providence	Indep	600				Yes	1	Varies	Indef	276	41	\$50			
Memphis General Hospital	Memphis Tenn	City	400	95	5		Yes	2	July	12	222	16	\$81			
Vanderbilt University Hospital	Nashville Tenn	Indep	210	31	36	33	Yes	2	July	12	144	63	\$41 66			
PEDIATRICS																
Children's Hospital	Birmingham Ala	Indep	50	85	10	5	865	Yes	1	April	12	8	16	\$50		
Children's Hospital	Los Angeles	Indep	230	61	29	10	Yes	8	March or April	12	154	92	\$40 140			
Los Angeles County Hospital	Los Angeles	Co	3 572	100			1,047	Yes	2	Jan & July	24	1 042	53	\$10 75		
White Memorial Hospital	Los Angeles	Chrch	134	1	69	30	245	Yes	1	July	12	38	30	\$60-146 25		
Children's Hospital of the East Bay	Oakland	Indep	65	6	61	33	2 055	Yes	2	July	12	22	60	\$75		
Hospital for Children	San Francisco	Indep	2,9	13	22	65	300	Yes	2	Jan	12	33	41	\$25		
San Francisco Hospital	San Francisco	City	1 408	100			938	Yes	2	Jan	12	643	62	\$50		
Stanford University Hospitals	San Francisco	Indep	329	8	43	49	436	Yes	2	Jan	12	71	48	\$67 50		
University of California Hospital	San Francisco	State	237				470	Yes	2	Feb	12	131	69	\$25-75		
Children's Hospital	Denver	Indep	165	38	24	38	2 576	No	4	Jan	12	63	59	\$75		
New Haven Hospital	New Haven Conn	Indep	504	12	76	12	508	Yes	3	Jan & July	12	184	40	\$100		
Children's Hospital	Washington D C	Indep	182	7	84	9	Yes	9	Jan July Oct	12 24	131	51	\$10 100 15			
Gallinger Municipal Hospital	Washington D C	City	825	89	1	1 013	No	2	Jan	12	644	53	\$30-50			
Grady Hospital Emory University	Atlanta Ga	City	266	100			404	Yes	1	Jan or Feb	24	161	22	Varies		
Division (Colorectal Unit)	Atlanta Ga	Indep	52	64	10	26	884	No	2	Jan & July	12	18	35	\$27		
Henrietta Eggleston Hosp for Children	Augusta Ga	City	267	70	30	7	341	Yes	1	Nov or Dec	12	143	27	\$50 125		
University Hospital	Chicago	Indep	264	68	31	1	3 980	Yes	15	Varies	12 24	120	66	\$64 13		
Children's Memorial Hospital	Chicago	Co	3 300	100			No	7	Jan & July	12	1 192	18	None			
Cook County Hospital	Chicago	Indep	629	62	20	18	2 750	Yes	1	Jan & July	12	214	49	Up to \$95		
Michael Reese Hospital	Chicago	Chrch	462	26	46	28	1 941	Yes	1	Varies	12	127	47	\$50		
Provident Hospital	Chicago	Indep	160	7	50	43	523	Yes	1	July	12	50	40	\$50		
Research and Educational Hospital	Chicago	State	382	100			201	Yes	1	Varies	12	152	76	\$50		
Indiana University Hospitals	Chicago	Indep	408	27	67	6	Yes	3	July	12	149	76	\$112 50-220			
University Hospitals	Indianapolis	State	480	82	4	14	1 008	Yes	2	Jan	12	157	49	\$33 33		
Bell Memorial Hospital	Iowa City	State	1,008	89	6	5	948	Yes	3	Jan	12	301	67	Up to \$50 83		
Louisville City Hospital	Kansas City Kan	State	250	15	74	11	345	Yes	1	Dec	24	173	83	\$40 90		
Charity Hospital	Louisville Ky	City	444	100			811	Yes	3	Feb	12	337	36	\$23 and up		
Touro Infirmary	New Orleans	State	1 809	100			Yes	1	May or June	24	1 400	46	Varies			
Johns Hopkins Hospital	Baltimore	Indep	966	35	39	26	245	Yes	1	Jan or Feb	12	99	38	\$25		
Union Memorial Hospital	Baltimore	Indep	1 004	58	30	12	Yes	3	June	Indef	438	72	\$41 66 83 33			
Boston City Hospital	Boston	Indep	332	22	53	25	1 119	Yes	2	Jan	12 36	89	39	\$30 40		
Boston Floating Hospital	Boston	City	1 838	85	12	5 002	Yes	1	Varies	12	774	27	\$70 17 and up			
Children's and Infants Hospitals	Boston	Indep	50	100			1 370	Yes	3	Varies	12	26	72	None to \$50		
Long Island Hospital	Boston	Indep	333	3	48	49	6 689	Yes	4	Varies	12	118	78	\$56		
Massachusetts General Hospital	Boston	City	505	100			Yes	1	July	12	71	47	\$112 50 and up			
University Hospital	Boston	Indep	405	53	34	13	377	Yes	1	Varies	24	289	57	\$41 66 and up		
Children's Hospital	Ann Arbor Mich	State	1 287				5 825	Yes	7	March	12	348	60	\$25		
Minneapolis General Hospital	Detroit	Indep	239				6 275	Yes	2	Dec	12	226	47	\$22 50		
St Louis Children's Hospital	Minneapolis	City	674	98	2		1 942	Yes	2	Jan & July	12 36	503	47	\$25-50		
St Louis City Hospital	St Louis	Indep	205	78	1	21	3 398	Yes	3	Dec	12 36	89	64	\$25 41 66		
St Mary's Group of Hospitals	St Louis	City	685	100			1 088	Yes	1	March	12	382	25	\$125		
	St Louis	Chrch	457	39	19	42	998	Yes	1	Varies	36	155	47	\$30-55		

Numerical references will be found on page 605

		Control	Capacity	Percentage of Patients			Patients Treated Under Speciality	Outpatient Service	Number of Residencies	Time of Appointment	Length of Service in Months	Number of Autopsies	Autopsy Percentage	Salary per Month		
				Free	Part Pay	Full Pay										
<b>PEDIATRICS—(Continued)</b>																
Jersey City Hospital	Jersey City	City	1 200	90	5	5	948	Yes	1	April & Nov	12	197	22	\$100 and up		
Cumberland Hospital	Brooklyn	City	321	100			9.0	Yes	1	July	12	240	40	\$170		
Jewish Hospital	Brooklyn	Indep	674	38	11	51	625	Yes	1	Dec	24	270	43	None		
Kings County Hospital	Brooklyn	City	1 660				1 482	Yes	2	Jan & July	12	727	19	"		
Long Island College Hospital	Brooklyn	Indep	480	17	32	51	521	Yes	3	Feb	12	175	46	\$40		
Buffalo City Hospital	Buffalo	CyCo	1 065	71	27	2	3.4	Yes	2	June	24	3.2	34	\$20		
Children's Hospital	Buffalo	Indep	2.0	58	4	38	1 141	Yes	3	Jan	12 24	143	69	\$0-100		
Babies Hospital	New York City	Indep	104				2 325	Yes	2	Varies	12	82	53	\$ 0-100		
Bellevue Hospital	New York City	City	2 084	100			2 4.7	Yes	7	Jan & July	12	903	23	\$3.33		
Fifth Avenue Hospital	New York City	Indep	300	25	20	55	1 252	Yes	1	Jan	12	23	10	\$30		
Harlem Hospital	New York City	City	377				No	1	July	12	438	33	None			
Metropolitan Hospital	New York City	City	1 670	100			1 467	Yes	1	Jan & July	12 36	20.5	24	\$75-110.00		
Mount Sinai Hospital	New York City	Indep	754	90	5	5	Yes	2	Varies	12	435	53	\$40-120			
New York Foundling Hospital	New York City	Chrch	390	1	94	5	2 611	Yes	0	May	12	41	60	\$20-120		
New York Hospital	New York City	Indep	823	18	58	24	786	Yes	6	Feb	12	183	58	\$33-72		
New York Nursery and Child's Hospital	New York City	Indep	256	28	20	47	834	Yes	2	Varies	12	36	40	\$0-70		
N. Y. Post Grad Med School and Hosp	New York City	Indep	415	12	4	84	Yes	1	March	24	115	36	\$ 0-20			
St. Luke's Hospital	New York City	Chrch	540	60		31	Yes	2	Quarterly	12	169	46	\$33-34			
Strong Memorial and Rochester Municipal Hospitals	Rochester N. Y.	Indep	560	56	24	20	Yes	5	Feb	12 36	3.2	63	\$41.66 and up			
Sea View Hospital	Statens Island N. Y.	City	1 642	100			Yes	4	Jan & July	12	393	53	\$100-117.90			
Grasslands Hospital	Valhalla, N. Y.	Co	903	89	2	9	684	Yes	1	Jan & July	12 24	296	67	\$20-700		
Duke Hospital	Durham N. C.	Indep	406	90		5	29.5	Yes	12	Dec	12	160	69	\$18-70		
Children's Hospital	Akron O.	Indep	110	57		43	2 172	Yes	1	Jan	12	58	54	\$100		
Children's Hospital	Cincinnati	Chrch	226	56	18	26	2 468	Yes	8	Feb	12	21	24	\$20 and up		
Cincinnati General Hospital	Cincinnati	City	925	95	5		1 071	Yes	7	May	12 24	675	40	None		
Charity Hospital	Cleveland	Chrch	301	51		49	Yes	1	Jan	12	121	33	\$30			
City Hospital	Cleveland	City	1 585				555	Yes	3	Jan	12	621	44	\$46-50		
University Hospitals	Cleveland	Indep	539	47	8	45	887	Yes	11	Varies	12	335	65	\$90-70		
Children's Hospital	Columbus O.	Indep	100	68	31	1	Yes	2	Jan	12	56	64	\$15			
State University Hospitals	Oklahoma City	State	467	57	34	9	555	Yes	1	Dec	12	186	42	\$20-40		
Univ. of Ore. Med. School Hospitals	Portland Ore.	Co	403	95	4	1	533	Yes	2	Feb	24	182	42	\$30-40		
Children's Hospital	Philadelphia	Indep	130	78	17	5	Yes	11	Varies	12 24	74	62	\$20-53.33			
Children's Hospital of the Mary J. Drexel Home	Philadelphia	Chrch	52	31	27	42	990	Yes	1	April	12	7	26	\$100		
Hospital of the Univ. of Pennsylvania	Philadelphia	State	594	37	23	40	877	Yes	1	March	12	197	54	None		
Philadelphia General Hospital	Philadelphia	City	2 310				2 042	Yes	1	July	12	1 620	47	\$100-150		
St. Christopher's Hosp. for Children	Philadelphia	Indep	75	59	14	27	2 149	Yes	2	March	12	31	60	\$70		
Children's Hospital	Pittsburgh	Indep	196	60	11	29	2 002	Yes	5	July	12	40	29	\$47		
Children's Hospital	Chattanooga Tenn.	CyCo	74	79	3	18	941	Yes	2	Jan	12	34	39	\$0-100		
Vanderbilt University Hospital	Nashville Tenn.	Indep	210	31	36	33	790	Yes	3	July	12	144	63	\$41.66		
Medical College of Va. Hosp. Division	Richmond	Indep	406	10	70	11	848	Yes	1	Feb	12	117	21	\$50		
University of Virginia Hospital	University	State	315	22	46	32	678	Yes	1	Dec	12	116	43	\$20-75		
Children's Orthopedic Hospital	Seattle	Indep	139	61	26	13	266	Yes	1	June	12	29	71	\$87.63		
State of Wisconsin General Hospital	Madison	State	6.2				Yes	1	Jan	12	281	72	\$43.66 and up			
Milwaukee Children's Hospital	Milwaukee	Indep	155				2 874	Yes	5	Jan	12 24	28	24	\$90		
<b>PSYCHIATRY</b>																
Agnews State Hospital	Agnew Calif.	State	3 015	81	19		No	2	Varies	Indef	32	15	\$170 and up			
Livermore Sanitarium	Livermore Calif.	Indep	114	81	19		No	1	Varies	Indef	10					
Stanford University Hospitals	San Francisco	Indep	329	8	43	49	438	Yes	2	Jan	12	71	48	\$87.50		
Mendocino State Hospital	Ulmage Calif.	State	2 660	90		10	2 008	No	2	July	12	21	18	\$50		
Colorado Psychopathic Hospital	Denver	State	78	73	23	4	Yes	6	Feb or March	24	25	64	\$130			
Neuro Psychiatric Institute and Hospital of the Hartford Retreat	Hartford Conn.	Indep	200				539	No	2	Varies	12	10				
Connecticut State Hospital	Middletown	State	3 150				Yes	3	Varies	Indef	10	20	\$175 and up			
New Haven Hospital	New Haven Conn.	Indep	504	12	76	12	210	Yes	5	Jan & July	12	184	46	\$100		
Delaware State Hospital	Tamhurst	State	933				Yes	3	Jan	Indef	42	51	\$30			
Gallinger Municipal Hospital	Washington D. C.	City	820	90		1	No	1	Jan	Indef	644	53	\$0-50			
St. Elizabeths Hospital	Washington D. C.	Fed	4 000				Yes	5	July & Oct	12	200	72	\$136.66			
Chicago State Hospital	Chicago	State	4 242	100			Yes	2	Varies	Indef	5	1	\$150 and up			
Cook County Psychopathic Hospital	Chicago	Co	275	100			No	1	Varies	Indef			\$170-221			
Research and Educational Hospital	Chicago	State	352	100			234	Yes	2	Varies	12	152	76	\$50		
East Moline State Hospital	East Moline Ill.	State	1 949	100			Yes	1	Varies	Indef	30	16	\$100			
Kankakee State Hospital	Kankakee Ill.	State	4 000	100			Yes	1	Varies	Indef	112	34	\$166			
Central State Hospital	Indianapolis	State	1 729				1 848	No	3	Varies	Indef	18	18	\$166		
Logansport State Hospital	Logansport Ind.	State	1 682	96	3	1	1 636	No	2	Varies	Indef	11	11	\$128.20-171		
Iowa State Psychopathic Hospital	Iowa City	State	60	90		1	9 320	Yes	4	May	12 24	1	83	\$141.66		
Oswatimie State Hospital	Oswatimie Kan.	State	1 601	91			Yes	1	July	Indef	21	22	\$100			
Meminger Sanitarium	Topeka Kan.	Indep	45				100	108	Yes	1	Sept	12	10			
East Louisiana State Hospital	Jackson	State	3 520	98			2 393	No	1	Varies	Indef	8	4	\$700		
Baltimore City Hosps. (Psychopathic)	Baltimore	City	320	100			No	1	Dec	Indef	14	48	\$100			
Johns Hopkins Hospital	Baltimore	Indep	1 004	58	30	12	Yes	4	June	Indef	438	72	\$41.66-53.33			
Springfield State Hospital	Sykesville Md.	State	2 600	99			1	No	1	July	Indef	29	17	\$70		
Sheppard and Froeh Pratt Hospital	Towson Md.	Indep	290	6	65	29	3.3	No	4	Varies	24	0	0	None		
McLean Hospital	Belmont Mass.	Indep	232				341	No	4	Varies	Indef	10		\$0-120		
Boston Psychopathic Hospital	Boston	State	110	75	20		No	10	April	12 24	21	75	\$15			
Boston State Hospital	Boston	State	2 900				3 009	No	3	Varies	Indef	115	42	\$120		
Massachusetts General Hospital	Boston	Indep	400	52	34	13	333	Yes	1	Varies	Indef	289	57	\$41.66 and up		
Gardner State Colony	Gardner Mass.	State	1 359	97	2	1	1 600	Yes	1	Varies	Indef	15	25	\$135		
Medfield State Hospital	Medfield Mass.	State	1 800				Yes	1	July	12	34	31				
Grafton State Hospital	North Grafton Mass.	State	1 493	100			No	2	March	Indef	0	0				
Launton State Hospital	Taunton Mass.	State	1 047	93	4	3	2 031	No	4	June	Indef	80	40	\$130		
State Psychopathic Hospital of the University of Michigan	Ann Arbor Mich.	State	62	100			261	Yes	1	May	12	10		\$130		
Battle Creek Sanitarium	Battle Creek Mich.	Indep	1 013	5	30	60	No	1	Jan	12	7	26		\$120-150		
City of Detroit Receiving Hospital	Detroit	City	764	100			Yes	1	April	12	430	41	\$33.33-120			
Kalamazoo State Hospital	Kalamazoo Mich.	State	2 750				No	2	July	12	15	6	\$50			
Pontiac State Hospital	Pontiac Mich.	State	1 765				1 763	No	1		12	26	83			
Traverse City State Hospital	Traverse City Mich.	State	2 300				No	1			24	15				
Ipilanti State Hospital	Ipilanti Mich.	State	1 485	80	2	13	1 447	No	1	Varies	Indef	36	36	\$120		
Missouri State Hospital No. 4	Farmington	State	1 190				No	2	Varies	Indef	21	21	\$120-150			
State Hospital No. 1	Fulton Mo.	State	1 907				No	6	Varies	Indef	27	18	\$116.66-108			
State Hospital No. 2	St. Joseph Mo.	State	2 400	98		2	No	1	Varies	Indef	29	14	\$112.60-100			
City Sanitarium	St. Louis	City	2 260				Yes	2	July	Indef	26	10	\$10			
St. Louis City Hospital	St. Louis	City	885	100			1 749	Yes	1	March	12	382	20	\$120		

## PSYCHIATRY—(Continued)

	Control	Capacity	Percentage			Patients Treated Under List Specialty	Outpatient Service	Number of Residences	Time of Appointment	Length of Service in Months	Number of Autopsies	Autopsy Percentage	Salary per Month	
			Free	Part Pay	Full Pay									
Norfolk State Hospital	Norfolk Neb	State	1044	80	11									
Albany Hospital	Albany N Y	Indep	637	6	80	14	7-3	1	Varies	Indef	19	30	\$90 120	
Binghamton State Hospital	Binghamton N Y	State	2946	89	11				Varies	Indef	218	68	\$ 0	
Brooklyn State Hospital	Brooklyn	State	1300	83	17	2 860	No	6	Varies	Indef	86	47	\$1.00	
Buffalo City Hospital	Buffalo	CyCo	1003	71	27	2 1500	Yes	5	Varies	Indef	160	23	\$166 66 and up	
Buffalo State Hospital	Buffalo	State	2519	93	7	3 280	No	8	Varies	Indef	352	34	\$ 0	
Hastings Hillside Hospital	Hastings upon Hud on N Y	Indep	40			1 266	No	1	Varies	Indef	40	24	\$166 and up	
Gowanda State Homeopathic Hospital	Kings Park N Y	State	1303						Varies	Indef	49	60	\$100	
Kings Park State Hospital	Kings Park N Y	State	4000	80	10				Varies	Indef	60	30	\$150	
Middleton State Homeopathic Hosp	Middleton N Y	State	314	87	13	3 036	No	2	Varies	Indef	60	45	\$166 66-200	
Manhattan State Hospital	New York City	State	4319			4 447	Yes	6	Varies	Indef	183	55	\$166 and up	
New York Hospital	New York City	Indep	823	18	58	24			Varies	Indef	120		\$5 32 20	
New York State Psychiatric Institute and Hospital	New York City	State	200						Varies	Indef	10		\$25	
St Lawrence State Hospital	Ogdensburg N Y	State	2310	90		5 2703	No	7	Varies	Indef	70	41	\$166 and up	
Hudson River State Hospital	Poughkeepsie N Y	State	464	10	10	5 421	No	5	Varies	Indef	111	25	\$166 66 and up	
Rochester State Hospital	Rochester N Y	State	2666	84	13				Varies	Indef	49	26	\$1.00	
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	Indep	500	6	24				Varies	Indef	302	63	\$41 66 and up	
Utica State Hospital	Utica N Y	State	1608	100		2 440	No	1	Varies	Indef	40	21	\$166 66 and up	
Grasslands Hospital	Valhalla N Y	Co	903	89	2	9 1170	Yes	2	Varies	Indef	216	67	\$80 200	
Bloomington Hospital	White Plains N Y	State	732	5	54	41	402	No	7	Varies	Indef	10	\$100 and up	
North Dakota State Hosp for Insane	Jamestown N D	Indep	920	90		5 1370	Yes	2	Varies	Indef	36	18	\$166 and up	
Cincinnati General Hospital	Cincinnati	City	70			173	No	1	Varies	Indef	675	45	None	
Cincinnati Sanitarium	Cincinnati	City	100			603	Yes	3	Varies	Indef	621	44	\$120	
Cleveland State Hospital	Cleveland	State	2000						Varies	Indef	18	20	Up to \$100	
Columbus State Hospital	Columbus O	State	2000						Varies	Indef	45	20	\$131 66	
Dayton State Hospital	Dayton O	State	100						Varies	Indef	18	19	\$141 66	
Allentown State Hospital	Allentown Pa	State	100						Varies	Indef	30	10	\$100	
Danville State Hospital	Danville Pa	State	100						Varies	Indef	30	21	\$136 66 and up	
Norristown State Hospital	Norristown Pa	State	100						Varies	Indef	30	21	\$136 66 and up	
Friends Hospital	Philadelphia	State	190						Varies	Indef	30	21	\$136 66 and up	
Pennsylvania Hospital Department for Mental and Nervous Diseases	Philadelphia	Indep	220	5	61	34	220	Yes	2	Varies	Indef	10		
Philadelphia General Hospital	Philadelphia	City	2510						Varies	Indef	10			
St Francis Hospital	Pittsburgh	Chrch	457	22	8	70	4 377	Yes	2	Varies	Indef	10		
Warren State Hospital	Warren Pa	State	100						Varies	Indef	10			
State Hospital for Mental Diseases	Howard R I	State	100						Varies	Indef	10			
Butler Hospital	Providence R I	Indep	174	8	73	19	2 027	Yes	4	Varies	Indef	10		
Charles V Chapin Hospital	Providence R I	City	260	66	10	24	607	Yes	2	Varies	Indef	10		
Western State Hospital	Bolivar Tenn	State	170	94					Varies	Indef	10			
San Antonio State Hospital	San Antonio Tex	State	2320						Varies	Indef	10			
Wichita Falls State Hospital	Wichita Falls Tex	State	2020	99					Varies	Indef	10			
State of Wisconsin General Hospital	Madison	State	315	22	46	32	2 000	No	3	Varies	Indef	10		
Allwaukee Sanitarium	Wauwatosa Wis	Indep	130						Varies	Indef	10			
Los Angeles County Hospital	Los Angeles	Co	3502	100					Varies	Indef	10			
Stanford University Hospital	San Francisco	CyCo	1408	100					Varies	Indef	10			
University of California Hospitals	San Francisco	Indep	320	8	43	49			Varies	Indef	10			
New Haven Hospital	New Haven Conn	State	287						Varies	Indef	10			
Garfield Memorial Hospital	Washington D C	Indep	604	12	76	12			Varies	Indef	10			
Michael Reese Hospital	Chicago	Indep	321	58	20	42			Varies	Indef	10			
St Luke's Hospital	Chicago	Indep	629	62	20	18			Varies	Indef	10			
University of Chicago Clinics	Chicago	Chrch	714	7	18	70			Varies	Indef	10			
Charity Hospital	Chicago	Indep	408	27	67	6			Varies	Indef	10			
Touro Infirmary	Iowa City	State	1008	89	6	6			Varies	Indef	10			
Johns Hopkins Hospital	New Orleans	State	1809	100					Varies	Indef	10			
University Hospital	Baltimore	Indep	366	35	39	26			Varies	Indef	10			
Boston City Hospital	Boston	Indep	1004	58	30	12			Varies	Indef	10			
Massachusetts General Hospital	Boston	State	275	66	20	19			Varies	Indef	10			
Peter Bent Brigham Hospital	Boston	City	1838	88					Varies	Indef	10			
University Hospital	Boston	Indep	400	63	34	13			Varies	Indef	10			
City of Detroit Receiving Hospital	Detroit	State	247	37	27	36			Varies	Indef	10			
Hurley Hospital	Ann Arbor Mich	Indep	1287						Varies	Indef	10			
St Louis City Hospital	St Louis	City	764	100					Varies	Indef	10			
University of Nebraska Hospital	Omaha	City	420						Varies	Indef	10			
Long Island College Hospital	Brooklyn	State	880	100					Varies	Indef	10			
Buffalo City Hospital	Buffalo	Indep	220	100					Varies	Indef	10			
Bellevue Hospital	New York City	Indep	480	17	32	51			Varies	Indef	10			
Lenox Hill Hospital	New York City	City	1065	71	27	2			Varies	Indef	10			
Metropolitan Hospital	New York City	Indep	2084	100					Varies	Indef	10			
Montefiore Hosp for Chronic Dis	New York City	City	477	18		82			Varies	Indef	10			
Mount Sinai Hospital	New York City	Indep	706	84	5	11			Varies	Indef	10			
New York Hospital	New York City	Indep	704	90	5	5			Varies	Indef	10			
Presbyterian Hospital	New York City	Indep	623	18	58	24			Varies	Indef	10			
St Luke's Hospital	New York City	Indep	641						Varies	Indef	10			
Strong Memorial and Rochester Municipal Hospitals	New York City	Chrch	540	69		31			Varies	Indef	10			
Duke Hospital	Rochester N Y	Indep	560	56	24	20			Varies	Indef	10			
Cincinnati General Hospital	Staten Island N Y	City	1642	100					Varies	Indef	10			
University Hospitals	Durham N C	Indep	456	95		5			Varies	Indef	10			
Univ of Ore Med School Hospital	Cincinnati	City	925	90		5			Varies	Indef	10			
Philadelphia General Hospital	Portland Ore	Indep	539	90		45			Varies	Indef	10			
St Francis Hospital	Philadelphia	Co	333	95		4			Varies	Indef	10			
Medical College of Va Hosp Division	Pittsburgh	State	594	37	23	40			Varies	Indef	10			
University of Virginia Hospital	Richmond	City	2515						Varies	Indef	10			
State of Wisconsin General Hospital	University	Chrch	457	22	8	70			Varies	Indef	10			
Hillman Hospital	Madison	Indep	456	10	79	11			Varies	Indef	10			
Fresno County General Hospital	Birmingham Ala	State	315	22	46	32			Varies	Indef	10			
Cedars of Lebanon Hospital	Fresno Calif	Co	475	100					Varies	Indef	10			
Los Angeles County Hospital	Los Angeles	Indep	523	98		2			Varies	Indef	10			
White Memorial Hospital	Los Angeles	Co	280	21	6	73			Varies	Indef	10			
Numerical references will be found on page 608	Los Angeles	Chrch	3572	100					Varies	Indef	10			
			134	1	69	30	1 449	Yes	1	Jan	12	266	31	\$36 40
									Jan	12	80	34	\$15-130	
									Jan	12	1942	52	\$100	
									Jan	12	38	30	\$60-146 25	



			Control	Classification of Patients			Patients treated Under Listed Specialty	Outpatient Service	Number of Residences	Time of Appointment	Length of Service in Months	Number of Autopsies	Autopsy Percentage	Salary per Month
				Percentage	Free	Part Pay								
SURGERY—(Continued)														
San Bernardino County Charity Hosp	San Bernardino Calif	Co	302	100			586	Yes	1	Jan or Feb	12	149	50	\$75
Hospital for Children	San Francisco	Indep	250	13	22	65	832	Yes	1	Jan	12	33	41	\$25
Mount Zion Hospital	San Francisco	Indep	198	22	15	63	1,559	Yes	1	Feb	12	87	50	\$50
San Francisco Hospital	San Francisco	CyCo	1,408	100			2,864	Yes	4	Jan	12	843	62	\$50
Stanford University Hospitals	San Francisco	Indep	329	8	43	40	866	Yes	3	Jan	12	71	48	\$67.50
University of California Hospital	San Francisco	State	287				765	Yes	5	Feb	12	131	69	\$25-75
Santa Clara County Hospital	San Jose Calif	Co	499	100			3,570	Yes	1	Dec	12	228	56	\$125
Colorado General Hospital	Denver	State	178	67	33		487	Yes	1	Dec	12	162	82	\$10
New Haven Hospital	New Haven Conn	Indep	504	12	76	12	2,168	Yes	10	Jan & July	12 15	164	46	\$100
Gallinger Municipal Hospital	Washington D C	City	825	99			1,776	No	3	Jan	12	644	53	\$30.50
Garfield Memorial Hospital	Washington D C	Indep	321	58			42	Yes	1	Dec	12	68	39	\$135
James M Jackson Memorial Hospital	Miami Fla	City	350	67			3,514	Yes	1	July	12	94	19	\$100
Grady Hospital Emory University														
Division (Colored Unit)	Atlanta Ga	City	266	100			2,623	Yes	2	Jan or Feb	12	161	22	Varies
University Hospital	Augusta Ga	City	267	70	30	7	2,229	Yes	3	Nov or Dec	12	143	27	\$50.125
Augustana Hospital	Chicago	Chrch	375	22	12	66		Yes	1	Oct	12	35	21	None
Passavant Memorial Hospital	Chicago	Indep	250	5	1	94	984	Yes	2	Jan & July	12	44	60	None
Presbyterian Hospital	Chicago	Chrch	462	26	46	28	4,674	Yes	2	Varies	12	127	47	\$50
Provident Hospital (col)	Chicago	Indep	150	7	50	43	820	Yes	1	July	12	50	40	\$50
Research and Educational Hospital	Chicago	State	382	100			1,022	Yes	3	Varies	12	152	76	\$50
St Luke's Hospital <sup>72</sup>	Chicago	Chrch	714	7	18	75	3,436	Yes	6	Jan	12	96	37	None
University of Chicago Clinics	Chicago	Indep	408	27	67	6		Yes	4	July	12 36	149	76	\$115.50 220
Indianapolis City Hospital	Indianapolis	City	566				1,623	Yes	3	March	12	314	38	\$70.83
Indiana University Hospitals	Indianapolis	State	480	82	4	14	1,333	Yes	4	Jan	12	157	49	\$33.33
University Hospitals	Iowa City	State	1,008	89	6	5	2,029	Yes	7	Jan	12 36	301	57	Up to \$70.33
Bell Memorial Hospital	Kansas City Kan	State	250	15	74	11	957	Yes	2	Dec	12	173	83	\$40.00
Louisville City Hospital	Louisville Ky	City	444	100			1,600	Yes	11	Feb	12	337	36	\$73 and up
Charity Hospital	New Orleans	State	1,809	100				Yes	3	May or June	48	1,400	46	Varies
Touro Infirmary	New Orleans	Indep	366	35	39	26	2,101	Yes	1	Jan or Feb	24	99	38	\$25
Baltimore City Hospitals (General)	Baltimore	City	750	100				Yes	3	Dec	12	250	29	\$50
Bon Secours Hospital	Baltimore	Chrch	145	35	21	44	1,226	Yes	2	Dec or Jan	12	10	19	\$125
Church Home and Infirmary	Baltimore	Chrch	184	15	66	19	1,578	Yes	3	Jan	12	48	46	\$41.66
Johns Hopkins Hospital	Baltimore	Indep	1,004	58	30	12		Yes	7	June	Indef	438	72	\$41.66-\$33
Maryland General Hospital	Baltimore	Chrch	228	45	6	49	2,106	Yes	3	Dec	12 36	37	16	\$35
Mercy Hospital	Baltimore	Chrch	264	46	14	40	1,571	Yes	5	Jan	12 36	46	21	\$10.50
Provident Hosp and Free Disp (col)	Baltimore	Indep	129	88	3	9		Yes	2	Oct	60	33	18	\$25
St Agnes Hospital	Baltimore	Chrch	212	39	36	25	1,871	Yes	3	Dec	36	39	25	\$50
St Joseph's Hospital	Baltimore	Chrch	299	48	10	42	2,433	Yes	5	Jan	12	67	30	None
Sinai Hospital	Baltimore	Indep	269	51	10	39	2,233	Yes	1	Jan	12	71	29	\$50
South Baltimore General Hospital	Baltimore	Indep	115	34	40	26	1,551	Yes	2	Dec	12	20	16	\$50
Union Memorial Hospital	Baltimore	Indep	332	22	53	25	2,613	Yes	2	Jan	24-48	89	39	\$30-40
University Hospital	Baltimore	State	275	56	25	19		Yes	4	Jan	12	127	39	\$25
West Baltimore General Hospital	Baltimore	Indep	200	39	61	14	1,456	Yes	3	Jan	12	21	22	\$50-50
Beth Israel Hospital	Boston	Indep	200	22	7	71	1,815	Yes	2	Varies	12	96	41	\$53.33
Boston City Hospital	Boston	City	1,538	88			12,143	Yes	6	Varies	12 24	774	27	\$59.17 and up
Boston Sanatorium	Boston	City	616					Yes	1	Varies	24			\$59.17 and up
Children's and Infants Hospitals	Boston	Indep	333	3	48	49	1,256	Yes	2	Varies	12	118	78	\$56
Long Island Hospital	Boston	City	550	100			205	Yes	1	July	Indef	71	47	\$112.50
Massachusetts General Hospital	Boston	Indep	405	53	34	13	5,161	Yes	5	Varies	12	259	57	\$41.66 and up
Massachusetts Memorial Hospitals	Boston	Indep	367	22	46	32		Yes	1	March	12	95	45	\$100
Peter Bent Brigham Hospital	Boston	Indep	247	37	27	36	2,442	Yes	5	Varies	16-24	170	64	\$41.66-\$33
Truesdale Hospital	Fall River Mass	Indep	125	16	44	40	1,704	No	2	Jan & July	12	48	43	None
Memorial Hospital	Worcester Mass	Indep	215	17	9	74	1,434	Yes	1	March or April	12	75	54	\$20
University Hospital	Ann Arbor Mich	State	1,287				3,684	Yes	12	March	12	348	50	\$25
Battle Creek Sanitarium	Battle Creek Mich	Indep	1,013	5	35	60		No	1	Jan	12	7	26	\$195-150
City of Detroit Receiving Hospital	Detroit	City	764	100				Yes	2	April	12	430	41	\$53.33 125
Grace Hospital	Detroit	Indep	398	30	48	22	2,401	Yes	1	March	12	127	34	\$75
Harper Hospital	Detroit	Indep	750	13	48	39	5,787	Yes	3	Feb	12 60	82	20	\$12
Henry Ford Hospital	Detroit	Indep	610	42	58	3,219		No	4	Jan	12 48	109	43	\$110-150
Jefferson Clinic and Diagnostic Hosp	Detroit	Indep	62	3	6	91		Yes	1	Feb	12	5	13	\$50
Providence Hospital	Detroit	Chrch	450	33	55	12	7,486	Yes	1	Jan	12	95	33	\$10
Blodgett Memorial Hospital	Grand Rapids Mich	Indep	150	31	48	21	1,356	Yes	1	Jan	12	39	33	\$40
St Mary's Hospital	Grand Rapids Mich	Chrch	253	4	42	54	1,670	Yes	1	Jan	12	73	30	\$40
Minneapolis General Hospital	Minneapolis	City	674	98	2		2,058	Yes	6	Jan & July	12 36	508	47	\$25-50
Ancker Hospital	St Paul	CyCo	1,050	98	1		1,742	Yes	1	March	Indef	492	64	\$40
St Louis County Hospital	Clayton Mo	Co	225	90	1	9	1,970	No	1	Jan	12	71	20	\$100
Barnard Free Skin and Cancer Hosp	St Louis	Indep	44	100				Yes	1	Jan	12	17	44	\$75
Barnes Hospital	St Louis	Chrch	270	29	6	65	4,440	Yes	6	Dec	24	179	66	\$10
Jewish Hospital	St Louis	Indep	290	39	47	14	2,108	Yes	2	Dec	12 36	63	83	\$50
St Louis City Hospital	St Louis	City	885	100			4,956	Yes	2	March	12	382	25	\$125
St Louis City Hospital No 2 (col)	St Louis	City	335	100			2,002	No	1	July	12 36	122	10	\$195
St Luke's Hospital	St Louis	Chrch	210	20	29	51	1,975	Yes	2	Dec	12 24	33	26	\$50
St Mary's Group of Hospitals	St Louis	Chrch	457	39	19	42	3,293	Yes	5	Varies	24 36	155	47	\$30-50
Jersey City Hospital	Jersey City	City	1,200	90	5	5	3,600	Yes	2	April & Nov	12 24	197	22	\$100 and up
Albany Hospital	Albany N Y	Indep	537	6	80	14	2,277	Yes	1	Feb	12	278	68	\$50
Cumberland Hospital	Brooklyn	City	321	100			2,111	Yes	2	July	12	240	40	\$130
Kings County Hospital	Brooklyn	City	1,660				8,677	Yes	3	Jan & July	12	727	19	\$50
Long Island College Hospital	Brooklyn	Indep	480	17	32	51	1,891	Yes	3	Feb	12 24	175	46	\$45
Buffalo City Hospital	Buffalo	CyCo	1,065	21	47	2	1,709	Yes	3	June	24	352	34	\$50
Buffalo General Hospital	Buffalo	Indep	462	14	35	51	2,610	Yes	3	Dec	12 24	171	38	\$25-50
Millard Fillmore Hospital	Buffalo	Indep	309	26	32	42	1,292	Yes	2	Dec	12 24	119	49	\$50
Clifton Springs Sanitarium and Clinic	Clifton Springs N Y	Indep	460				496	No	1	July	12	32	63	\$50 and up
Charles S Wilson Memorial Hospital	Johnson City N Y	Indep	219	2	3	95	619	Yes	1	Dec	12	53	49	\$10
Bellerue Hospital	New York City	City	2,084	100			13,421	Yes	2	Jan & July	12	903	23	\$33.33
Fifth Avenue Hospital	New York City	Indep	300	25	20	55	2,523	Yes	2	Jan	12	23	15	\$50-100
Lenox Hill Hospital	New York City	Indep	477	18		82	2,006	Yes	1	Varies	Indef	124	39	\$90-123
Metropolitan Hospital	New York City	City	1,620	100			2,538	Yes	2	Jan & July	24	295	24	\$75-117.50
Montefiore Hosp for Chronic Diseases	New York City	Indep	706	84	5	11		Yes	2	Jan & July	12	345	63	\$50-100
Mount Sinai Hospital	New York City	Indep	754	90	5	5		Yes	4	Varies	12	435	53	\$45-170
New York Hospital	New York City	Indep	823	18	58	24	2,668	Yes	14	Feb	12 6	183	68	\$33.33
N Y Polyclinic Med School and Hosp	New York City	Indep	340	20	22	58	2,437	Yes	8	Jan, May Sept	24	45	24	None
N Y Post Grad Med School and Hosp	New York City	Indep	415	12	4	84	3,337	Yes	1	March	12	115	36	\$50 25

		Control	Classification of Patients				Patients Treated Under Listed Specialty	Outpatient Service	Number of Residences	Time of Appointment	Length of Service in Months	Number of Autopsies	Autopsy Percentage	Salary per Month
			Percentage											
			Free	Part Pay	Full Pay									
SURGERY—(Continued)														
New York Society for the Relief of the Ruptured and Crippled	New York City	Indep	260	22	30	48	1 001	Yes	1	Jan & July	12	14	34	
Presbyterian Hospital	New York City	Indep	641					Yes	10	Jan & July	12 36	190	43	\$41 66 and up
Stuyvesant Square Hospital	New York City	Indep	93	27	1	72	701	Yes	2	Jan & July	12	4	13	\$8 75
Rochester General Hospital	Rochester, N Y	Indep	365	56	11	33	1 671	Yes	1	April	12	171	64	\$50
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	Indep	560	50	24	20		Yes	6	Feb	12 36	3 2	63	\$41 66 and up
Hospital of the Good Shepherd	Syracuse N Y	Indep	242	4	32	64	2 439	No	2	Dec	12	81	34	\$37 50 to
Grasslands Hospital	Valhalla N Y	Co	903	89	2	9	655	Yes	12	Jan & July	12	296	67	\$50 200
Duke Hospital	Durham N C	Indep	4 6	9 6			1 120	Yes	6	Dec	12	160	59	\$18 75-75
Watts Hospital	Durham N C	Indep	200	40	28	32	2 4 0	Yes	1	Jan or Feb	12	39	35	\$0-60
City Hospital	Akron, O	Indep	3 4	46	12	40	3 641	Yes	3	Feb	12 36	223	64	\$50 100
Cincinnati General Hospital	Cincinnati	City	92 1	9 7	5		3 438	Yes	13	May	12-60	67 5	4 3	None
Deaconess Hospital	Cincinnati	Chrch	175	4	53	43	1 672	No	1	Dec	12	68	38	\$4 5
Good Samaritan Hospital	Cincinnati	Chrch	3 5	9	62	29	2 440	Yes	3	Dec	24 36	62	24	\$0 75
Jewish Hospital	Cincinnati	Indep	262	2 5	37	35	1 8 1	No	1	Dec	12	34	23	\$75
Charity Hospital	Cleveland	Chrch	301	51		49		Yes	1	Jan	24	121	38	\$50
City Hospital	Cleveland	City	1 58 5				3 218	Yes	8	Jan	18	621	44	\$46 50
Mount Sinai Hospital	Cleveland	Indep	270	30	57	13		Yes	1	Dec	12	66	33	\$50-65
St Alexis Hospital	Cleveland	Chrch	220	2 5	3	72	2 577	Yes	2	Dec	12	33	15	\$50-60
St John's Hospital	Cleveland	Chrch	207	11	83	6	1 246	No	1	Dec	12	32	18	\$50 100
St Luke's Hospital	Cleveland	Chrch	394	14	6	80	2 238	Yes	3	Dec	12 18	83	28	\$25-75
University Hospitals	Cleveland	Indep	639	47	8	45	1 762	Yes	6	Jan	12 2	335	65	\$20-75
Starling Loving University Hospital	Columbus O	State	276	60	14	26		No	4	Dec	12 24	132	41	\$33 33
Miami Valley Hospital	Dayton O	Indep	383	54	20	26	4 104	Yes	1	Jan	12 24	286	60	\$100
State University Hospitals	Oklahoma City	State	467	57	34	9	2 174	Yes	3	Dec	12	186	42	\$25 50
Univ of Ore Med School Hospitals	Portland Ore	Co	408	95	4	1	1 344	Yes	2	Feb	24	162	42	\$30-45
Geo F Gelsing Memorial Hospital	Danville Pa	Indep	200	24	10	66	1 407	Yes	1	Jan	12	76	36	
Graduate Hosp of the Univ of Pa	Philadelphia	Indep	475	31	12	57	1 194	Yes	2	Jan	12	82	49	None
Jewish Hospital	Philadelphia	Indep	422	33	9	58	3 270	Yes	1	Jan or Feb	12	1 52	44	None
Philadelphia General Hospital	Philadelphia	City	2 515				5 282	Yes	1	July	12	1 62 4	47	\$100 150
Allegheny General Hospital	Pittsburgh	Indep	405	57	1	42	3 291	Yes	2	Feb	24	91	25	\$51
St Francis Hospital	Pittsburgh	Chrch	487	22	8	70	1 498	Yes	1	Nov	12	105	36	\$0 150
Reading Hospital	Reading Pa	Indep	268	55	2	43	1 587	Yes	1	Jan	12	155	70	\$90-2 0
Knoxville General Hospital	Knoxville Tenn	City	349				1 661	Yes	1	July	12	35	9	\$100
Memphis General Hospital	Memphis Tenn	City	400	55	5		6 028	Yes	2	July	12	222	16	\$51
Nashville General Hospital	Nashville Tenn	City	305	91		9	2 671	Yes	2	Dec	12	65	17	\$75
Vanderbilt University Hospital	Nashville Tenn	Indep	210	31	36	33	1 733	Yes	4	July	12	144	63	\$41 66
Baylor University Hospital	Dallas, Tex	Chrch	379	12	11	77	5 034	Yes	1	April	12	97	36	\$100
Parkland Hospital	Dallas Tex	CyCo	293	93	7		2 213	Yes	1	June	12	113	17	\$90
John Sealy Hospital	Galveston Tex	City	374	78		22	2 332	Yes	1	March	12	182	42	None
Hermann Hospital	Houston Tex	Indep	200	92		8	2 398	Yes	1	March	12 24	96	51	\$75-100
Dr W H Groves Latter Day Saints Hospital	Salt Lake City	Chrch	466	7		93	2 970	Yes	1	May	12	52	24	\$35 4
Medical College of Va Hosp Division	Richmond	Indep	456	10	79	11	3 2 7	Yes	6	Feb	12 6	117	21	\$0
Jefferson Hospital	Roanoke Va	Indiv	110				1 038	No	2	Jan	12 24	18	33	\$150
University of Virginia Hospital	University	State	315	22	46	32	1 408	Yes	1	Dec	12	116	43	\$25-75
Charleston General Hospital	Charleston W Va	Indep	165	3	11	86	1 862	Yes	3	Jan	36	45	34	\$15 100
State of Wisconsin General Hospital	Madison	State	652					Yes	4	Jan	12 36	281	72	\$43 66 and up
THORACIC SURGERY														
Norwich State Tuberculosis Sanatorium (Uncas on Thames)	Norwich Conn	State	404					Yes	1	Varies	Indef	20	15	\$144
Sea View Hospital	Staten Island N Y	City	1 612	100				Yes	3	Jan & July	12	323	53	\$100 117 90
TROPICAL DISEASES														
Boston City Hospital	Boston	City	1 838	88		12		Yes	1	Varies	48	774	27	\$79 17 and up
Presbyterian Hospital	San Juan P R	Chrch	77					Yes	1		Indef			
University Hospital of the School of Tropical Medicine	San Juan P R	Gov't	54	88	7	6		Yes	1	April	Indef	25	64	\$175-200
TUBERCULOSIS														
Arroyo Sanatorium	Livermore Calif	Co	185	100			203	No	2	Jan	Indef	16		\$125
Barlow Sanatorium	Los Angeles	Indep	100	4	56			Yes	2	Varies	12	16		\$100
Los Angeles County Hospital	Los Angeles	Co	3 572	100			954	Yes	1	Jan & July	12	1 942	53	\$10 75
Pottenger Sanatorium and Clinic	Monrovia Calif	Indep	120					Yes	1	Varies	Indef	16		\$75 and up
Santa Clara County Hospital	San Jose Calif	Co	490	100			175	Yes	2	Dec	12	228	56	\$125
Fairmont Hospital of Alameda County	San Leandro Calif	Co	898	100				Yes	1	April	12	261	61	\$125
Union Printers Home and Tuberculosis Sanatorium	Colorado Springs Colo	Indep	420	100				No	1	Varies	Indef	13	26	\$125 and up
National Jewish Hospital	Denver	Indep	250	100			200	Yes	2	Varies	Indef	22	55	\$100 200
Sanatorium of the Jewish Consumptives Relief Society	Spickard Colo	Indep	300	10			322	Yes	1	Varies	Indef	16		\$125 and up
Meriden State Tuberculosis Sanatorium	Meriden Conn	State	2 52				543	Yes	1	Varies	Indef	10		\$150 300
New Haven Hospital	New Haven, Conn	Indep	504	12	76	12	138	Yes	1	Jan & July	12	184	46	\$100
Norwich State Tuberculosis Sanatorium (Uncas on Thames)	Norwich Conn	State	404				835	Yes	2	Varies	Indef	20	15	\$144
City of Chicago Municipal Tuberculosis Sanatorium	Chicago	City	1 241	100			2 889	Yes	2	Varies	Indef	103	48	\$175 and up
University of Chicago Clinics	Chicago	Indep	408	27	67	6		Yes	1	July	12	149	76	\$112 50-220
Macon County Tuberculosis Hospital	Decatur Ill	Co	60	90			95	Yes	1	July	36	16		\$125
Rockford Municipal Sanitarium	Rockford Ill	CyCo	120	100			109	Yes	1	Sept	12	16		\$100
Boehne Tuberculosis Hospital	Evansville Ind	Co	115	58	35	7	378	No	1	July	Indef	23	79	\$150
Indiana State Sanatorium	Rockville Ind	State	205	100			400	Yes	1	Varies	Indef	10		\$50
Baltimore City Hosps (Tuberculosis)	Baltimore	City	182	100				No	2		24	74	44	\$
Boston Sanatorium	Boston	City	618				1 074		5	Varies	12 36			\$79 17 and up
Westfield State Sanatorium	Westfield Mass	State	306	98		2	389	Yes	1			0	0	
Belmont Hospital	Worcester Mass	City	2 5	100				Yes	1	Varies	Indef	25	40	\$133
American Legion Hospital	Battle Creek Mich	State	375	100			401	No	2	Varies	Indef	5	11	\$125-200
Herman Kiefer Hospital	Detroit	City	1 400	98		2		No	11	July	12	174	26	\$125-200
Michigan State Sanatorium	Howell, Mich	State	485	100			753	Yes	3	Varies	Indef	12	40	\$150-200
Jackson County Sanatorium	Jackson Mich	Co	64	91	8	1		Yes	1	Sept	Indef	16		\$25-50
Morgan Heights Sanatorium	Marquette Mich	Co	90	98	1	1	174	Yes	1	July	12	16		\$100

		Control	Classification of Patients							Outpatient Service	Number of Residences	Time of Appointment	Length of Service in Months	Number of Autopsies	Autopsy Percentage	Salary per Month
			Capacity	Percentage			Patients Treated Under Listed Specialty									
				Free	Part Pay	Full Pay										
TUBERCULOSIS—(Continued)																
William H Maybury Sanatorium	Northville Mich	City	837				1,460	Yes	5	Jan & July	Indef	13	31	\$150 and up		
Nopemling Sanatorium	Nopemling Minn	Co	230	93	1	1		Yes	2	Varies	Indef.	5	17	\$100		
Glen Lake Sanatorium	Oak Terrace Minn	Co	700	93	6	1		Yes	3	March	Indef	37	49	\$10		
City Isolation Hospital	St Louis	City	250	94	2	4	172	No	1	May	Indef	54	38	\$150		
Robert Koch Hospital	St Louis	City	503	100			773	No	6	March	Indef	24	32	\$130		
Mt St Rose Sanatorium	St Louis	Chrch	110	50	39	6	316		1	Varies	12	32	46	\$ 0 00		
New Jersey Sanatorium	Glen Gardner N J	State	494					Yes	2	Varies	Indef	10		\$3 30 and up		
Jersey City Hospital	Jersey City	City	1 200	90	5	5	433	Yes	1	Varies	Indef	197	22	\$100 and up		
Essex Mountain Sanatorium	Verona N J	Co	410	98	2		84	No	3	Varies	Indef	15	8	\$700		
Montefiore Hospital Country Sanat	Bedford Hills N Y	Indep	220	10	90		440	No	3	Jan & July	12	-7		\$10 20		
Loomis Sanatorium	Loomis N Y	Indep	202					No	1	Varies	12	10		\$170		
Metropolitan Life Insurance Co Sanat	Mt McGregor N Y	Indep	360	100			276	No	1	Varies	Indef	5	56	\$120 and up		
Belvue Hospital	New York City	City	2 084	100			2 642	Yes	8	Jan & July	12	903	23	\$3 31		
Lenox Hill Hospital	New York City	Indep	477	18		82	76	Yes	1	Varies	24	124	29	\$90-123		
Metropolitan Hospital	New York City	City	1 620	100			1,302	Yes	5	Jan & July	12 24	230	24	\$10-117.90		
Montefiore Hosp for Chronic Diseases	New York City	Indep	706	84	5	11		Yes	2	Jan & July	12	340	63	\$0 100		
New York State Hospital	Ray Brook N Y	State	300	100			297	No	1	Varies	Indef	10				
Iola Monroe County Tuberculosis Sanatorium	Rochester N Y	Co	400	92	3	5	1 007	Yes	2	Varies	Indef	32	53			
Sea View Hospital	Staten Island N Y	City	1 642	100				Yes	16	Jan & July	12	323	53	\$100 11, 90		
Trudeau Sanatorium	Trudeau N Y	Indep	180	6	94		275	No	2	Varies	12 26	10		\$120 and up		
Grasslands Hospital	Valhalla N Y	Co	903	89	2	9	510	Yes	6	Jan & July	Indef	296	67	\$50 00		
North Carolina Sanatorium	Sanatorium N C	State	400		100		1 170	Yes	2	Varies	Indef	10	31	\$1 00 and up		
City Hospital	Cleveland	City	1,585				467	Yes	1	Jan	12	621	44	\$46 00		
Ohio State Sanatorium	Mt Vernon O	State	24				631	No	2	Varies	Indef	10		\$1 1 66		
Sunny Acres Cleveland T B Sanat	Warrensville O	City	462	99	1		877	Yes	5	Jan & July	12	4	13	\$120-140		
Philadelphia General Hospital	Philadelphia	City	2 310				1 740	Yes	1	July	12	1 625	47	\$100-140		
Rhode Island State Sanatorium	Wallum Lake	State	430	91	9		403	Yes	4	Varies	Indef	19	23	\$160 60 and up		
Pine Breeze Sanatorium	Chattanooga Tenn	Indep	220	94	4	2		Yes	1	Varies	12	4	7	\$170 and up		
Homan Sanatorium	El Paso, Tex	Indep	110		9	91	208	No	1	Nov	24	1	10	\$10		
St Joseph's Sanatorium	El Paso Tex	Chrch	75	10	10	80	113	No	1	June	12	10		\$100		
Wisconsin State Sanatorium	Statesan	State	238	94	5	1	382	No	2	Varies	Indef	2	7	\$10 20		
UROLOGY																
Hillman Hospital	Birmingham, Ala	Co	475	100			517	Yes	2	Jan	12	266	31	\$30-40		
Los Angeles County Hospital	Los Angeles	Co	3 572	100			1 933	Yes	3	Jan & July	24	1 942	53	\$100 10		
Stanford University Hospitals	San Francisco	Indep	329	8	43	49	220	Yes	1	Jan	12	71	48	\$67 50		
University of California Hospital	San Francisco	State	287				467	Yes	1	Feb	12	131	69	\$20-10		
New Haven Hospital	New Haven Conn	Indep	504	12	76	12	307	Yes	1	Jan & July	12	184	46	\$100		
Grady Hospital Emory University	Atlanta, Ga	City	266	100			220	Yes	1	Jan or Feb	12	161	22	Varies		
Division (Colored Unit)	Chicago	Indep	408	27	67	6		Yes	1	July	12	149	76	\$112 50-220		
University of Chicago Clinics	Iowa City	State	1 008	89	6	5	909	Yes	3	Jan	36	301	57	Up to \$ 0 83		
University Hospitals	New Orleans	State	1 809	100				Yes	1	May or June	24	1 400	46	Varies		
Charity Hospital	New Orleans	Indep	366	30	39	26		Yes	1	Jan or Feb	12	99	38	\$20		
Touro Infirmary	Baltimore	Indep	1 004	58	00	12		Yes	3	June	Indef	438	72	\$41 60-83 33		
Johns Hopkins Hospital	Boston	Indep	200	22	7	71	214	Yes	1	Varies	24	96	41	\$33 33		
Beth Israel Hospital	Boston	Indep	400	53	34	13	420	Yes	2	Varies	12 24	289	57	\$41 66 and up		
Massachusetts General Hospital	Battle Creek, Mich	Indep	1 013	5	30	60		No	1	Jan	12	7	26	\$120-150		
Battle Creek Sanitarium	Detroit	City	764	100				Yes	1	April	12	430	41	\$3 30-120		
City of Detroit Receiving Hospital	St Paul	CyCo	1 000	98	1	1	452	Yes	1	March	12	492	64	\$40		
Ancker Hospital	St Louis	City	880	100			680	Yes	1	March	12	382	25	\$120		
St Louis City Hospital	Bayonne N J	Indep	215	79	6	15	209	Yes	1	Varies	12	72	40	None		
Bayonne Hospital and Dispensary	Jersey City	City	1 200	90	5	5	1 212	Yes	1	April & Nov	24	197	22	\$100 and up		
Jersey City Hospital	Newark N J	City	70	100			576	No	1	July	12	368	30	None		
Newark City Hospital	Brooklyn	City	1 660				981	Yes	2	Jan & July	12	727	19	\$40		
Kings County Hospital	Brooklyn	Indep	480	17	32	51	308	Yes	2	Feb	12	170	46	\$40		
Long Island College Hospital	Buffalo	CyCo	1 060	71	27	2	418	Yes	2	June	24	302	34			
Buffalo City Hospital	New York City	City	2 084	100			2 063	Yes	3	Jan & July	12 24	903	23	\$33 33		
Bellevue Hospital	New York City	City	1 670	100			413	Yes	1	Jan & July	12	290	24	\$10-11, 90		
Metropolitan Hospital	New York City	City	539	100			539	Yes	2	Jan & July	12	334	33	None		
Morrisania City Hospital	New York City	Indep	823	18	58	24	383	Yes	2	Feb	12	183	58	\$0 20		
New York Hospital	New York City	Indep	410	12	4	84	313	Yes	1	March	12	115	36	\$90 25		
N Y Post Grad Med School and Hosp	New York City	Indep	641					Yes	5	Jan & July	24	109	43	\$11 60 and up		
Presbyterian Hospital	Rochester N Y	Indep	560	56	24	20		Yes	1	Feb	12	302	63	\$41 66 and up		
Strong Memorial and Rochester Municipal Hospitals	Staten Island N Y	City	1 642	100				Yes	1	Jan & July	12	323	53	\$100 11, 90		
Sea View Hospital	Cleveland	Indep	539	47	8	40	502	Yes	1	Jan	12	330	60	\$70-10		
University Hospitals	Columbus O	State	2 600	60	14	26		No	1	Dec	12	182	41	\$4 33		
Starling Loving University Hospital	Philadelphia	Indep	475	31	12	57	215	Yes	1	Jan	12	82	49	None		
Graduate Hospital of the Univ of Pa	Philadelphia	State	594	37	23	40	275	Yes	1	March	12	197	54	None		
Hospital of the Univ of Pennsylvania	Philadelphia	Chrch	476	46	10	44		Yes	1	Varies	12	97	39	None		
Presbyterian Hospital	Pittsburgh	Chrch	600	40	25	30	261	Yes	1	Jan	12 48	103	00	None 11		
Mercy Hospital	University	State	310	22	46	32	460	Yes	1	Dec	24	116	43	\$20-15		
University of Virginia Hospital	Wauwatosa Wis	Co	1 000	94	1	5	506	Yes	1	May	12	283	20	\$100		
Millwaukee County General Hospital																

- 1 Fellowships
- 2 Includes urology
- 3 Residencies at Buffalo City Hospital are three year appointments including internship Salary and bonus paid in lieu of maintenance
- 4 \$300 bonus
- 5 Usually twelve months but may be extended
- 6 Subject to reappointment
- 7 Includes full pay patients
- 8 No salary first six months \$100 per month last six months
- 9 Includes part pay patients
- 10 University of Oregon Medical School Hospitals include Multnomah County Hospital and Doernbecher Memorial Hospital for Children (state control)
- 11 \$0 bonus
- 12 Chicago Maternity Center is not a hospital outpatients only
- 13 No salary first eight months \$20 per month last four months
- 14 Second and fourth years at Detroit Receiving Hospital
- 15 Affiliated Barnes Hospital St Louis Gynecology
- 16 Twenty five deaths or less
- 17 One fellowship six residences
- 18 \$100 bonus
- 19 Includes obstetrics
- 20 Additional stipend from University of Pennsylvania School of Medicine
- 21 Three months training in pediatric neurology given at Emma Pendleton Bradley Home East Providence
- 22 Training in radiotherapy only
- 23 Two of the residents spend six months on surgery and six months on urology
- 24 \$60 bonus
- 25 No salary first year \$50 per month second year
- 26 First six months spent at New York Post Graduate Medical School New York City
- 27 See Montefiore Hospital for Chronic Diseases New York City
- 28 Includes pediatrics
- 29 Includes neurosurgery
- 30 Includes neurology
- 31 Three residences include obstetrics

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 25, 1934

## THE ADMINISTRATION STUDIES SOCIAL INSURANCE

In the message that he gave to the American people just before leaving for Hawaii, President Franklin D. Roosevelt indicated his interest in social insurance, including all means of securing the worker against every type of misfortune or natural disability that might occur to him. Unemployment, sickness, old age and death are obviously the major difficulties that might occur to almost every man. Perhaps a more complete interpretation of the President's point of view was offered by Secretary of Labor Frances Perkins in a radio address, August 13. She indicated that the major objective of the national administration has been economic recovery and that this will continue to be the principal objective until recovery is complete. Before departing on his vacation, however, the President created a committee of cabinet and other officials on economic security. Of this committee Miss Perkins is chairman, the remaining members including the Secretary of the Treasury, the Secretary of Agriculture, the Attorney General and the Federal Emergency Relief Administrator. This committee has now appointed a technical board to study the questions and to advise it in formulating legislation for presentation to the next Congress. Of this board the executive director is Edwin E. Witte, labor economist long connected with the industrial commission and the legislative reference service of the state of Wisconsin. The staff already includes Mrs. Barbara Nachtrieb Armstrong of the University of California, author of "Insuring the Essentials," Edgar Sydenstricker and Dr. Bryce Stewart of New York. Miss Perkins states that the President is expected in the near future to name an advisory commission composed of representative citizens from all parts of the country to aid still further the development of the program for economic security.

After discussing the importance of protection of the worker, Miss Perkins pointed out that "our best hope for protecting the worker against the hazards and vicissitudes of life lies in the application of the principles of insurance." She pointed out that forty-four states

now have workmen's compensation laws, forty-six states have mothers' pension laws, and twenty-eight states have old age pension laws. She emphasized the fact that some provisions are now being made for medical and hospital care to indigents through relief and other agencies. She said, however, that when all of our methods for providing economic security are brought together, they do not begin to meet the needs of the situation. The Committee on Economic Security was therefore developed to work out some plan for solving the difficulties.

Miss Perkins indicated that it is not possible to present a comprehensive program of social insurance to cover farmers and self-employed people as well as wage earners for the next Congress, although she recognized great advantages in a unified system of social insurance presented in one complete whole. She pointed out that she had suggested a program for social action in New York twenty years ago and that all but one of the items then suggested were now in operation in that state. The appointment by the President of the Committee on Economic Security is assurance that the President intends to go ahead with his program, and the committee interprets the executive order that created it as a mandate to survey the entire field and outline a complete program for economic security.

Thus the point of view of the administration is clearly set forth and it remains for the medical profession to make certain that its point of view in relationship to medical practice is fully understood by the committee. At the annual session of the American Medical Association in Cleveland, ten principles for the guidance of the medical profession in setting up any plan were unanimously adopted. The medical profession, in setting forth these principles, aims to protect the quality of medical service rendered to the people and to safeguard the relationship between patient and physician which is fundamental to the best type of medical practice. The staff of the technical board developed by the Committee on Economic Security thus far named is not such as to warrant any expectation of recognition of the medical point of view by the committee. Indeed, the views of Sydenstricker, a member of the staff of the Milbank Foundation, are so completely antagonistic to the medical point of view that one wonders why he should have been among the first to be selected by the committee in developing its work. In the address that he made before the American Academy of Political and Social Science in Philadelphia, February 7, Sydenstricker indicated his opposition to our entire economic system. Thus he said "Any program of action to be given serious consideration at present must assume the continuance of the economic system under which we now live—a system that is characterized by a grossly unequal distribution of wealth and an inability to pay for the essentials or luxuries of life." Mr. Sydenstricker's answer to the problem of medical care is an insurance system that will go

beyond the systems already established abroad and provide every type of medical service to every member of the family of people having incomes below the amount that is sufficient to purchase medical service in any contingency

In a more recent statement, in the *Literary Digest* for July 7, Mr Sydenstricker begins to modify his views or perhaps to change them because of the nature of his new audience. He urges, now, a very gradual development of new methods without disturbing too much our present system of practice. Notwithstanding this softening of the proposals emanating from the Milbank Foundation, the medical profession will not consider itself adequately represented in the development of any plan for sickness insurance by the group involved if Mr Sydenstricker is the only authority on what constitutes proper arrangements for medical care.

In the discussions of this topic that have been carried on during the last ten years, a rather definite alinement of students of the subject has taken place according to their points of view. THE JOURNAL has repeatedly listed those who may be considered as definitely opposed to the policies of the organized medical profession, which embraces almost every competent physician in the United States. The medical profession will probably find it difficult to lend its approval to any plan or system developed by any committee or group that not only fails to include representatives of the medical profession but thus far has failed even to give adequate opportunity to the medical profession to present its point of view officially in these matters. It is to be hoped that the American medical profession merits enough recognition from our government to cause that government to seek its advice and its assistance in the development of these plans from the very first step in the consideration

#### AORTIC STENOSIS

The opening from the left ventricle into the aorta is closed during diastole by the aortic semilunar valves. Whenever these three valves become stiffened or fused by disease, the opening into the aorta is narrowed and the free flow of blood from the ventricle is obstructed. True aortic stenosis has been considered rare. Heart disease has, however, become the leading cause of death, and it may be that aortic stenosis occurs more frequently than has been supposed. In reviewing 6,800 necropsy reports of all types of disease at the Massachusetts General Hospital, McGinn and White<sup>1</sup> found 123 cases of aortic stenosis. In a clinical group of 4,800 cardiovascular cases they found 113 cases of aortic stenosis. The incidence in the two groups was therefore 1.8 and 2.3 per cent, respectively, which was higher than had been anticipated.

Since the basal cardiac area has been called the field of romance in diagnosis, it is not strange that the

criteria for a diagnosis of aortic stenosis have changed in the last generation. When a basal systolic murmur alone permitted a diagnosis of aortic stenosis, the lesion was diagnosed too frequently. Then followed an over-cautious period when the criteria required were a loud aortic systolic murmur, an aortic systolic thrill, absence of the second aortic sound, a plateau or anacrotic pulse, and perhaps an aortic diastolic murmur. The preferable diagnostic position, McGinn and White have found, lies between these extremes. The diagnosis may be justified when there is a harsh and loud aortic systolic murmur transmitted to the neck, whether or not it is accompanied by the foregoing confirmatory signs. A loud systolic murmur in the second right interspace should suggest aortic stenosis when there is evidence of other valvular defects or a history of rheumatic infection and when evidence of syphilitic aortitis or of marked hypertension is absent. It is interesting that a clinical diagnosis had been made in only one third of the 123 cases of aortic stenosis found among the 6,800 necropsies. Aortic stenosis is missed much more often when it is present, the Boston investigators believe, than it is diagnosed when it is absent. A clinical diagnosis of aortic insufficiency was frequently made in this series of cases, in fact, that lesion also was present in fifty-two of the aortic stenosis cases that came to necropsy. About every third case of mitral stenosis in the necropsy group also presented aortic stenosis. In the clinical group the ratio was much lower, but in the second half of this group, when perhaps the investigators were more zealous, twice as many cases of aortic stenosis were discovered as in the first half of the series.

There was a history of an important infection in one third of the necropsy cases of aortic stenosis and in one half of the clinical cases. The infections most frequently recorded were tonsillitis, pneumonia, influenza, typhoid and gonorrhea. Syphilis was not diagnosed in any case in the clinical series and in only four cases in the necropsy series.

The patients complained commonly of dyspnea, orthopnea and edema, and of faintness or dizziness or actual syncope. About 19 per cent of the patients had angina pectoris and 15 per cent cardiac asthma. The pulse was described as normal in the majority of these cases. A Corrigan pulse was noted in only twelve cases in the entire series, and a plateau pulse was noted in only nine cases. The diastolic blood pressure varied between 80 and 110 mm of mercury. The average pulse pressure was unexpectedly high, 60 mm of mercury. There was cardiac enlargement to the left, found in all but ten of the total number of cases. Sometimes the fluoroscope would reveal the calcified aortic valves. The most common observation in the electrocardiogram was left axis deviation, although in some cases it was not present. Abnormal T waves exclusive of the bundle branch block cases were present in sixty-six of the 110 electrocardiograms.

<sup>1</sup> McGinn, Sylvester and White, P. D. Clinical Observations on Aortic Stenosis. *Am. J. M. Sc.* 188: 1 (July) 1934.

Of the 236 patients with aortic stenosis, 172 were known to be dead, twelve died following operations and nine others died suddenly. The majority died of congestive heart failure. The average number of attacks of congestive failure was two.

From this study it is evident that all grades of aortic stenosis exist. The lesion is not uncommon, especially in males. While it is less serious than aortic regurgitation, aortic stenosis is important even if mild, because of the progressive nature of the lesion and because of its association with congestive heart failure. The detection of such cases is clearly dependent on the fine application of the physical diagnostic art. The making of a correct diagnosis in only one third of the instances established post mortem is an indication of the necessity for more attention to this phase of medical practice.

#### THE NEW AMERICAN MEDICAL DIRECTORY

After fourteen months the work of compiling and printing the Thirteenth Edition of the American Medical Directory has been completed and copies are now available for general distribution. The importance of this volume as a source of authoritative data of the medical profession and its allied interests is widely recognized.

The 1934 directory contains 2,451 pages and lists 178,516 physicians in the United States, its dependencies, Canada and Newfoundland, and American graduates and licensees temporarily practicing in foreign countries. It supplies also information regarding the medical practice acts of various states, the Constitution, By-Laws and Principles of Medical Ethics of the American Medical Association, the membership of special organizations of physicians, and the names and locations of medical schools, medical journals, medical libraries, state institutions, hospitals, sanatoriums and charitable institutions. All the information is verified and in form for convenient reference.

Three years has passed since the Twelfth Edition appeared. More than 92,541 changes of address have been made, 18,727 names of new physicians added and 11,473 dropped from the book on account of death. These figures, however, do not include the thousands of changes in society affiliations, teaching positions in medical schools, and specialties.

The Atlantic and Pacific states show the largest increase in the number of physicians. The Central and Southern states, with the exception of Wisconsin and Texas, are practically unchanged or show losses. This is probably accounted for by the continuation of physicians to locate in larger cities and the migration of physicians from rural districts to more thickly populated centers. Good roads have made it possible for physicians to widen their areas of practice. In the states showing increases, New York leads the list with

a gain of 1,804, the 1931 edition contained 21,008 physicians, while the 1934 edition has 22,812. Other states with noticeable gains are New Jersey, Pennsylvania, Maryland, California, Texas, Wisconsin and Connecticut. The seventeen states that show losses are Arkansas, Alabama, Kentucky, Indiana, Kansas, Maine, Missouri, Montana, South Dakota, Arizona, Colorado, Georgia, Mississippi, Nebraska, North Dakota, Oklahoma and West Virginia. The first nine of these are farm states or have a large rural population. Arkansas in 1914 had 2,652 physicians, today it has only 1,890. Among the twenty-six largest cities in the United States, New York is in first place with a gain of 596 physicians and Kansas City, Mo., is in twenty-sixth place with a loss of 65.

In 1914 the total number of physicians listed in the Directory was 153,496, in 1925, 161,358, in the new 1934 edition the number is 178,516. The average yearly gain for the first eleven years was 714, for the last nine years it was 1,906. This increase is due to the larger number of graduates from American medical schools.

The Directory, or Biographical Department, as it is often referred to, was established in 1905. At that time the only national directories in existence were those published as private enterprises and for profit. Usually the only data given were the name, address and medical school, but any physician could, by payment of a fee or even by merely subscribing to the book, have several inches of flattering, and oftentimes untruthful, information printed about himself. A goodly portion of this display advertising was paid for by physicians of questionable character. Space in the American Medical Directory cannot be bought. All the basic information is checked and verified from official sources. Not only the name, address and medical school of the physician are given but also his year of birth, year of licensure in the state in which he is located or practicing, specialty, society affiliations and teaching positions. To save space, much of the information is expressed in keys and symbols. A general knowledge of the exact meanings of these abbreviations can easily be gained by referring to the front inside cover and pages 6 and 7 of the Directory. However, to get the best service the introductory contents and the various indexes should also be carefully consulted.

The Directory continues the policy in this issue of publishing in connection with each state and the provinces of Canada a list of those hospitals ethically operated in accordance with the "Essentials of a Registered Hospital." Altogether the principal facts concerning 6,612 hospitals in the United States and 754 in Canada and Newfoundland are presented. Separate lists of hospitals approved for internships and for residencies in specialties are to be found on pages 95 to 114, and indicated by proper symbols in the lists of hospitals in connection with the various states. All



these institutions have been carefully investigated and have been found to present suitable programs for advanced training during the internship and subsequent years of medical education

Other useful information given, relating to the medical profession, are lists of medical officers in the government service, licensing boards, state boards of health, county and district health officers, officers of constituent state medical associations and component county and district medical societies

Careful attention has been given to the typography of the book to keep it condensed and yet easy to read. For example, the surnames appear in the index in boldface type, which expedites locating the physicians. While the book is only forty-five pages larger than the previous edition, it includes 6,167 more names than the last directory

To the secretaries of the various medical licensing boards of the United States and Canada, to the deans of medical schools, to the officers of component county societies and constituent state associations, to the thousands of physicians and correspondents who have so cordially assisted in making possible this edition, the Biographical Department extends thanks and appreciation

### Current Comment

#### RECENT ACTIVITIES OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The first classification of medical schools by the Council on Medical Education and the Carnegie Foundation's report on medical teaching were published a quarter of a century ago. The resulting improvement in the standards of medical education in the United States is without a parallel in history. This transformation should not blind one to the fact that much remains to be done to keep the training of physicians fully abreast of the medical and scientific knowledge of the times. In order to ascertain what is the current practice of the medical schools of the United States and Canada, the Council is undertaking a comprehensive and intensive resurvey of the institutions engaged in medical teaching. By correspondence and by personal visits an effort will be made to get a trustworthy record of the work of each school. Special attention will be paid to the qualifications of the faculty and the effectiveness of clinical teaching. Inspections will begin as soon as schools open in the fall. Supplementing this objective study, the Council is also planning a reappraisal of the aims and methods of medical teaching. To aid in the formulation of standards and policies, an advisory committee has been created, which includes in its membership representative leaders in the field of medical education. Cooperation of the Association of American Medical Colleges and the Federation of State Medical Boards has also been secured. These

activities of the Council give definite promise of bettering the standards of medical practice. The need for this new work is a reply to those who have urged that the Council on Medical Education had completed the task for which it was founded. The necessity for constant vigilance demands the maintenance of this body as a protection to both the public and the medical profession

#### MISREPRESENTATION

Just as long as the antivivisectionists permit their activities to be motivated emotionally rather than rationally, they continue to expose the extreme weakness of their arguments. A particularly flagrant example of distortion of fact has come to light in connection with an editorial in a recent issue of *THE JOURNAL*.<sup>1</sup> A liberal excerpt of the original statement follows

To many it may seem strange that in this day "laboratory medicine" needs any apologies or defense. Yet not long ago Mendel<sup>2</sup> of Yale University said that there are today not a few physicians as well as other friends of medicine who, although admitting the noteworthy contributions of animal experimentation, nevertheless urge that its dominant importance is passing. Though the pendulum of enthusiasm for a laboratory innovation may at times swing too far, it soon reaches a stable level. In his defense of scientific experimentation in medicine, Mendel made a vigorous plea that devotees of practical medicine and surgery refrain from unwarranted derogatory attacks on one of the best helps of their profession in the past. It is difficult enough, he added, to fight suffering, disease and death without being obliged to fight the ignorance and prejudices of those who would tie the arms of the laboratory worker

To a mature individual with ordinary education and the ability to understand clear English, the meaning conveyed by the foregoing quotation is inescapable. Yet in the July 1934 issue of the *Starry Cross*, the official organ of the American Antivivisection Society, there appears in the column entitled *Heard and Read* the following comment

A surprising editorial in the *Journal of the American Medical Association* (May 26, 1934) quotes L. B. Mendel of Yale University to the effect that "There are today not a few physicians as well as other friends of medicine who, although admitting the noteworthy contributions of animal experimentation, nevertheless urge that its dominant importance is passing." This is a great deal for a pro-vivisectionist to admit publicly, and is a welcome indication that the vivisectioning profession is being forced to admit, however slowly, that its boosting of vivisection is bringing it into wider and wider disrepute with a consequent disastrous effect upon medical pocketbooks and reputations. It is safe to say that when the profession at large does awake from its self-induced delusions regarding the cruel and disgraceful practice of vivisection it will turn its back upon the once-vaunted "scientific research" as completely and with the same scorn as that accorded its other fads of yesterday

A comparison of the two quotations is sufficient comment on the methods of misrepresentation employed by the antivivisectionist. It provides another example of the tendency of the "will to believe" to becloud intellectual integrity

<sup>1</sup> Hyperparathyroidism. A Chapter in Successful Laboratory Research. *J. A. M. A.* 102: 1764 (May 26) 1934.  
<sup>2</sup> Mendel L. B. Scientific Experiment and Medicine. *Science* 76: 393 (Nov. 4) 1932.

## Association News

### MEDICAL BROADCASTS Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4 30 to 4 45, Central daylight saving time. The next three broadcasts will be as follows:

August 30 Your Child Enters School Morris Fishbein, M D  
September 6 Football Hazards Morris Fishbein M D  
September 13 Common Eye Troubles, William C Benedict M D  
representing the meeting of the American Academy of Ophthalmology and Otolaryngology, in Chicago

## Medical News

(PHYSICIANS WILL CONFERR A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION, PUBLIC HEALTH ETC.)

### ALABAMA

**Personal**—Dr Coleman D McLeod, Fairfield, has been appointed health officer of Covington County, with headquarters at Andalusia.—Dr Ernest G Moore, Whatley, has been made health officer of Bullock County, succeeding Dr William A Stanley, who has gone to Coffee County in the same capacity.

### CONNECTICUT

**Resolution Urges Prohibition of Fireworks**—The sale and use of fireworks in New Haven are disapproved in a resolution unanimously adopted by representatives of civic organizations and the board of health, July 18. The resolution requests the board of aldermen of the city to enact a suitable ordinance prohibiting the sale and use of fireworks.

**Clinical Congress of State Society**—The Connecticut State Medical Society will conduct its tenth clinical congress in New Haven September 18-20. On the program will be the following physicians:

George E Bennett Baltimore Symptomatology Diagnosis and Treatment of Lumbosacral and Sacro Iliac Strain  
Russell L Cecil New York Treatment of Arthritis from the Clinical Standpoint  
Robert B Osgood Boston Etiologic Theories and Therapeutic Trends in Chronic Arthritis  
Frank R Ober Boston Diagnosis and Treatment of Common Disabilities Causing Pain in the Upper Extremity  
Howard Fox New York Diagnosis and Treatment of Common Skin Diseases  
Francis G Blake New Haven, Treatment of Pneumococcal Lobar Pneumonia with Special Consideration of the Use of Antipneumococcus Serum and Artificial Pneumothorax  
Percy S Pelouze Philadelphia Gonorrhea in the Male and Its Treatment  
Oscar M Schloss New York Pathogenesis of Pyuria in Early Life  
Alfred Stengel Philadelphia, Psychoses Complicating Other Diseases  
Stanhope Bayne Jones New Haven Prophylactic Vaccination  
Max A Goldzieher New York Diagnosis of the Ordinary Endocrine Disorders  
Alexander B Gutman New York Therapeutic Uses of Parathormone  
Carl H Greene New York Therapeutic Use of the Cortical Hormone of the Suprarenal Gland  
John Rock Boston Useful Endocrine Preparations in Gynecology  
C Macfie Campbell Boston Importance of the Consideration of the Personality in General Practice

Afternoon sessions each day will be devoted to demonstrations and round table discussions on subjects presented at morning sessions. Dinner meetings have been omitted this year and the scientific program will be continued into the evenings of the first two days of the congress. The registration fee has been reduced to \$2. Dr Creighton Barker, 129 Whitney Avenue New Haven, is chairman of the committee on publicity and registration.

### DISTRICT OF COLUMBIA

**Personal**—Dr Ralph L Lawrence has been promoted and commissioned as a surgeon in the regular corps of the U S Public Health Service, to rank as such from June 30.

**Health Council Established**—The District of Columbia Health and Hospital Council, composed of representatives of medical, dental and civic societies, was recently formed under the sponsorship of the Council of Social Agencies. The council will be available to all government authority as a medium

of ascertaining opinion and reaction of the majority in professional, administrative and lay organizations representing the citizens in the district, according to a statement issued by Ross Garrett, health secretary of the Council of Social Agencies. Physicians who have volunteered to serve on the new health council include Drs Adolphus B Bennett, Prentiss Willson, William H Hough, Charles R L Halley, William Charles White, Loren B T Johnson, Arthur C Christie, J Russell Verbycke Jr, Thomas A Groover, Henry C Macatee, William J Thompkins and Paul B Cornely. C Willard Camahner, DDS, G Albert Smith, DDS, and Webb W Wyman, DDS, are dentists named on the committee.

### IDAHO

**State Medical Meeting at Lewiston**—The annual session of the Idaho State Medical Association will be held in Lewiston, September 7-8. Speakers will be:

Dr Verne C Hunt Los Angeles Operability of Carcinoma of the Stomach Surgical Procedure Involving the Common Duct in Biliary Tract Disease  
Dr William D Stroud Philadelphia Coronary Disease Digitalis in Treatment of Cardiovascular Disease from the Standpoint of the General Practitioner  
Dr Thomas F Mullen San Francisco Plastic Reconstruction of the Esophagus  
Dr Henry Odland Seattle Wash Problems in the Treatment of Eczema  
Dr Montague S Woolf San Francisco A Critique of the Operations in Vogue for Cancer of the Rectum  
Dr Hale A Haven Seattle Differential Diagnosis of Spinal Cord Tumors  
Dr Joseph A Pettit Portland Ore  
Dr Eugene L Spohn Coeur d Alene Care of County Indigent  
Dr Duncan Alexander Twin Falls

Dr Olin West, Chicago Secretary, American Medical Association will address a scientific session, September 7, and the annual banquet in the evening.

### ILLINOIS

**Health at Peoria**—Telegraphic reports to the U S Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended August 11, indicate that the highest rate (188) appears for Peoria and the rate for the group of cities as a whole was 97. The death rate for Peoria for the corresponding week of 1933 was 124 and for the group of cities, 92. The annual rate for the eighty-six cities for the thirty-two weeks of 1934 was 118, as against a rate of 112 for the corresponding period of last year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

### Chicago

**Health Lectures at A Century of Progress**—The following lectures will be delivered by members of the Chicago Medical Society during the week beginning August 27, as a part of the regular series sponsored each week at A Century of Progress by the society:

August 27 Melvin R Guttman Hoarseness A Warning Sign of Cancer  
August 28 (Not announced)  
August 29 Cleveland J White The Ringworm Situation  
August 30 Joseph E Schaefer Infections of the Mouth  
August 31 Frederick C Test Feet and Posture  
September 1 Charles Drueck Poisoning from the Bowels

### INDIANA

**Society News**—Dr John A Ritchey, Jonesboro, addressed the Grant County Medical Society in Marion, July 24, on allergy.—Dr Jean P Pratt, Detroit, will address the Tippecanoe County Medical Society, Lafayette, September 13, on "Endocrine Disturbances Peculiar to Women." A clinic on endocrine disturbances will be held at St Elizabeth's Hospital in the afternoon.—The Hamilton County Medical Society at its monthly meeting, July 6, entertained, among others, members of the county council, county commissioners, trustees, two Noblesville ministers, trustees of the Hamilton County Hospital, Noblesville, and several of the laymen. A banquet was served at the hospital.

**Free Arsphenamine for Indigents**—A plan was recently adopted by the Indiana Division of Public Health whereby free neoarsphenamine and sulpharsphenamine are furnished to physicians for the treatment of indigent infectious syphilitic patients who may endanger other persons, the *Journal of the Indiana State Medical Association* reports. Under this plan, patients are to be treated until they are noninfectious and no longer a menace to public health. The division also intends to furnish serum to expectant mothers infected with syphilis.

during pregnancy. It was pointed out that in communities where public health clinics are available, or where clinics are being operated at the expense of the city or city and county, indigent patients are expected to report directly to the clinic for antisyphilitic treatments.

### KENTUCKY

**State Health Agency Reorganized**—Under a reorganization bill passed by the last legislature, the state board of health will henceforth be known as the State Department of Health of Kentucky and the state health officer becomes the state health commissioner. A board of health will elect the commissioner, who will serve as secretary of the board. Registrations in the professions allied with medicine will be conducted by the same boards as before, but these boards will be divisions of the department of health, as will the Crippled Children's Commission.

**Society News**—Dr Clifford N. Heisel, Covington, addressed the Grant County Medical Society, Williamstown, June 20, on "Diagnosis of Acute Mastoid Conditions."—Drs. Walter E. Vest and Robert J. Wilkinson, Huntington, W. Va., addressed the Lawrence County Medical Society, Louisa, recently, on abscess of the lung and cancer of the breast, respectively.—Dr. Noah H. Short, Norton, Va., read a paper on sinusitis at a recent meeting of the Letcher County Medical Society, Whitesburg.—Drs. Oscar O. Miller and George A. Hendon, Louisville, presented a course of lectures under the auspices of the Kentucky State Medical Association before the Henry County Medical Society at Eminence, August 16. Dr. Miller discussed various phases of tuberculosis, and Dr. Hendon, fracture of the hip, peptic ulcer, appendicitis and acute intestinal obstruction.—Physicians of northeastern Kentucky attended a meeting in Ashland August 1, sponsored by the Kentucky State Medical Association, at which uterine cancer was discussed by Drs. L. Wallace Frank, Charles D. Enfield and William C. Martin, Louisville.

### MAINE

**Rabies Among Foxes**—Ten foxes with evidence of rabies have been killed in an area of eight square miles in Franklin and Somerset counties, the *New York Times* reported August 4. Health and game authorities of the state ordered trappers and expert marksmen to shoot all foxes on sight. Several children and domestic animals had been bitten. All the foxes killed exhibited behavior typical of hydrophobia and in one case the presence of the disease was confirmed by laboratory examination.

### MASSACHUSETTS

**Personal**—Dr. George L. Stivers for three years medical director of Belmont Hospital, Worcester, has been appointed medical director of the Fall River Hospital, Fall River.—Dr. Elmer W. Barron has been appointed physician in chief of the visiting and consulting staff of the Boston Floating Hospital.

### MICHIGAN

**Acting Secretary of State Society**—The Michigan State Medical Society announces that on and after September 1 Dr. Burton R. Corbus, Grand Rapids, will be acting secretary of the society. Dr. Frederick C. Warnshuis, Grand Rapids, after many years as secretary, has resigned to become secretary of the California Medical Association. After October 1 Dr. Warnshuis' address will be Room 2004, 450 Sutter Street, San Francisco.

**State Medical Meeting at Battle Creek**—The one hundred and fourteenth annual meeting of the Michigan State Medical Society will be held in Battle Creek, September 11-13. Dr. Walter L. Bierring, Des Moines, Iowa, President of the American Medical Association, will address the opening general meeting Wednesday morning September 12. Guest speakers who will address the scientific sessions include:

- Dr. William A. Thomas, Chicago: Acute Hepatic Insufficiency with Special Reference to Liver Function Tests and Therapy.
- Dr. Joseph L. Baer, Chicago: Uterine Fibroids: Their Treatment and Some Correlated Factors.
- Dr. Elliott C. Cutler, Boston: Surgery in the Management of Heart Disease: Preoperative and Postoperative Treatment of the Toxic Thyroid Patient.
- Dr. Peter A. Bendixen, Davenport, Iowa: Fracture of the Lower Extremity.
- Dr. Loyal Davis, Chicago: Treatment of Cerebrospinal Injuries.
- Dr. Perrin Hamilton, Long Beach, California: Value of Prophylactic Methods in Prevention of Common Colds.
- Dr. Williams McKim Marriott, St. Louis: Conditions in Childhood Associated with Hypoglycemia.
- Dr. Marion B. Sulzberger, New York: Allergy in Dermatology.

All sessions will be held at the W. K. Kellogg Auditorium, and the Kellogg Hotel will be headquarters.

### MINNESOTA

**Dr. Parker Returns to Ireland**—Dr. Harry Lee Parker, associate professor of neurology, Mayo Foundation, University of Minnesota, Rochester, has resigned to return to Ireland as chief of staff of the Neurologic Institute of Southern Ireland and professor of neurology, Trinity College, University of Dublin. Dr. Parker is a graduate of the University of Dublin and has been associated with the Mayo Foundation since 1919.

**Masseur Prescribes a Diet**—The license of Leonard James Chmel to practice massage in Minnesota will not be renewed, in accordance with a decision of the state board of medical examiners, July 14. Early in January a complaint was made to the board about treatment administered by Mr. Chmel to a patient in Minneapolis who was afflicted with asthma. Testimony showed that the patient was kept on an orange juice and beef broth diet by Mr. Chmel for five weeks, at the end of which time a physician was called. In 1930 Chmel appeared before the board to show why his license should not be renewed, at that time he was using the titles of "doctor" and "naprapath."

### MONTANA

**State Medical Election**—Dr. Louis H. Fligman, Helena, was named president elect of the Medical Association of Montana at the recent annual meeting in Helena. Dr. Charles E. K. Vidal, Deer Lodge, became president, Dr. Ashley W. Morse, Butte, vice president, and Dr. Elmer G. Balsam, Billings, was reelected secretary. The next annual session will be held in Billings, July 10-11, 1935.

### NEBRASKA

**Study of Eskimo Children**—Dr. Victor E. Levine, professor and head of the department of biological chemistry and nutrition and Charles W. Bauer, A.M., professor of chemistry, Creighton University, Omaha, are spending four months in Alaska in a study of Eskimo children. The investigators are making physical measurements and determining the nutritional status and basal metabolism of the children. Quantitative studies of the children's blood for inorganic constituents are being made and their susceptibility to tuberculosis, diphtheria and scarlet fever is being tested.

### NEW YORK

**Personal**—Dr. Thomas Parran, Jr., Albany, state health officer, received the honorary degree of doctor of laws at the hundredth anniversary of Syracuse University School of Medicine June 4.—Fred R. Griffith, Jr., Ph.D., professor of physiology at the University of Buffalo School of Medicine has been appointed head of the department to succeed Frank A. Hartman, Ph.D., who recently resigned to go to Ohio State University College of Medicine.

**Hospital Superintendent Appointed**—Drs. Noah Stanley, Lincoln, and Ralph Horton of the staff of the division of tuberculosis, state department of health, have been provisionally appointed superintendents of two of the new state tuberculosis hospitals now under construction. Dr. Lincoln will have charge of the Hermann M. Biggs Memorial Hospital at Ithaca, and Dr. Horton of the new hospital at Oneonta. Drs. Edmund H. Kerper, Loomis, and Aloysius D. Maby, Albany, have been provisionally appointed to succeed Drs. Lincoln and Horton in the state health department.

### New York City

**Changes at Rockefeller Institute**—Dr. Warfield T. Longcope, Baltimore, has been elected a member of the board of scientific directors of the Rockefeller Institute for Medical Research to succeed Dr. William H. Welch. Dr. Leslie T. Webster has been promoted to membership in the institute, Dr. Richard E. Shope to associate member, Dr. Francisco Duran-Reynals, Kenneth Goodner, Ph.D., and Geoffrey W. Rake, to associate, and Kenneth S. Chester, Ph.D., Erich Traub, M.D., and Philip R. White, Ph.D. to assistant. Max Bergmann, Ph.D. has been appointed associate member. The following new assistants have also been appointed:

- |                           |                        |
|---------------------------|------------------------|
| Donald C. Boughton, Ph.D. | Jack Compton, Ph.D.    |
| Dr. James R. Dawson, Jr.  | Dr. Lee E. Farr        |
| Dr. Delavan V. Holman     | Dr. John G. Kidd       |
| Dr. Colin M. MacLeod      | Dr. Thomas F. M. Scott |
| Mr. William F. Ross       | Dr. Joseph E. Smadel   |
| Carl V. Smythe, Ph.D.     |                        |

The following were appointed fellows:

- |                        |                            |
|------------------------|----------------------------|
| Bacon F. Chow, Ph.D.   | Joseph F. Fruton, Ph.D.    |
| George I. Lavin, Ph.D. | Dr. Charles V. Seaton, Jr. |
| William Trager, Ph.D.  |                            |

## NORTH CAROLINA

**Changes in Health Department Staff**—Dr Joseph C. Know, assistant epidemiologist of the state board of health, Raleigh, has been appointed epidemiologist, succeeding Dr Daniel F. Milam, who has been transferred to Panama by the International Health Board of the Rockefeller Foundation. He was assigned as consulting epidemiologist to North Carolina two years ago. Dr Robert E. Fox, formerly health officer of Buncombe County, has been made assistant director of county health work.

**Society News**—Drs Austin I. Dodson, Richmond, and Adolph Rumreich, Washington, D. C., addressed the summer meeting of the Third District Medical Society at Southport, July 27, on "Management of Prostatic Obstruction" and "Spotted Fever—Eastern Type and Typhus Fever," respectively. Dr Sylvia Allen, Charlotte, addressed the York County Medical Society, Rock Hill, July 27, on epilepsy. Dr Ernest O. Swartz, Cincinnati, addressed the Buncombe County Medical Society, Asheville, July 14, on "Carbuncle of the Kidney."

## OHIO

**Radium Stolen**—Dr Edward O. Bauer, Middletown, reported to police, August 1, that a package of radium valued at \$3,500 had been stolen from his automobile. Another package containing \$5,000 worth of radium was not disturbed, he said. The radium was the property of Dr Mabel E. Gardner, Middletown.

**Personal**—Dr Anthony R. Grierson, Sandusky, recently passed the state bar examination. Dr Frank R. Dew, Barnesville, has been appointed health officer of Lorain County, with headquarters at Oberlin. Dr Wilbert A. Hobbs, East Liverpool, was the guest of honor at a reception given by the Kiwanis Club of East Liverpool, July 19, celebrating his fiftieth anniversary in the practice of medicine.

## PENNSYLVANIA

**Society News**—The Westmoreland County Medical Society held its annual welfare meeting at the Torrance State Hospital, August 16. A symposium on psychiatric problems in the community was presented by Dr Josephine Funderburgh, Mr. E. M. L. Burchard, staff psychologist, and Miss Ray Blight, staff social worker. Dr John I. Wiseman, Mayview, clinical director, spoke on "Hereditary and Environmental Factors in Mental Disease" and Miss Prudence Matter, staff dietitian, on "Food Problems in a Mental Hospital." Dr William S. Wheeling Windber, addressed the Cambria County Medical Society, Johnstown, August 9, on "Medical Economics and Medical Ethics in Their Relation to the Modern Hospital." Dr Olin G. A. Barker, Johnstown, showed motion pictures of Mexico and Yucatan.

**Regional Cancer Conference**—The cancer commission of the Medical Society of the State of Pennsylvania sponsored a regional meeting in Sayre, August 13. Speakers at the scientific session were:

- Dr Samuel J. Watworth, Clearfield: Relation of Trauma to Cutaneous Malignancy
- Dr Lyndon H. Landon, Pittsburgh: Relation of Trauma of the Osseous System
- Dr Stanley P. Reimann, Philadelphia: Biologic Work on Growths
- Dr William Wayne Babcock, Philadelphia: Breast Conditions and Their Relation to Malignancy
- Dr Charles C. Norris, Philadelphia: Significance of Menopausal Hemorrhage with Especial Reference to Carcinoma
- Dr Fred W. Rankin, Lexington, Ky.: Carcinoma of the Colon
- Dr Elmer Hess, Erie: Tumors of the Bladder

Drs Robert B. Greenough, Boston, and Dean Lewis, Baltimore, addressed a public meeting in the evening. Dr Jonathan M. Wamwright, Scranton, chairman of the cancer commission, who was to have appeared on the program, died August 3.

## Philadelphia

**Survey of Outpatients**—The Philadelphia County Medical Society recently sponsored a study of hospital outpatient departments, which was carried out in cooperation with the Joint Committee on Research of the Community Council of Philadelphia and the Pennsylvania School of Social Work. Nineteen hospitals furnished information concerning 1,036 patients. The questions to which answers were sought were as follows:

1. Do the outpatient departments of hospitals waste their resources in duplication of examination and treatment of patients who are merely shopping around?
2. Are the outpatient departments accepting patients who could afford to pay private physicians?
3. Could a medical registration bureau be made to pay for itself out of the savings in money which might be effected by elimination through clearing the names of patients and recording their financial status?

The survey showed that 272 patients, about one in every four of those investigated, were known to two or more hospitals. A special study of 104 of these showed that thirty-nine changed hospitals because they were dissatisfied with treatment, fifty-five for other reasons, such as moving from one district to another, in ten cases the reports were inadequate. Only about 5 per cent were considered "chronic shoppers." Of the 272 duplicating patients, less than 5 per cent were found to be able to pay any part of their expenses for medical care. 170 were on relief, 25 were dependent on relatives and friends, 47 had incomes insufficient to provide for medical care, 13 were considered able to pay reasonable charges, and in 17 cases the economic situation was not reported. Concerning the 764 patients whose names were found in only one hospital, it was ascertained only that they were costly patients to some hospital and that the proportion of them known to relief agencies (62.6 per cent) was almost identical with the rate among the 272 who were studied in detail (62.5 per cent). From this it was inferred that the economic status was in general the same in the two groups. The evidence gathered in this study indicated that the majority of these clinic patients had formerly been under the care of private physicians, whom they left when they felt they were unable to pay. The question concerning the establishment of a medical registration bureau could not be answered, the investigators declared. This phase of the study was not brought to a satisfactory conclusion chiefly because the hospital records and the hospital accounting methods were not adapted to supplying answers needed. There were no comparable data among the hospitals on costs of treatment to these patients the report said, therefore it was impossible to determine the costs of the duplications and there could be no definite answer to the possibility of financing a registration bureau out of savings.

## SOUTH CAROLINA

**Hookworm Survey**—The state department of health will begin a survey of hookworm in the state September 1, under the direction of Dr James A. Hayne, state health officer, and Dr Benjamin F. Wyman, Columbia, director of rural sanitation, newspapers report. Dr Alvin E. Keller, professor of preventive medicine and public health, Vanderbilt University Medical School, Nashville, Tenn., will assist in the survey and corrective campaign. Every county in which the disease is prevalent will be visited and the results checked with a survey made by the Rockefeller Foundation in 1914.

## WISCONSIN

**Subsidiary Board of Examiners**—The National Board of Medical Examiners recently organized a subsidiary board for part III, with Drs J. Gurney Taylor and Hjalmar T. Kristjanson, Milwaukee, as chairman and secretary, respectively.

**State Medical Meeting at Green Bay**—The ninety-third annual session of the State Medical Society of Wisconsin will be held in Green Bay, September 12-14. General meetings will be held each afternoon and the mornings will be occupied by dry clinics given by Green Bay physicians, clinical demonstrations and section meetings. Guest speakers will include:

- Dr James M. Hayes, Minneapolis: Prevention and Treatment of Complications Following Cholecystectomy
- Dr Gilbert J. Thomas, Minneapolis: Tuberculous Disease of the Kidney
- Dr Herman L. Kretschmer, Chicago: Prostatic Resection
- Dr Fred Jenner Hodges, Ann Arbor, Mich.: Diseases of the Colon
- Dr Leo G. Rigler, Minneapolis: Early Diagnosis of Carcinoma of the Stomach
- Dr Arthur W. Erskine, Cedar Rapids, Iowa: Carcinoma of the Breast
- Dr Harry E. Mock, Chicago: Skull Fractures
- Dr Loyal Davis, Chicago: Surgical Treatment of Trigeminal Neuralgia
- Dr Herbert Z. Giffin, Rochester: Summary of the Causes of Anemia with Fundamentals Concerning Treatment
- Dr Owen H. Wangenstein, Minneapolis: Diagnosis and Treatment of Acute Intestinal Obstruction
- Dr Ellis Fischel, St. Louis: Everyday Problems in the Diagnosis and Treatment of Cancer
- Dr Robert S. Dimsmore Jr., Cleveland: Surgical Problems Associated with Cholelithiasis
- Dr George B. Eusterman, Rochester, Minn.: Management of Gastric Lesions
- Dr Edwin W. Ryerson, Chicago: Lesions of the Knee Joint
- Dr Dean Lewis, Baltimore: Difficulties in the Diagnosis of Tumors
- Dr Albert H. Montgomery, Chicago: Congenital Anomalies of the Gastrointestinal Tract
- Dr W. Russell MacAusland, Boston: Present Status of Arthroplasty in Ankylosed Joints
- Dr Edward Starr Judd, Rochester, Minn.: Prevention of Surgical Complication

At the annual dinner Thursday evening at the Northland Hotel, Drs. Lewis, Past President, and Olin West, Chicago, Secretary of the American Medical Association, will be the speakers. The annual golf tournament will be held Tuesday, September 11, at the Oneida Golf Club.

## GENERAL

**Society News**—The thirty-eighth annual conference of Dairy, Food and Drug Officials of the United States will be held, October 15-18—The American Hospital Association will hold its annual meeting in Philadelphia, September 24-28

**Unauthorized Solicitor**—A physician of Logan County, Ill., reports that one A A Kennedy is visiting physicians and clergymen claiming to represent the P F Collier Distributing Corporation, Louisville, Ky., and that he collects \$10 deposits on orders for an encyclopedia. This firm states that the man was in its employ until May 1934 but now has no connection with it

**Automobile Fatalities in Four Weeks**—The bureau of the census, U S Department of Commerce, announced that eighty-six large cities in the United States reported 609 deaths from automobile accidents for the four weeks ended August 4, as compared with 601 deaths during the week ended Aug 5, 1933. Of the total number, 433 occurred within the corporate limits of cities. For the fifty-two week periods ended Aug 4, 1934, and Aug 5, 1933, the totals for all cities were respectively 8,706 and 7,880, which indicate a recent rate of 23.3 per hundred thousand of population as against an earlier rate of 21.1

**Bequests and Donations**—The following bequests and donations have been announced recently

Bryn Mawr Hospital Bryn Mawr Pa a provisional bequest of \$20,000 from the will of Ellen W Longstreth

Caledonia Hospital Brooklyn \$10,000 and half the residue of the estate valued at \$138,776 contingent on the death of two beneficiaries by the will of Donald G C Sinclair

Presbyterian and St Luke's hospitals New York \$5,000 each by the will of Mrs Florence Coe Stewart

Charles T Miller Hospital St Paul \$20,000 by the will of the late George H Prince and an anonymous donation of \$5,000 toward its free bed fund

New York Orthopedic Hospital \$10,000 by the will of the late Mrs Elizabeth Mills Reid

St Raphael's Hospital New Haven Conn, \$10,000 to found the Alice Derby Lang Fund from the will of the late Prof Henry R Lang

**Changes in Status of Licensure**—The State Medical Board of Ohio reports the following action taken at its regular meeting in Columbus, July 12

License of Dr Ruth Cassel Schweisberger Canton revoked following her conviction on a charge of criminal abortion. She is confined at the Marysville Reformatory for Women

The State Board of Health of Missouri reports the following action

The license of Dr Clarence Alexander Wright to practice medicine in Missouri was revoked May 23 following his conviction on a charge of performing an illegal operation

The Missouri license of Dr Joseph Moreau Blakemore at one time of Chicago was revoked May 23 by reason of the fact that his Illinois license had been revoked for professional connection with an unlicensed person. The Illinois revocation took place March 8, 1933

The New York State Board of Medical Examiners reports

The license of Dr Louis Henry Pinco Yonkers which was suspended April 20, 1933 was restored April 20

**Fraudulent Solicitor**—It has been reported that a man giving the name R E Owens has been calling on hospital executives in Wisconsin claiming to represent THE JOURNAL, Hospital Management and "American and Canadian Hospitals," a directory published by the Midwest Publishers Company, Minneapolis. The hospital journal reports that the man is not known in that office. The Midwest Publishers Company writes that on July 19 a Mr R E Owens appeared at that office, saying that he represented THE JOURNAL and Hospital Management and requesting that he be allowed to represent also "American and Canadian Hospitals." On the strength of these apparent connections, the man was allowed to take a copy of the latter publication for examination and was instructed to return later in the week. He did not return and the only address he gave was the Morrison Hotel, Chicago. It was said that he made an excellent appearance, was about 6 feet tall, and was slender and of medium coloring. He does not represent THE JOURNAL.

## CANADA

**Personal**—Dr Wilder G Penfield, clinical professor of neurological surgery, McGill University Faculty of Medicine, Montreal, received a ceremonial chalice at the twenty-first reunion of the class of 1913 of Princeton University, Princeton, N J June 15. The chalice has been dedicated by the class to commemorate outstanding accomplishments of its members and will be retained by Dr Penfield until another award is made—Dr Robert A H MacKeen, assistant professor of pathology and bacteriology, Dalhousie University Faculty of Medicine Halifax Nova Scotia and assistant pathologist for the province, has been appointed director of the bureau of laboratories of New Brunswick to succeed the late Dr Harry

L Abramson—Dr Charles Ferdinand Martin, dean of McGill University Faculty of Medicine, Montreal, was awarded the honorary degree of doctor of laws by Harvard University at its recent commencement

**Society News**—Dr Daniel S Macnab, Calgary, was elected president of the Alberta Medical Association at the annual meeting in Calgary, June 22—Dr Donald C Malcolm, St. John, was elected president of the New Brunswick Medical Society at the annual meeting in Woodstock, July 10-11. Among speakers were Drs Frederic J Cotton, Boston, on treatment of fractures and Rafe Nelson Hatt, Springfield, Mass., on diseases and injuries to the hip joint—At the annual meeting of the Prince Edward Island Medical Association in Summerside, July 13, guest speakers were Drs Jonathan C Meakins and Dudley E Ross, Montreal, on anemias and cleft palate, respectively. Dr Victor L Goodwill, Charlottetown, was elected president—Dr J Preston Max well professor of obstetrics and gynecology, Peiping Union Medical College, Peiping, China, addressed the Medical Arts Club of Winnipeg, July 13-17, on "Osteomalacia and Adult and Fetal Rickets"

## FOREIGN

**Personal**—Prof Bernhard Zondek, former head of the gynecologic department of the Charity Hospital in Berlin, has been appointed to direct the obstetric and gynecologic departments of the Hadassah-Rothschild Hospital in Jerusalem

**International Congress on Tropical Medicine**—The ninth international congress of the Far Eastern Association of Tropical Medicine will be held in Nanking, China, October 1-7. This congress was originally set for October 1933. Official languages of the congress are English, French and German. Various sections will hold meetings on many aspects of tropical disease, with special attention to cholera, leprosy, yellow fever, plague and malaria. Section meetings will be held in the mornings and two afternoons, and the remainder of the afternoons will be devoted to visits to institutions. Information may be obtained from the secretary, Dr P Z King, Wei Sheng Shu Nanking

## Government Services

## Sixth Annual Medicomilitary Symposium

The sixth annual inactive duty training course for medical reserve officers of the army and navy will be held at the Mayo Clinic, Rochester, Minn., October 7-20. Morning hours will be devoted to clinics on subjects selected by the student officers and afternoons to medicomilitary subjects. The general subject will be "Public Health and Its Relation to National Defense." The program will be under the direction of Col Kent Nelson, U S Army, Seventh Corps Area Surgeon, Omaha, and Capt John B Mears, U S Navy District Medical Officer, Ninth Naval District Great Lakes, Ill., to either of whom application may be made. One hundred hours of credit will be given for the course, those who cannot remain for the entire time may join or leave at any time and will receive credit for the hours spent

## Misabeled Beer to Be Seized

Beer so labeled as to lead buyers to believe that it has an unusually high alcoholic content will be seized and prosecution of the brewers will be started whenever such a product is found in interstate commerce, it was announced July 14. A brewery that makes a nationally distributed beer complained to the Food and Drug Administration that a New Orleans brewer has labeled beer that contains less than 4 per cent of alcohol in this manner. Does not contain more than 6 per cent of alcohol by volume," with the 6 per cent printed in large numerals. The administration pointed out that while it does not require a statement of alcoholic content on foods and beverages, it does require that food, including beer, shall not be labeled with any statement, design or device that is misleading in any way. Action has already been taken against a number of beers bearing misleading or ambiguous statements of alcoholic content, it was said. Cases were cited in which the alcoholic content was expressed in the form of degrees proof, such as "12 proof" with the figure 12 in large type and the word "proof" in inconspicuous letters. Few purchasers know that the percentage of alcohol by volume is only half the degrees proof, even if they notice the small and inconspicuous word "proof," it was said.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

July 28, 1934

#### Annual Meeting of British Medical Association

Two thousand physicians attended the one hundred and second annual meeting of the British Medical Association, which was held at Bournemouth. At the representative meeting a number of important medicopolitical subjects were discussed.

#### RESEARCH SCHOLARSHIPS AND GRANTS

Sir Ewen J Maclean proposed an increase in the amount allocated to research scholarships and grants. A powerful, rich association, such as theirs, was giving only \$5,000 a year for research. Much money was wasted under the blessed name of research but there was no waste of the money devoted by the association to research. The treasurer, Mr N Bishop Harman, said that the income of the association was \$780,000, and careful analysis showed that the items of expenditure that could legitimately be regarded as expended directly in the advancement of science totaled \$350,000. While sympathizing with the motion he pointed out that, with the government grants and so many associations willing in some cases too willing, to give money for research, it was not necessary for the association to go further. It was far better to disseminate the knowledge of medical science among its members. The motion was defeated.

#### MEDICAL EDUCATION

Sir Henry Britten Brackenbury, chairman of the Committee on Medical Education, presented for approval a report that had previously been circulated. Its main provisions were that the opportunity had arisen and should be taken advantage of to raise the general standard of education and the standard of scientific education for those about to enter the medical profession, that the course of the curriculum should be considered as a whole, that there should be no isolated departments acting separately from one another but that the whole course of instruction should be coordinated first, in emphasizing the preventive aspects of medicine and, secondly, in emphasizing that the human personality is a whole and that attention should be paid not merely to a disease process going on inside the human body as a vehicle but to a human person who desired to be made well, and that in the latter part of the curriculum there should be a period when the student, before he started out as a registered physician, should be given as much responsibility as possible under supervision. An amendment to qualify the recommendation by deleting any reference to general approval, so that the resolution simply read that the report be sent to the various bodies mentioned, was carried.

#### OVERCROWDING OF THE PROFESSION

Dr Arnold Gregory moved the raising of the age of registration of medical students to 18 years, a point on which the teaching profession was unanimous. At present the average student was too young and immature and his general education had not reached the standard to enable him to obtain full benefit from his medical education. Further, the rise in the general standard of education among the general population since the war called for a higher standard in those entering medicine. The number of students was growing steadily year by year and now taxed the capacities of the schools. Further, the profession had reached the saturation point and as in all civilized countries, the time had come to limit its numbers. At the end of 1932 there were more than 56,000 names on the Medical Register, 10,000 more than in 1922 and 19,000 more

than in 1902. The population had not increased in anything like the same proportion. Considerable sympathy was expressed with the resolution, but technical objections were raised and it was withdrawn.

#### RECOGNITION OF CHIROPODISTS DEFEATED

A recommendation of the council was presented that the medical profession should accord a measure of recognition to approved chiropodists who accept the definition of their work that "chiropody means the treatment of abnormal nails and all superficial excrescences occurring on the feet, such as corns, warts, callosities and bunions," and who undertake to confine their practice to this field and not even within it to operate on any congenital or acquired deformity, any condition requiring a general anesthetic, or any condition involving any structure below the level of the true skin, or to treat any patient under the care of a physician without his knowledge and consent. Dr Langdon-Down, who moved the resolution, described chiropodists as an ancient confraternity giving a service accepted (if silently) by the medical profession and appreciated by the public. Their restricted field was not cultivated by the profession. Of recent years the public had tended more and more to resort to chiropodists, whose methods had developed, and institutions, such as foot hospitals and foot clinics, were being widely established. Associated with this was extension of the courses of training, in which the medical profession had assisted. If the profession stood aloof it would lose the power of directing and limiting the development of this speciality. Dr C O Hawthorne opposed the motion. Chiropody was either an esthetic enterprise or a therapeutic measure. If the former, the medical profession had no more concern with it than with manicure or hair dressing, if the latter, diagnosis must precede treatment, and the minimum training for diagnosis was the medical curriculum. The medical profession should not associate itself in any way with a group of unqualified practitioners. This implied no animosity on the part of the profession but only that the responsibility of taking such advice rested on the patient. The Council's recommendation was rejected by 102 votes to 65.

#### Cooperation Between Medical Schools and Municipal Hospitals

The municipal hospitals are now equipped on the most modern lines and have a part time staff of consultants drawn from the voluntary hospitals. Plans for a still greater cooperation have now been arranged. The medical schools of London number twelve and have grown rapidly in the last 150 years. They originated in a system of apprenticeship, under which the students became apprentices to the individual members of the staffs. Later this system was terminated and the modern medical schools were established. Early in the present century these schools became constituent colleges of the London University. The range of medical education has now become so wide and the subjects of training for a physician so complex that the problems of teaching are becoming more and more difficult. To meet this difficulty, cooperation with the municipal hospitals has been arranged. An executive council consisting of the dean and four members of the teaching staff of each school has been formed and subjects of educational importance will be discussed throughout the year. Certain courses of study are being organized for which it is difficult to cater in an individual medical school but which can be arranged without difficulty for the students of more than one school. The students of each school will be permitted under an arranged scheme to avail themselves of the clinical facilities of other schools. In order to allow the scheme to develop gradually, the arrangements for an interchange of clinical teaching will be confined at first to St Bartholomew's and St Thomas's hospitals. After the preliminary experience, when the organiza-



tion has become stabilized, similar facilities will be extended to Guy's. It is hoped that this cooperation will be of great benefit to medical education. Under arrangements now made between the London Voluntary Hospitals Committee and the Hospitals and Medical Services Committee of the London County Council, each medical school is linked with a municipal hospital in its neighborhood. The arrangements provide for clinical demonstrations at the linked hospitals. Special facilities have been provided for instruction in obstetrics. Students of voluntary hospitals are now enabled to reside for a fortnight at municipal hospitals, during which approximately ten cases are allotted to each. It is thought that sooner or later there must be closer approximation of the two classes of hospital, so as to make the best use of the 96,000 beds now available in London.

#### Memorial to Sir Robert Jones

An appeal for a national memorial to Sir Robert Jones, who is claimed to be "the creator of modern orthopedic surgery," was made at the Mansion House under the presidency of the lord mayor of London. It is proposed that the memorial shall comprise a Robert Jones professorship in the Royal College of Surgeons, a Robert Jones traveling fellowship, to be awarded alternately by the Royal College of Surgeons and the University of Liverpool (the city in which Jones practiced) and the Liverpool Medical Institution. Rudyard Kipling, who was to have spoken, was unavoidably prevented from attending. Lord Moynehan said that the gifts of Robert Jones to the science and art of surgery had rendered his name immortal. Immortality attached only to the things of the spirit, and it was the gifts of Robert Jones to the spirit of surgery that the memorial was designed to commemorate. He was one of the two great scientific heroes of the war, and it was the baldest truth to say that hundreds of thousands of men owed not only their recovery but their restitution to physical health directly to his skill. But the great thing about a surgeon was not his immediate work but the lessons that he gave, the craft that he taught, the spirit that he inspired in those who came after. The lessons taught by Jones throughout the war were now part of the heritage of surgeons throughout the world. In the name of his colleagues across the Atlantic, Lord Moynehan could say that they would ever bear the name of Jones in proudest remembrance.

#### PARIS

(From Our Regular Correspondent)

July 4, 1934

#### Local Anesthesia Applied to the Stellate Ganglion

Professor Leriche of Strasbourg has just completed a research on the effects of anesthesia applied directly to the stellate ganglion. The patient is placed on a horizontal table with pillow under the neck and the head turned away from the operator. Starting with the middle of the clavicle, the upper margin of that bone is shaven and a pliable platinum needle, from 8 to 10 cm. in length and 0.6 mm. in diameter, is inserted in the direction of the transverse process of the seventh cervical vertebra. Contact with the bone having been obtained, a double movement is given to the needle. The large end of the needle is raised so that the point drops down the width of one vertebra, while, at the same time, the needle is directed 30 degrees outward. At this moment the needle is in contact with the stellate ganglion. The injection of 10 cc. of procaine hydrochloride (1 per cent solution) is sufficient to induce anesthesia of the ganglion. Technical errors would consist in puncturing the subclavian or the vertebral artery or in penetrating the cerebral space. That would cause no great harm, and the error would be evidenced by the passage of a drop of blood or of cerebrospinal fluid through the needle after its introduction. The danger of wounding the apex of a lung is

more serious, for then pneumothorax would follow. The injection is followed immediately by a marked facial vasodilatation, but this lasts only a few minutes. This method is useful in diagnosis and treatment. If one is planning to extirpate the stellate ganglion in treating angina pectoris or asthma, and this anesthesia effects no improvement, even momentary, this is evidence that it is of no use to extirpate the ganglion. If, however, a good result is secured, this indicates that the operation will offer good chances of recovery. Leriche has observed several cases of asthma in which anesthesia of the stellate ganglion brought about improvement, and in some cases several repetitions of this anesthesia brought about a consistent recovery after a few days of treatment. Excellent results were secured in allaying pain in the stump following amputations of the arm. There is an advantage in combining therewith anesthesia of the second thoracic ganglion by the dorsal route. A curious feature is that, in algias of the arm, one secures permanent effects although the action of the anesthetic may be only momentary. Leriche declares that while the fact cannot be questioned, the mechanism is difficult to explain.

#### Retarded Contractions of the Iris in Mental Patients

Mr. Andre Barre, physician of the urologic clinic of the Hopital de la Salpêtrière, has announced a clinical sign that, he contends, aids in the diagnosis and the prognosis of various mental disorders. The sign consists in noting slight contractions in the iris, at the end of several moments of observation. In a normal person these slight oscillations of the margin of the iris are seen at the end of from ten to sixteen seconds (sometimes thirty seconds) in aged persons or in persons presenting natural mydriasis. When the oscillations begin to manifest themselves, there are usually from twelve to nineteen in two minutes, with an average of fourteen, this figure being never lower nor higher in a subject who is entirely normal. The manifestation that indicates serious mental disorder lies in the slowness with which these oscillations begin and in the reduction of their number—which may end in their complete suppression. It appears that the figures given for a normal subject correspond to a normal and well balanced mental activity. Barre has applied this method of examination to a large number of different mental states. In idiots the oscillations, as a rule, do not exist, even after a prolonged period of observation. The exceptions are rare. In imbecility there is a marked retardation for the onset of the contractions of the iris, a retardation exceeding a minute and a half and sometimes going to three minutes. As to the number of oscillations that may be counted in two minutes, they are not only very weak but also wide apart—about four on an average. In states of mental debility, the contractions of the iris do not begin until after one minute and sometimes more than two minutes. Moreover (an important fact), the subjects in whom the retardation was the most marked were those who, at the start, presented simple weakness but who developed later definitive types of dementia. This sign appears to have, therefore, considerable prognostic value. The author, after observations made on aged persons of the same age, who were normal, concluded that the sign is independent of age and may be elicited only in case of dementia. In cases of dementia praecox, hebephrenia, catatonia and schizophrenia, one observes without exception retardation of the contractions of the iris. The interval is never less than thirty-five seconds and may reach three to five minutes or even longer. The contractions may be entirely absent. These contractions when they exist are extremely weak and wide apart—of a trembling nature and scarcely perceptible. The retardation appears to be proportioned to the gravity of the mental state. Remissions and ameliorations are associated with any return of the contractions of the iris to a normal state. Hallucinatory and convulsive states furnished similar results. In

melancholia there is a definite relation between the indications furnished by this symptom and the mental state of the subject—the symptom improves parallel with any improvement in the mental state. In dementia paralytica, in addition to the usual signs supplied by an examination of the accommodation of the pupil, the iris is absolutely motionless. The author wisely says that this sign must not be regarded as pathognomonic and one that will be of great aid in psychiatric diagnosis, for it is observed in widely different conditions and, exceptionally, it may give false information. Nevertheless, he emphasizes the prognostic value of the sign. It may furnish valuable information on the chances of amelioration or aggravation of the patient's condition, aside from the confirmation of a purely psychiatric order.

### BERLIN

(From Our Regular Correspondent)

July 2, 1934

#### Number of Physicians in German Cities

The statistical department of the German Medical Organization has just published a report on the distribution of practicing physicians throughout the cities of Germany, and some of the details follow.

Classified Cities	Total Population of Group	Number of Practicing Physicians	General Practitioners	Specialists	Per centage of Specialists
1 59 large cities (more than 100 000 pop.)	19 782 000	18 007	9 610	8 397	46.6
2 49 cities (50 000-100 000 pop.)	3 578 300	2 902	1 432	1 470	50.7
3 158 cities (10 000-50 000 pop.)	4 806 600	3 725	1 993	1 732	46.5
4 240 cities (10 000-10 000 pop.)	3 589 900	2 469	1 740	729	29.5
Totals 529 cities	31 765 800	24 103	14 776	12 328	46.5

Of the 39,000 practicing physicians in Germany, there are more than 27,000 in the cities with more than 10,000 population. It is evident that 48.7 per cent of the total population of Germany has 59.5 per cent of the practicing physicians.

Comparing this with the last census of the kind, taken in 1932 (*THE JOURNAL*, July 8, 1933, p. 152), it will be seen that scarcely any shifting has occurred in the relation between the number of physicians and the number of cities comprised in the four groups, although there are 700 fewer physicians in these groups, which is doubtless due to recent political regulations.

The first group (large cities), with 30.3 per cent of the total population, comprises 46.2 per cent of the total number of practitioners. Of these 18,000 physicians, only 13,355 have been admitted to panel practice.

Scrutiny of the table leads to the conclusion that the hesitation about settling in rural districts is gradually disappearing. In 529 cities the number of specialists, as compared with 1932, has decreased by 144, although, considering the percentages, there are no essential differences in the various groups of specialists as against 1932. The number of gynecologists, internists, orthopedists and roentgenologists has increased slightly, while the representation in the other groups of specialists has declined somewhat. The percentage of gynecologists falls rapidly with the relative size of the various groups of cities, there being 12.9 per cent in group 1, as compared with 8.0 per cent in group 4. On the other hand, the percentage of specialists in surgery and diseases of women rises from group 1 up to group 4 (2.4, 4.8, 7.4 and 17.0 per cent). The dermatologists show a decline from 15.6 per cent in group 1 to 5.6 per cent in group 4. The internists show no marked decrease until the smaller cities are reached. The percentages for groups 1

to 4 are 15.7, 15.6, 16.2 and 11.9. In the cities of groups 1 and 2 the internists have the strongest representation among the specialists. The distribution of the pediatricians is similar, although they have the strongest representation in group 3. Among the ophthalmologists and the otorhinolaryngologists the usual observation is made that the representation is strongest in the smallest towns.

The panel physicians (*kassenärzte*) show an increase of 677 in the 529 cities included in this survey, whereas the number of physicians permanently located shows a decline of 742, although it should be mentioned that the number of cities surveyed is somewhat larger than in 1932. At that time the total number of panel physicians in the whole reich was 32,000, the number today is 31,847. In spite of the preference shown physicians who took part in the war, the total number of panel physicians has not increased, because about 1,500 non-Aryans and communists have been excluded from panel practice. Of the 31,847 panel physicians now enrolled, 21,091 are located in the 529 cities, with the following distribution: group 1, 13,355 panel physicians, 47.3 per cent of whom are specialists, group 2, 2,316, 48.4 per cent specialists, group 3, 3,166, 44.4 per cent specialists, and group 4, 2,254, 28.1 per cent specialists.

The "large cities" claim 41.7 of the total number of panel physicians. The percentage of specialists is somewhat smaller among the panel physicians than among the physicians settled in a permanent abode (44.9 as against 45.5 per cent). The highest percentage is found among the otorhinolaryngologists, neurologists, ophthalmologists, dermatologists and gynecologists, the percentage having risen in a number of the specialties, for example, as to the gynecologists, internists, neurologists, pediatricians, orthopedists and roentgenologists. Of the additional 677 panel physicians, 588 are specialists and only 89 are general practitioners. In the distribution of the specialists among the panel physicians according to city groups, the same observations may be made as among the specialists in general.

#### Convalescents' Serum in Acute Anterior Poliomyelitis

In an article in the *Klinische Wochenschrift*, Schlossberger and Krumeich of the federal bureau of health state that it was eminently desirable that observations on the effects of administering convalescents' serum in poliomyelitis be collected. The outbreak of 1932 offered such an opportunity, particularly as special arrangements were perfected for the preparation of convalescents' serum (*THE JOURNAL*, Oct. 21, 1933, p. 1327). To secure a survey of the results, a special session of the federal health council, to which numerous experts were summoned, was called. In addition, the federal bureau of health sent questionnaires to all physicians and hospitals that had ordered convalescents' serum. Exact clinical reports on 227 cases were received. Patients with uncertain diagnosis were excluded. Of these 227 patients, twenty-six were given the serum in the preparalytic stage and 201 after the appearance of paralysis. In the twenty-six patients, a complete cure of the disease without paralysis was effected. There were no deaths, although in two patients of this group paralysis developed later. In contrast with the results just mentioned, the disease proved fatal in twenty-five of the 201 patients of the second group. According to the observations of the attending physicians, in 148 of these 201 patients the administration of serum had no influence on the paralysis, while in the remaining twenty-eight cases there was a pronounced retrogression of the paralysis. But since such improvement was observable with about the same frequency also in untreated patients, no special importance can be attached to these observations. The view expressed by many other physicians must be endorsed, namely, that convalescents' serum will not bring about a retrogression of paralysis once it has developed. Since the

number of patients who died, although treated in the paralytic stage with convalescents' serum, corresponded closely with the mortality that prevailed in 1932, it does not seem likely that the administration of the serum after the onset of paralysis exerted any harmful effect. The conclusion is, therefore, that convalescents' serum may be injected after the onset of the paralytic stage with a view to checking, if possible, the progress of paralysis.

Although the number of patients in Germany treated with convalescents' serum in the preparalytic stage is too small to justify a final opinion, the observations made thus far seem to show that this therapeutic measure has proved its high value. Great care must be taken therefore, by the creation of a suitable organization, that cases of poliomyelitis are recognized promptly and that serum treatment is instituted in season.

#### Decline of Infant Mortality

In 1933, infant mortality showed a decline. There were 45,279 deaths of children during the first year of life, as compared with 47,948 deaths in 1932 and 53,177 deaths in 1931. In 1933 there were 76 deaths per thousand, as against 80 in 1932, 84 in 1931, 104 in 1925 and 150 in 1913. Nevertheless the excess of births over deaths for Prussia in 1933 was only 144,022, which is 34,566 fewer than in 1932 and 49,880 fewer than in 1931. The excess of births over deaths amounted in 1933 to 3.5 per thousand of population as against 4.5 in 1932 and 4.9 per thousand in 1931. In 1925 the excess of births over deaths was 9.1 per thousand, and in 1913 13.3 per thousand of population.

#### The Detection of Tuberculous Persons

According to the statements of Dr. Hoth, about one fifth of all recognized cases of open pulmonary tuberculosis and more than half of the cases of closed pulmonary tuberculosis in Bremen were detected by the tuberculosis consultation center. Among these patients who were first discovered by the care-taking center there were comparatively more cases of recent origin than among the patients notified to the care-taking center from outside sources of information. It has been the experience of the Bremen care-taking center that not only the initial examination of the entourage of patients with open tuberculosis but also the continued observation of persons found on the first examination to be uninfected led to the detection of a considerable number of patients with lung involvement. It has been shown that in Bremen through the continued observation of healthy persons, just as many cases of open and of closed tuberculosis have been discovered as with the aid of the most successful serial examinations.

#### Protein Requirements

From numerous experiments on nitrogen balance and from the study of freely chosen protein-rich and protein-poor diets Dr. W. Heupke of Frankfurt-on-Main has drawn the following conclusions. In most diets the protein minimum lies between 30 and 40 Gm. Hundreds of millions of human beings cover their protein requirements by the ingestion of a protein intake ranging between 50 and 70 Gm, which conserves bodily performance. Hence a protein intake of 80 Gm must be regarded as amply sufficient. No disorders can be mentioned that are known with certainty to be due solely to a low protein intake. There are no diets freely chosen, and made up with any degree of reason, in which the protein intake was below the minimum requirements. The notion of a protein optimum appears superfluous, as dietitians are not in a position to assume that a certain number of grams of protein constitutes the most suitable intake. There is a wide range between an adequate protein intake and an excessive protein intake. In a short range of observation no injuries to health can be shown to be caused by the ingestion of an excessively large protein intake, but a

long range of observation furnishes evidence that an unduly large protein intake should be avoided, since modern research has shown that a high protein intake continued over a long period may give rise to disorders.

#### BUDAPEST

(From Our Regular Correspondent)

July 23, 1934

#### The Medical Congress at Balatonfüred

The Congress of Internists was held at Balatonfüred, a watering place on the shores of Lake Balaton. It was attended by a great number of physicians. The congress continued for five days and then the members went on excursions on the lake, which is fringed with resorts in glorious scenic settings.

#### TONSIL OPERATIONS ON CARDIAC PATIENTS

Dr. Vidor Zimányi said that tonsil operations performed on account of endocarditis complicating tonsillitis are often attended with untoward results. The diminished defensive power of the organism may be shown by calculating the bactericide index. One may determine the time to operate by this diagnostic method. The normal index is between 50 and 55, which means that the organism is in a positive defensive phase. When this index number prevails, complications after operations on the tonsils may be averted. If the bactericide index is lower when the patient presents himself for operation he is in a negative defensive phase, a postoperative complication is to be feared, and the operation should be postponed.

#### "ALLERGIC" CHARACTER OF MIGRAINE

Dr. Bela Fornet, with his assistants, made extensive investigations into the cause of migraine and came to the conclusion that most cases show a decided "allergic" character. In its origin, an important factor is the constitution.

#### PROPHYLAXIS AGAINST DIPHTHERIA

Dr. Bela Keseru declared that the most efficacious method of protection against diphtheria is immunization with the Ramon anatoxin, which has proved to render 90 per cent of those inoculated immune. The protection, according to the statements of competent foreign authors, lasts for at least four or five years. In the county of Balatonfüred immunization with the Ramon anatoxin has been made compulsory. In 1931, 2,922 children were given anatoxin three times. The result is that during the three years that has elapsed only one of the inoculated children has contracted diphtheria, and that case was very mild.

#### VITAMIN RESEARCH IN PEDIATRICS

Dr. Joseph Duzar, a university professor, has found that the feeding of infants with cow's milk is fraught with danger, owing to the lack of vitamins of the milk, brought about not only by repeated cooking and pasteurization but also by the feeding of cows in winter with fodder. The overfeeding with such milk infants with certain ailments brings on relative starvation, that is hypovitaminosis. The younger the infant the greater its relative vitamin need and the more the vitamin loss, with corresponding increase in susceptibility to fevers. The manifest severe avitaminoses in infants are rickets and certain eye conditions. More frequent are the latent avitaminoses, which also occur in babies nursed by mothers who exist on foods lacking in fats. Also one often encounters babies overfed with farinaceous foods. In such cases there is retardation of growth, loss of appetite, edematous obesity and a tendency to catarrhal feverish disturbances. Modern pediatrics regards it as its duty to feed these delicate and emaciated babies with foods containing an adequate quantity of vitamins. Vitamin research has shed a new light on the many-sidedness of the value of mother's milk, the food that is best adapted to the infant organism.

## Marriages

- WILLIAM J ELLIS, Covington, Va, to Miss Bessie Virginia Withrow of Clifton Forge, June 8  
ISAAC AVERA PHIFER JR, Buffalo, N Y, to Miss Marilou Hamilton of Asheville, N C, July 18  
WILLIAM E MITCHELL, Atlanta, Ga, to Mrs Helen Crockett of Ventura, Calif, June 12  
EUSTACE G HESTER, Saginaw, Mich, to Miss Anna Pope Bland of Shelbyville, Ky, July 7  
HARVEY N MIDDLETON, Anderson, Ind, to Mrs Stella Walker of Indianapolis, June 16  
JOHN DE WITT MORLEY to Miss Genevieve E Wager, both of Ashtabula, Ohio June 14  
ROYAL M MONTGOMERY, New York, to Miss Maxine Cooley of Denver, June 9  
WILLIAM B MATTHEW, Gary, Ind, to Miss Ruth Adams of Indianapolis, June 2  
JOHN H GLINN to Miss Eleanor C Schmidt, both of Chicago, June 18

## Deaths

- Rudolf Bolling Teusler, Tokyo, Japan, Medical College of Virginia, Richmond, 1894, Associate Fellow of the American Medical Association, assistant professor of pathology and bacteriology at his alma mater, 1896-1900, in 1903-1904 Associated Press correspondent in Japan, member of the commission to provide postgraduate medical training in the United States for Japanese students, headed the American Red Cross mission which accompanied the American Expeditionary Forces to Siberia in the World War, since 1918 honorary physician to the American Embassy in Tokyo and from 1909-1912 he was physician to the British Embassy in Tokyo founder and since 1900 director of St Luke's International Hospital, Tokyo, and since 1925 director of St Barnabas' Hospital, Osaka, aged 58, died, August 10  
Robert Hill Davis, University, Va, University of Virginia Department of Medicine, Charlottesville, 1901, member of the Missouri State Medical Association, professor emeritus of dermatology, St Louis University School of Medicine formerly dermatologist to the Jewish, St Anthony's and Bethesda hospitals, St Louis visiting dermatologist to St Louis City and the Barnard Skin and Cancer hospitals, St Louis, aged 58, died, June 19  
Jonathan Mayhew Wainwright @ Scranton, Pa, Columbia University College of Physicians and Surgeons, New York, 1899, secretary of the American Society for the Control of Cancer, member of the American Surgical Association and fellow of the American College of Surgeons, veteran of the Spanish-American and World wars surgeon in chief of the Moses Taylor Hospital, aged 60, died, August 3, of carcinoma  
Herbert Eliot Herrin @ Boston, Tufts College Medical School, Boston, 1910 member of the American Psychiatric Association and the New England Society of Psychiatry, acting medical superintendent of the Boston State Hospital, aged 51, died suddenly, July 15, of cerebral embolism, on the S S Somerset while on his vacation, just before the boat reached Baltimore  
John Berton Carnett @ Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1899, professor of surgery, University of Pennsylvania Graduate School of Medicine, served during the World War, member of the Associated Anesthetists of the United States and Canada aged 57, on the staff of the Graduate Hospital, where he died, July 29, of pneumonia  
Harry Stober Carmany, Philadelphia University of Pennsylvania School of Medicine, Philadelphia, 1893, fellow of the American College of Surgeons, served during the World War aged 66, formerly associate surgeon to the Episcopal Hospital and visiting surgeon to the Memorial Hospital, where he died, July 14, of carcinoma  
Isador David Bronfin @ Denver, Long Island College Hospital, Brooklyn, 1911, assistant professor of medicine in the department of tuberculosis, University of Colorado School of Medicine, fellow of the American College of Physicians, medical director of the National Jewish Hospital, aged 47, died, July 31, of tuberculosis

- William Henry Johnson, Charleston, S C, University of Virginia Department of Medicine, Charlottesville, 1893, member of the South Carolina Medical Association, professor of orthopedics, Medical College of the State of South Carolina, on the staff of the Roper Hospital, aged 63, died, April 14, of heart disease  
Bradford Frankfort Clutter, Borger, Texas, University of Louisville (Ky) School of Medicine, 1906, member of the State Medical Association of Texas, past president of the Hutchinson County Medical Society, aged 53, died, April 27, in a hospital at Hines, Ill, of papillomatosis of the bladder  
Othello Morino Bourland, Van Buren, Ark, Vanderbilt University School of Medicine, Nashville, Tenn, 1881, Bellevue Hospital Medical College, New York, 1883, member of the Arkansas Medical Society, aged 75, died, June 28, of coronary thrombosis  
Ivan Isaac Yoder @ Cleveland, Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1904, served during the World War, on the staff of the Lutheran Hospital, aged 58, died suddenly, July 12, of heart disease  
Jeremiah Francis Crowley, Adams, Mass, Baltimore Medical College, 1894, member of the Massachusetts Medical Society, on the staff of the Plunkett Memorial Hospital, aged 62, died, July 4, of illuminating gas poisoning, self administered  
Damon Alonzo Brown, Madison, Wis, Washington University School of Medicine, St Louis 1915, member of the American Urological Association, aged 44, died, May 14, in the Madison General Hospital, of streptococcic endocarditis  
Ossip Wanshenk, New York, University of Kharkov, Russia, 1894, member of the Medical Society of the State of New York, aged 60 died, April 20, in the Mount Sinai Hospital, of lobar pneumonia, arteriosclerosis and heart disease  
William Folsom Spaulding @ Greeley, Colo, Rush Medical College, Chicago, 1902, past president and secretary of the Weld County Medical Society, on the staff of the Greeley Hospital, aged 58, died, June 26, of coronary thrombosis  
Walter Baylor Evans-Lombe @ Boise, Idaho, Northwestern University Medical School, Chicago, 1931, on the staff of the Idaho State Soldiers' Home Hospital, aged 33, was killed, June 30, in an automobile accident  
George Simenton, Pontiac, Mich, Victoria University Medical Department, Coburg, Ont, Canada, 1885, member of the Michigan State Medical Society, aged 72, died, May 19, of carcinoma of the stomach  
Eugene Nesbit Gatlin, Brookshire, Texas, University of Arkansas School of Medicine, Little Rock, 1888, member of the State Medical Association of Texas, aged 73, died, March 25, of cerebral hemorrhage  
Lincoln Ellsworth Kidder, State College, Pa, Jefferson Medical College of Philadelphia, 1896, member of the Medical Society of the State of Pennsylvania, aged 69, died, June 3, of cardiac decompensation  
Walter Fisk Boggess @ Louisville, Ky, Louisville Medical College, 1885, professor of medicine and clinical medicine, University of Louisville School of Medicine, aged 71, died, July 1, of heart disease  
David Fuller Bentley, Camden, N J, Medico-Chirurgical College of Philadelphia, 1904, formerly county coroner, aged 74, died, June 25, in Miami, Fla, of coronary thrombosis and arteriosclerosis  
William H Aikman @ Natchez, Miss Tulane University of Louisiana Medical Department, New Orleans, 1885 aged 74, died, June 30, of nephritis, chronic encephalitis and Parkinson's disease  
Benjamin F Tarver, Star City, Ark, University of Louisville (Ky) School of Medicine, 1891, member of the Arkansas Medical Society, aged 70, died, June 20, of cerebral hemorrhage  
Elsha Gregory, Mont Belvieu, Texas (licensed in Texas under the Act of 1907), member of the State Medical Association of Texas, aged 56, died, April 9, in Houston, of lobar pneumonia  
Philip George Biddle, Dushore, Pa, Jefferson Medical College of Philadelphia, 1897, member of the Medical Society of the State of Pennsylvania, aged 67, died, May 21, of carcinoma  
Jose Escabi, Mayaguez, P R, Harvard University Medical School, Boston, 1921, member of the Medical Association of Puerto Rico, aged 50, died, April 15, of uremia and acute nephritis

**Callie Brown Charlton**, Portland, Ore., Willamette University Medical Department, Salem, 1879, Hahnemann Medical College and Hospital, Chicago, 1886, aged 84, died, April 22

**Abraham Epstein**, Philadelphia, Medico Chirurgical College of Philadelphia, 1910, aged 48, died, June 24, in the Temple University Hospital, of carcinoma of the rectosigmoid

**Albert W Lindbohm**, Erwin, Mich., Saginaw (Mich) Valley Medical College, 1900, member of the Michigan State Medical Society, aged 64, died, March 18, of acute myocarditis

**J Baptist Butts**, Chicago, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898, aged 83, died, March 18, of chronic nephritis

**James Jefferson Johnson**, Sulphur Springs, Texas, Memphis (Tenn) Hospital Medical College, 1897, served during the World War, aged 57, died, March 3, of heart disease

**Amos D Gray**, Chillicothe, Mo., Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1901, aged 69, died, in February, of carcinoma of the stomach

**Leonidas T Brown**, Kansas City, Mo., Ensworth Medical College, St Joseph, 1893, aged 64, died, January 28, in St Luke's Hospital, of cerebral hemorrhage

**Alfred L Fein** Ⓢ Chicago Loyola University School of Medicine, Chicago, 1917, aged 46, died, July 18, of carcinoma of the lung with metastasis to the brain

**Joseph L Nicholson**, Haddonfield, N J., University of Pennsylvania School of Medicine, Philadelphia, 1890, aged 78, died, March 15, of chronic myocarditis

**Elias Bibby**, Milwaukee, University of the City of New York Medical Department, 1889, aged 65, died, July 4, of carcinoma of the thyroid gland

**Yamei Kin**, Peiping, China, Woman's Medical College of the New York Infirmary for Women and Children, New York, 1885, aged 70, died, March 5

**John Edward Pope**, Zama, Miss., Memphis (Tenn) Hospital Medical College, 1913, aged 49, was found dead, April 1, of a self-inflicted bullet wound

**M L Johnson**, West Point, Tenn., University of Tennessee Medical Department, Nashville, 1901, aged 66, died, March 29, of tuberculosis

**Thomas Rickett Pooley Jr** Ⓢ Newton, N J., Cornell University Medical College, New York, 1907, aged 48, died, July 5, of pneumonia

**Frederick Eugene Vrooman** Ⓢ St Francis Minn., Kentucky School of Medicine, 1902, aged 61, died, June 25, of cerebral hemorrhage

**James Clifton Gantt**, Pulaski, Tenn., Meharry Medical College, Nashville, 1910, aged 53, died, April 25, in the Hale Hospital, Nashville

**Isaac Sher**, Chicago, Illinois Medical College, Chicago, 1901, aged 78, died, July 25, of myocarditis, nephritis and arteriosclerosis

**Norman Francis Jacob**, Kent, Ohio, Michigan College of Medicine and Surgery, Detroit, 1900, aged 61, died, in May, of heart disease

**Mark Cyrus Gaines**, New Orleans, Bennett Medical College, Chicago, 1913, aged 50, died, February 24, of cerebral hemorrhage

**Walter R Barnes**, Quincy, Mass., University of Vermont College of Medicine, Burlington, 1882, aged 79, died, January 18

**Henry C Walbeck Jr**, Louisville, Ky., Kentucky School of Medicine, Louisville, 1905, aged 56, died, June 1, of heart disease

**Benjamin C Morgan**, Fort Worth Texas, Atlanta (Ga) Medical College, 1884, aged 75, died, January 31, of pernicious anemia

**Henry Thompson Burnap**, Alton, Ill., St Louis Medical College, 1878, aged 78, died, July 3, of heart disease

**James George Ross**, Embro, Ont., Canada Rush Medical College Chicago, 1900, aged 65, died, May 13

**Frank Mulford Hill**, Eastman, Ga., Meharry Medical College, Nashville, 1914, aged 49, died, April 25

**William R Keeney**, Tecumseh, Mich. (licensed in Iowa in 1886), aged 86, died, March 24, of influenza

**Fred Lyman Lewis**, Cleveland, Cleveland Medical College, 1896, aged 60, died, in January

## Correspondence

### McCOY NO LONGER WITH LOS ANGELES TIMES

*To the Editor*—An anonymous letter received today enclosed a clipping from THE JOURNAL published by the American Medical Association under date of Aug 4, 1934, Vol 103, No 5, carrying an article headed "A Dietary Quack Discusses Dysentery," in which it is stated that Dr Frank McCoy of Los Angeles is associated with the Los Angeles Times' as writer of a health column. I wish to correct this impression. Dr Frank McCoy has not been with the Los Angeles Times since February 1932.

E TAGGART,  
Secretary to L D HOTCHKISS,  
Acting Managing Editor

### DANGER IN ADMINISTRATION OF HUMAN SERUM

*To the Editor*—In THE JOURNAL, July 21, page 192, appeared a current comment treating with the administration of human serum and advising caution in its administration. The article made reference to a recent California case that cost the life of a young boy. A footnote stated that the tragedy was occasioned by the incapability of the technician. I am the technician who prepared the serum, and in justice to yourself and to me I believe you should be advised of the outcome of the investigation that followed the death.

A coroner's jury composed of reputable physicians from all parts of this county returned a verdict exonerating me from liability and attributing the contamination of the serum to undetermined causes. It is true that they recommended state supervision of all laboratories engaged in making serum, but they did not in any manner lay the blame for this most unfortunate happening to me or to my laboratory.

The doctors composing the jury are as follows: Dr S S Bogle, Dr Loughton Ray, Dr C M Carlson, all of Santa Rosa, Calif.; Dr James G Anderson, Dr M L Lewis, Dr H S Rogers and Dr S Z Peoples of Petaluma, Calif.; Dr Chester Marsh and Dr Ernest Vieira, both of Sebastopol, Calif.; Dr E J Finnerty of Sonoma, Calif.; Dr F O Butler of the Sonoma State Home, and Dr D C Oakleaf of Cloverdale, Calif.

ALEX A SOKOL, Santa Rosa, Calif

### ACUTE OUTBREAK OF TYPHOID

*To the Editor*—During a recent visit of a large circus in this city, fever was discovered in several of the performers and laborers attached to the organization. Steps were immediately taken by the local health authorities, the chief physician of the circus, and members of the staff of Harper Hospital to examine every member of the group. July 23 and 24, seventy-eight men and women, ranging from the age of 15 to 50, were found to have typhoid or were suspected of being in the early stages of the disease. All of them were brought into Harper Hospital and isolated in a separate division of the hospital. Complete isolation precautions with a separate staff of nurses and physicians were placed in charge. Blood cultures and Widal tests were immediately done on the entire group.

At this time, forty-seven of these patients have been definitely proved to have a typhoid bacillus bacteremia. Twenty have been discharged after careful and repeated blood cultures, Widal tests and negative stool cultures.

The origin of the infection has not been fully determined. The Detroit Board of Health and the Michigan State Board

of Health have been investigating this phase of the problem. Among those isolated at Harper Hospital, no typhoid carrier was found among the food handlers. The date of the onset of the disease in each individual has varied. Some date the onset of their symptoms as early as July 9, others as late as July 23. The disease appeared among the performers who never are permitted to eat food prepared in the mess kitchen that supplies food to the crew of the circus.

Seven women have the disease. The majority of one team of aerial performers is afflicted. Among the other members of the circus, the disease is spread among laborers, ticket seller, electrician and barber.

All but about twelve have typhoid in a severe form. One patient died in a state of hyperpyrexia.

This preliminary report is made for the purpose of recording this unusual outbreak and will be followed later on by a complete report of the subsequent events, the treatment, and the sequelae of the disease.

HUGO A. FREUND, M.D., Detroit

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### TREATMENT OF FRACTURE OF RIBS

To the Editor—A white man aged 37 was struck on the back May 10 by some boards (truck mats) which fell a distance of about 8 feet as they were being lifted by a crane. The boards are estimated to weigh half a ton. They struck the patient a rather glancing blow, causing extensive abrasions on his shoulders and back. Roentgen examination revealed fractures of the first rib on each side at about the junction of the anterior and middle thirds with separation of a good quarter inch in each fracture. My theory is that the great depression of the clavicle caused it to fracture the ribs though no other ribs were broken, nor was either clavicle. Now after a period of six weeks there is still distinct crepitus in the fracture on the right side and roentgenograms reveal no callous formation and no diminution in the amount of separation on either side. The treatment has consisted of rest and the avoidance of muscular exertion. If you have any suggestions as to the proper procedure to obtain union in these fractures I will appreciate it. I can find very little in the literature on this type of fracture. What will be the prospect for permanent disability? When will it be safe for the man a laborer to resume work?

ROBERT H. WRIGHT JR. Phoebe, Va.

ANSWER—A bilateral fracture of the first rib as a result of a blow on the back is uncommon. Such fractures may occur from a fall which causes the body to jack-knife sharply, so that the lower ribs are driven against the pelvis and the weight of the head and shoulders is driven downward and forward on the upper ribs. The fracture described in this note can be explained on this basis.

Rib fractures usually heal within a period of six weeks regardless of whether or not any immobilization is obtained. It is the practice of most clinics to strap the chest tightly passing the adhesive tape around over an axillary pad and extending from near the midline in the back on one side and around in front to near the midline in the back on the opposite side. A second strap of adhesive tape should be placed from just below the axilla and posterior to it, around in front and over the opposite shoulder to the back, and a third similarly placed beginning below and behind the opposite axilla and passing upward and over the shoulder of the opposing side. This type of adhesive strapping can be worn for as long as three weeks unless the patient's skin is unusually susceptible to irritation from zinc oxide.

These fractures will probably unite and there will be no permanent disability. The patient should not be allowed to return to work until there is clinical evidence of union characterized by absence of crepitus, palpable tenderness, respiratory pain and possibly the presence of palpable callus, which can usually be demonstrated in the roentgenograms. It is well known that large sections of ribs can be excised surgically with subsequent complete restoration through periosteal new bone formation. The fact that there has been separation of the ends of the fragments in this case no doubt accounts for the delay in union but the prospect for ultimate complete recovery should be good.

### CAUDAL BLOCK ANESTHESIA

To the Editor—I wish to ask your opinion regarding a problem in regional anesthesia. I have used sacral (caudal) anesthesia frequently in the past, and still prefer it for rectal and perineal work. However, in about 20 per cent of the cases for no reason that I can discern the anesthesia fails to work. My technique is identical for all the cases in which I use it and in the majority of cases it gives satisfactory anesthesia. I use 30 cc of 2 per cent procaine hydrochloride and introduce it at a depth of about 6 cm through the sacral hiatus. The patient rests on her back for one-half hour before the operation is started. The books to which I have referred do not explain the failures which occur in the experiences of numerous other men besides myself. Can you explain the failures in detail and advise steps to obviate them? Kindly omit name.

M.D., New York

ANSWER—Caudal block by means of 30 cc of 1 per cent procaine solution, injected into the caudal canal, has an incidence of unsatisfactory anesthesia of about 30 per cent. There is, of course, always at least partial anesthesia as a result of the injection. In some cases the perineum and anus will show areas of anesthesia, hyperesthesia and small areas of normal sensation after such an injection. With the use of the 2 per cent solution there is some reduction in the percentage of cases in which there is failure to obtain anesthesia. With the 3 per cent solution this percentage is still further reduced. However, the facts that a solution stronger than 1 per cent procaine is not advised by the American Medical Association Committee on Anesthetics and that, from clinical experience, reactions to intravenous injections of procaine solution occur occasionally in connection with sacral block, indicate that the most practical solution is 1 per cent procaine hydrochloride. From 25 cc (in small persons) to 35 cc (in large individuals) may be injected in the caudal canal, 10 or 15 cc of 1 per cent procaine solution should be injected in each second sacral foramina. Anesthesia should appear in about twenty minutes and is usually satisfactory. It is important, in placing a needle in a foramen, to be sure that the foramen has been entered. This may be ascertained by advancing the needle for one-half inch after one thinks the foramen has been entered. Then the needle may be withdrawn so that the point of it is just inside the opening of this bony foramen. The test to make sure that the caudal needle is in the caudal canal is to bring the needle against the posterior bony wall of the caudal canal. This test is applicable except when there is spina bifida occulta of the sacrum. Many of the failures to induce sacral block anesthesia with the caudal injection are due to failure to enter the caudal canal. Occasionally an individual is so certain that the caudal canal has been entered that he can be convinced that it has not been only when the needle is withdrawn and reinserted and anesthesia produced after the second attempt. Anesthesia is sometimes delayed when the solution is very cold. Vigorously boiling the procaine solution causes it to lose its effectiveness. If anesthesia is to be produced with still greater certainty, injection of the caudal canal through the second, third and fourth sacral foramina on each side should be carried out.

The following are relevant references.

- Mayer, Emil. The Toxic Effects Following the Use of Local Anesthetics. *THE JOURNAL*, March 15, 1924, p. 877.  
Labat, L. G. Regional Anesthesia: Its Technique and Clinical Application. Philadelphia: W. B. Saunders Company, 1922.  
Lundy, J. S. A Method for Producing Block Anesthesia of the Sacral Nerves. *Am J Surg* 4: 262 (March) 1928.

### FATE OF BARBITURIC ACID PREPARATIONS IN BODY

To the Editor—Can you give me references to literature or information concerning the fate of the different barbituric acid preparations after they enter the body? Is there any accurate clinical information to show that the different products on the market differ in any way in their action when taken in comparable amounts? Is there any chemical reason to suspect that they should in any way be different? Kindly omit name.

M.D.

ANSWER—Of the barbituric acid derivatives studied in this connection, barbital and phenobarbital are largely excreted as such in the urine (barbital about 85 per cent, phenobarbital about 30 per cent), amytal and pentobarbital appear in the urine only in traces or not at all. Nephrectomy markedly prolongs narcosis from barbital and from phenobarbital but not from amytal, pentobarbital, neonal, ipral, dial allurate, phanodorn or pernocton. Experimentally produced liver damage in animals (to an extent such that disappearance of bromsulphalein from the blood is significantly delayed) does not appreciably affect the duration of action of barbital but does prolong the action of pentobarbital. It appears from these studies that recovery from the influence of barbital or of phenobarbital is dependent largely on excretion of the compound by the kidneys, whereas recovery from narcosis by amytal, pentobarbital, neonal, ipral, dial, allurate, phanodorn



or pernocton is dependent on destruction of the drug in the body. In the case of pentobarbital an important, if not the only, site of destruction appears to be the liver, presumably this is true of the other members of this group also. The end products of these compounds have not been isolated. There is considerable clinical evidence of differences in the effects of the various barbituric acid derivatives. It is obvious from the foregoing that barbital or phenobarbital should not be employed in cases in which significant kidney damage is present and that pentobarbital (and presumably the others of the group) should be employed with care if at all in patients with impaired liver function. The other differences are concerned chiefly with duration of action, pentobarbital being the shortest acting member of the series of those given orally (evipal appears to produce even a shorter effect but this drug is given intravenously) and barbital probably the longest. Some of the drugs, like evipal and pernocton, have a tendency to produce clonic muscular spasms in occasional individuals. The barbiturates also differ in the ratios of their effective and fatal doses, this, however, is of little consequence in ordinary clinical usage, as the safety factor usually is sufficiently great even with the more toxic preparations. For further information the following references should be of assistance:

- Sollmann Torald. *Manual of Pharmacology* ed 4 Philadelphia W B Saunders Company 1932 p 769  
 Fitch R H and Tatum A L. Duration of Action of Barbituric Acid Hypnotics as a Basis of Classification. *J Pharmacol & Exper Therap* 44 325 (March) 1932  
 Fulton J F and Keller A D. Comparison of Dial Amytal and Pentobarbital in the Chimpanzee. *Surg Gynec & Obst* 54 764 (May) 1932  
 Hirschfelder A D and Hauray V G. Effect of Nephrectomy on Duration of Narcosis from Barbituric Acid Derivatives. *Proc Soc Exper Biol & Med* 30 1059 (May) 1933  
 Pratt T W. A Comparison of Pentobarbital and Barbital as Related to Detoxication in the Liver. *J Pharmacol & Exper Therap* 48 285 (July) 1933  
 Shonle H A, Keltch A K, Kempf G F and Swanson, E E. Elimination of Barbituric Acid Derivatives in the Urine. *J Pharmacol & Exper Therap* 49 393 (Dec) 1933

#### SCHULZ-CHARLTON REACTION IN SCARLET FEVER

To the Editor—A child aged 10 complained of lassitude, slight soreness in the epigastrium and fever of six hours' duration. Examination disclosed marked flushing of the face, a diffuse red eruption limited to the abdomen, the neck, the thighs, the arms and the chest, slight dusky redness of the anterior pillars in the throat, the tongue clear of a deep red, the papillae standing out prominently and almost transparent. The anterior cervical glands were slightly enlarged. The temperature was 102.2 F and the pulse 120. The throat was not sore, there had been no vomiting, the onset was so gradual as to escape the attention of the unusually vigilant mother and the Schulz-Charlton test produced no change in the color of the rash. The child had German measles two months ago and the rash cannot be attributed to recent drug administration. Another physician maintains that even with a negative Schulz-Charlton test the picture of rash fever and strawberry-like tongue must be diagnosed as scarlatina, while my understanding of the Schulz-Charlton test warrants a negative diagnosis in the case. Possibly I place too much emphasis on the infallibility of the Schulz-Charlton reaction but if my understanding of the reaction is correct I feel that it is in effect a neutralization of the toxin in the skin by the specific antiserum. I should conclude that the test is infallible. Kindly omit name and address.

M D Wisconsin

ANSWER—The Schulz-Charlton test is not always infallible, because the rash is sometimes too slight to show a good area of blanching, because the rash is old with extravasation of blood into the skin, or because there may be a central area of reddening due to the reaction of the skin to the serum itself. In case horse serum is used or to the preservative in case preserved convalescent serum is injected, in this case, however, there can usually be seen an outer zone of blanching surrounding the central red area. With the exceptions noted, the Schulz-Charlton reaction is positive in scarlet fever.

Nose and throat cultures made on blood agar plates and examined for the presence of hemolytic streptococci would be helpful in diagnosis.

#### DIGITALIS IN TREATMENT OF FAILING HEART

To the Editor—Would you kindly through the medium of your journal evaluate the use of digitalis in old hearts with moderate decompensation but no fibrillation. My experience with the latter drug at the local hospital here in a large number of cases is that the added strain in spite of the better nutrition of the heart hastens rather than prolongs the final outcome. What is the present status of theobromine in these cases? Kindly omit name and address.

M D New York

ANSWER—There is no evidence indicating that the administration of digitalis places an added strain on the failing heart. On the contrary, when the myocardium is laboring under difficulty, digitalis exerts a tonic effect on the heart muscle and augments cardiac output. It is essential to use a potent biologically standardized preparation, in proper dosage. In many

elderly patients, after compensation has been restored, continuous administration of digitalis in maintenance doses (from 0.1 to 0.2 Gm, or 1½ to 3 grains, each day) will often serve to prevent the recurrence of congestive heart failure.

Theobromine, like the other members of the xanthine group, has a double action. (1) It dilates the coronary arteries and thereby increases the volume of blood that flows through the heart muscle, (2) it is a mild diuretic. It is therefore sometimes useful in cases of coronary sclerosis, or in the presence of edema. It is usually given as theobromine sodiosalicylate in doses of from 0.65 to 1 Gm (10 to 15 grains) three or four times a day. The xanthine preparation at present most commonly employed for the relief of anginal pain is theophylline ethylenediamine. It is dispensed in tablets of 0.1 Gm (1½ grains) each, one of which may be given three or four times a day over a period of weeks or months.

#### MUSCLE SPASM AND CRAMP

To the Editor—A woman aged 42 is subject to painful contractions of the muscles. The condition began twelve years ago in the muscles in the calf of the right leg. It now involves the muscles of all limbs and at times the muscles of the trunk. These contractions come on particularly on exertion. In the arm for instance lifting a heavy pan of water will cause a contraction of the biceps which may last three days. The muscle will remain hard and tender, extension of the forearm at the elbow is possible but painful. There should be no foci of infection present. She has had 20 grains (1.3 Gm) of calcium lactate three times daily but can see no change. I should like to know whether you can offer any suggestions. Please omit name.

M D, North Dakota

ANSWER—From the description of the muscle spasms, lasting as long as three days, the spasm must be tonic. Muscular cramps of this type usually fall into the group of tetany on the basis of calcium deficiency. A condition of this type lasting for twelve years without more evidence of the cause is most unusual. Parathyroid disease should be considered. The diagnosis of tetany may be made by observation of its other phenomena, Trousseau's sign, Erb's symptom and the Chvostek sign together with the finding of a low level of blood calcium. The administration of calcium in the dose mentioned might be totally inadequate without the use of parathyroid extract or possibly viosterol. Larger doses of calcium alone, from 8 to 12 Gm daily, are capable of raising the calcium level of the blood and relieving the symptoms of tetany.

In the event that the calcium metabolism is found to be normal, other causes for increased muscle irritability of a chronic type must be considered. These are most likely to be of central origin. Lesions involving the pyramidal tract might be considered, but the neurologic examination should be conclusive. The neurologic conditions producing increased muscle irritability usually result in contractures, with muscle weakness and muscle atrophy, rather than cramps.

#### HEALTH HAZARDS IN CLEANING INDUSTRY

To the Editor—I should like information on the probability of poisoning in the following case. A woman aged 55 who is employed by a large department store, became ill after cleaning a considerable number of garments for several weeks with chloroform and oronite (a cleaning solvent sold by the Standard Oil Company). A man working with her also became ill. The symptoms in both cases were referable to the stomach. My patient complained of a bad taste in the mouth, a coated tongue, a burning sensation in the throat and sensations of burning and fullness under the sternum. Examination revealed nothing of significance except the coated tongue and gastric juice of low acidity containing large amounts of mucus. It has been reported to me that the man believes he has a cancer of the stomach. Is it possible for chloroform poisoning to result from a contact of this type? The workroom at the time was poorly ventilated but now an exhaust fan has been installed. Are you familiar with cases of oronite poisoning? Gloves were not worn.

J H GIVENS M D Seattle

ANSWER—This query fails to provide adequate information as to the extent of exposure. Naturally the exposure would be greater if actual submerging of garments took place in contrast to spotting work. An inquiry was made of the Standard Oil Company of the area in which this reply originated. The company stated that it had no knowledge of any such product as oronite but indicated that other companies of the same name might make or market such a product. In any event, such a product might be expected to contain as its major ingredient a petroleum fraction of the general range of naphtha. The somewhat noncharacteristic symptoms described might arise from causes other than industry but if they are attributable to industrial sources either the chloroform or naphtha readily might produce just the clinical picture suggested. Chemically, chloroform is similar to carbon tetrachloride, which is commonly accepted as highly toxic. In addition, chloroform is said to possess a toxicity 22 times as great as carbon tetrachloride.

Even in a mild case, such as this may appear to be, a headache and a diarrhea usually accompany the manifestations indicated as present. In severe cases of chloroform toxicity the chief symptomatology can be traced to the liver, which may undergo necrosis. Guanidine poisoning may arise. The damage done by chloroform may be followed by rapid and complete recovery if further exposure is avoided, but the damage from naphtha may be prolonged or permanent. Condemnation is to be extended regularly to the extensive use of chloroform for dry cleaning except under conditions completely protecting the worker against exposure—especially against the inhalation of vapors.

#### SYPHILIS OF NERVOUS SYSTEM

To the Editor—I should like your advice as to the therapy in the following case. A man aged 34 had syphilis about eight years ago and at that time had a year's treatment by vein. About four weeks ago he became morose, languid and irresponsible. He lies and looks at the ceiling for hours at a time and takes no interest in anything going on around him. His Wassermann reaction is 4 plus. No spinal fluid test has been done but it would undoubtedly be positive. All reflexes are increased. Could you kindly advise as to therapy with respect to drug, dosage and frequency? Please omit name. M D California

ANSWER—Further studies are essential, including examination of the spinal fluid, in order to determine the location of the syphilitic infection, without them a rational selection of therapy is not possible. It may be that there has been a parenchymatous invasion of the central nervous system—a dementia paralytica. Therapy in this condition would differ largely from that in other forms of syphilis and would include the selection of some form of fever-producing means, the administration of tryparsamide, or both. This selection must be based on a thorough study of the eyes, the cardiorenal system, and so on.

#### FOOD OF THE CHINESE

To the Editor—THE JOURNAL, January 27, published an editorial comment called "A Dietary Ingenuity." I should like to ask the author where the recent analyses of Chinese foods and the discussion of culinary methods in providing adequate calcium by Frances Clinton may be found. LAUGHLIN DENNISON, Nutritionist, Pittsburgh.

ANSWER—The author of the item referred to in the *Journal of Home Economics* (25:871 [Dec.] 1933) writes: "Despite the fact that the Cantonese do not use any milk or milk products, the diet of these Chinese people is adequate in calcium, protein and calories, according to Pik Wan Hoh, a graduate student in home economics at Oregon State College, whose home is Canton, China. At a recent quarterly meeting of the Oregon State Nutrition Council Miss Hoh discussed in detail the eating habits and customs of Chinese among the better classes of city people as she has known them in southern China." Details regarding these statements can doubtless be secured by correspondence with the Department of Home Economics at the Oregon State College in Corvallis. For expert information regarding the composition of the foods of the Chinese, it may be advisable to consult Prof. William H. Adolph, Department of Chemistry, Yenching University, Peiping, China. He has made extensive investigations and published numerous papers, partly in Chinese journals, on this subject.

#### TREATMENT OF RED NOSE DUE TO PERMANENTLY DILATED CAPILLARIES

To the Editor—I have a patient with a very red nose. Only the skin is involved. It is smooth. The capillaries are dilated and it bleeds profusely when cut. It becomes violet or cyanotic on exposure to cold. The condition was thought to be a chronic erysipelas and protein shock therapy was used with no results. There are no pustules and a smear revealed sebaceous material but no organisms. The patient has never had any constitutional symptoms. He works hard in a lumber yard and paint shop. The blood pressure is normal. There is no erythema of the ears or extremities. Is this an infectious process or a vascular disturbance? What is the treatment? What substances are best for the intradermal injection of hemangio-ectasia (port wine stain) besides hot water? Could they be used in this case? Please omit name and city. M D Arizona

ANSWER—These cases are not infectious but are due to paralysis of the vasoconstrictor apparatus controlling the capillaries and venules of the skin. This apparatus is more sensitive in the center of the face than anywhere else, responding readily to various stimuli. After many and frequent responses of this kind, the constrictor apparatus wears out and the dilatation becomes permanent. In a typical case of acne rosacea this involves the nose, adjacent cheeks, the center of the forehead and the center of the chin, but in certain cases, as in

the one under discussion, it is confined to a smaller area, for reasons unknown.

Exposure to extremes of temperature, either cold or heat, are responsible, at least in part, for some cases. Obstruction to the circulation within the nose or a pustular folliculitis in the nares can be blamed for some cases. Focal infection about the teeth, in the tonsils or in the nasal cavity or its neighboring sinuses should be sought and eliminated if found. The gastro-intestinal tract should be thoroughly investigated. Hypoacidity, liver or gallbladder disease, or constipation may be at fault. The diet should contain no irritating foods or drinks. Very hot foods or drinks, alcohol in any form, tobacco, tea, coffee or chocolate, condiments, and rich meat dishes or desserts should be prohibited. In view of the patient's occupation, the possibility of chronic lead poisoning should be investigated.

Even though some such condition may be discovered and corrected, local treatment may be necessary before success can be achieved and in too many cases local treatment is the only hope. Constricting lotions, such as lotio alba, composed of sulphurated potassa, 2 Gm, and zinc sulphate, 2 Gm, in rose water to make 30 cc, may be used. The lotion should be dabbed on before retiring and allowed to dry on. Care should be taken in washing not to use very hot or very cold water. Lotio alba can be strengthened by increasing the solid ingredients or by the addition, after the lotion is made, of resorcin up to 10 per cent.

Röntgen rays, low voltage unfiltered, in doses of from 37 to 75 roentgens, from one eighth to one-fourth erythema dose, once a week until a total of two whole erythema doses or 600 roentgens has been given, is often successful. If the skin becomes dry and wrinkled during the treatment, no more roentgen rays should be given until this condition has cleared. There is more danger of overdosage in acne rosacea than in acne vulgaris because the patients are older, as a rule. Local medication, except soothing applications, are tabu during roentgen treatment.

If these measures fail, carbon dioxide snow, easily obtainable as dry ice, may be tried, a stick not over 1 cm in diameter being used, applied with fair pressure for one second on each spot. If this causes no reaction and no improvement, the time may be cautiously increased until a slight reaction is obtained. By using a small stick and making many slight applications, one may avoid the checkered effect due to strong applications that cannot be made to cover the whole area exactly alike.

If it is thought necessary to use injections such as are used in the treatment of angioma, sodium morrhuate, 3 per cent solution in oil, is one of the best. It should be injected if possible into the venules (Biegeleisen, H. I. Telangiectasia Associated with Varicose Veins, THE JOURNAL, June 23, p. 2092) at points 2 cm apart near the border of each patch. A week later injections should be made between these points. As the border clears up, injections should be made nearer the center.

Electrolysis for the larger venules, the needle being inserted on the negative pole into the venule and a 1 to 2 milliampere current being allowed to circulate until the area has turned white, is also a helpful procedure.

#### URINE OF LOW SPECIFIC GRAVITY

To the Editor—Please inform me as to what will cause low specific gravity in a urine specimen for example 1.001 or 1.002? I have had several of these cases of late and can find no reason for it in the text books. In none of the cases has there been any cardiac involvement and in no case has there been any rise in blood pressure. My latest case is one of a woman seven months pregnant who feels perfectly well but who has gained 11 pounds (5 kg.) in the past month. Also what could cause the great gain in weight? M D, Michigan

ANSWER—A urine of a specific gravity as low as 1.001 or 1.002 in a twenty-four hour specimen occurs only in diabetes insipidus. This is an uncommon condition due to a lesion of the posterior lobe of the pituitary gland or the adjacent area of the brain. In this disease the urine volume may reach from 4 to 30 liters daily. The patient naturally has great thirst and drinks equally large quantities of water. Solution of pituitary usually causes a return to normal volume.

The specific gravity of the urine varies greatly during the day, depending chiefly on the fluid intake, perspiration and nervous functional disorders. The total solids excreted daily are but slightly variable when compared with the fluid variations. Hence the specific gravity tends to vary in inverse ratio to the alterations in volume.

The normal range of specific gravity is from 1.008 to 1.028, with most results between 1.015 and 1.025. Except after the ingestion of great quantities of water a specific gravity as low as 1.001 or 1.002 is found only in diabetes insipidus. The

polyuria of chronic nephritis or hypertensive cardiovascular renal disease is associated with a lowered or fixed specific gravity, but the values are usually between 1.008 and 1.013.

From the foregoing statements it is obvious that the specific gravity of the urine, to be of value, must be taken several times during the day, or the total twenty-four hour specimen tested. Variations from 1.002 or 1.003 to 1.030 may occur in normal persons without indicating any pathologic condition.

#### TREATMENT OF MYELOGENOUS LEUKEMIA

*To the Editor*—I am treating a case of myelogenous leukemia with the usual discouraging result and am writing you on the chance that you may have knowledge of some relatively new and successful procedure in the handling of this disease. I desire especially to learn of anything that is more successful than iron, arsenic and liver extract by mouth, transfusion and roentgen therapy.

OTTIS LIKE, M.D., Monroe City, Ind.

*ANSWER*—No new or more successful remedies of value in the management of myelogenous leukemia than those enumerated have appeared in recent years. Irradiation (with either x-rays or radium), while efficient in effecting clinical improvement and reducing the white blood count in the early stages of the disease, cannot be considered a cure, nor does it seem to prolong life. The disease continues to run an average course of about three and one-half years. Ultimately all patients with myelogenous leukemia lose their radiosensitivity and the employment of radiation under such circumstances or in the acute stage may be disastrous. A judicious use of radiation, therefore, seems to offer the greatest benefit that is possible to give. Iron, arsenic, liver feeding and transfusions may be employed as adjuvants.

#### BLOODY PLEURITIC FLUID AND CANCER

*To the Editor*—It has frequently been said that bloody pleuritic fluid is pathognomonic of cancer of the lung. Is this altogether true? Are there not other conditions that will produce a bloody pleuritic effusion? Kindly send me the list of other conditions that may produce such effusion. Please omit my name.

M.D. Indiana

*ANSWER*—A bloody pleuritic fluid is not pathognomonic of cancer of the lung. It may be caused by a malignant disease of the pleura and by inflammatory and traumatic conditions of both the lung and the pleura. Occasionally a tuberculous effusion will be blood stained. There is a type of spontaneous pneumothorax associated with large amounts of bloody effusion that may or may not be of tuberculous origin.

#### EFFECTS OF CALCIUM ON COAGULATION TIME

*To the Editor*—I am told that calcium gluconate given in a dosage of from 100 to 150 grains (6.5 to 10 Gm.) a day will decrease coagulation time at the end of twenty-four hours but that if the same dosage is continued for three or four days there will be an increase of the coagulation time. Please advise me about this.

GEORGE E. VAUGHAN, M.D., Louisville, Ky.

*ANSWER*—The injection of calcium gluconate for three or four days in the doses mentioned will not increase the coagulation time in man. There are some *in vitro* studies on citrated blood which indicate that oversaturation with calcium may interfere with the clotting mechanism, but this cannot be substantiated *in vivo*.

#### INJECTION TREATMENT OF VARICOSITIES OF VULVA

*To the Editor*—Is there any contraindication to the treatment by sodium morrhuate of varicosities of the vulvar region during the sixth month of pregnancy? Please omit name.

M.D. New York

*ANSWER*—The injection treatment of varicose veins of the saphenous system during the first seven months of pregnancy is a safe and good practice in experienced hands. Quinine, of course, is not used. There is no complete agreement, however, in treating vulvar varicosities, which drain only to a slight degree toward the saphenous system and are mainly tributaries of the internal iliac vein. An injection of sodium morrhuate into the vulvar veins may, although it undoubtedly hardly ever does, set up a pelvic thrombophlebitis. It is pertinent to ask how often such vulvar varicosities rupture and bleed during delivery and whether injections would prevent vulvar hematomas. It is also obvious from a glance at the hugely dilated venous network of the vagina and vulva of the pregnant woman, that a few injections into the periphery of such a venous plexus can hardly obliterate more than a few short segments. There is at no place an isthmus or common trunk comparable to the terminal portion of the saphenous vein. From such considera-

tions it would seem that the injection of vulvar varicosities, while practiced by some eminent workers in this field, has not much to offer and may lead to complications.

#### ASTHMATIC ATTACK DURING COITUS

*To the Editor*—A case was recently brought to my attention of a woman suffering from asthma who states that the act of coitus with the husband brings on an attack of asthma. Could this be so? Could you refer me to literature regarding similar cases? Please omit name.

M.D., British Columbia

*ANSWER*—This condition is relatively common and is caused by sensitiveness to the effect of heat and effort (Duke, W. W. *Arch. Int. Med.* 45:206 [Feb.] 1930). It is frequently attributed erroneously to sensitiveness to spermatozoa. The same condition is a relatively common cause of impotence in man. It can be benefited in either case by a cold bath and avoidance of heat and effort prior to coitus. Furthermore, the weakness can be benefited by the effect of graduated exercise of the voluntary muscles.

#### EMBRYOLOGY OF EAR

*To the Editor*—Will you kindly inform me at what age the ear has attained its full growth?

M.D., Pennsylvania

*ANSWER*—The labyrinth of the ear undergoes slight, if any, changes after birth, that is, it has attained adult form at birth. As regards the middle ear, the situation is different. The drum membrane at birth has attained its adult form, as have the ossicles lodged in the middle ear. The external auditory meatus, at birth, consists only of the cartilaginous membranous part, which is attached to the os tympanum. There is no mastoid process or pneumatic cells. During the first decade the external meatus begins to take on its adult characteristics whereby the inner two thirds is made up of bone derived in part from the os tympanum, in part from the squamous bone, and a wedge-shaped segment of the upper posterior part of the meatus derived from the petrous bone. The development and pneumatization of the mastoid process begin during the first year and are practically complete by the tenth or twelfth year.

#### BILIVACCIN STILL EXPERIMENTAL IN TYPHOID

*To the Editor*—Please advise me as to the relative efficiency of immunization against typhoid by the hypodermic injection of killed bacilli and by the use of the Bilivaccin tablets by mouth. Is the Bilivaccin immunization against cholera and dysentery effective? And if so to what degree? Please omit name.

M.D. India

*ANSWER*—The only safe and generally accepted method of immunization against typhoid is by the injection of vaccines composed of killed bacilli. The use of "Bilivaccin" is still strictly in an experimental stage in the three diseases mentioned. Neither this product nor any other "vaccine" product recommended for oral administration has been accepted by the Council on Pharmacy and Chemistry.

#### TOBACCO COUGH IN CIGARET SMOKERS

*To the Editor*—Please give me your opinion regarding the cause of so-called tobacco cough seen commonly in cigaret smokers. Is it possibly caused by the fine particles of loose tobacco or tobacco dust?

G. LANDE GATELY, M.D., East Boston, Mass.

*ANSWER*—It is difficult to say definitely just what causes the so-called tobacco cough, but it is likely that several factors may be present. Not only do fine particles of tobacco enter the throat, but the heat of the fumes, the nicotine vapor, plus the products of partial combustion may be direct sources of the irritation. This is probably especially true with the inhalation of the smoke into the lungs such as is indulged in by the vast majority of cigaret smokers.

#### SINGLE TESTICLE AND POTENCY

*To the Editor*—A patient aged 29 married in fine physical condition is sexually potent but possesses only one testicle. He states that the other disappeared up the inguinal canal at puberty. The patient is anxious to know what his possibilities are in regard to sterility. Please omit name.

M.D. Illinois

*ANSWER*—The fact that a man possesses only one testicle does not render him sterile as long as the one testicle is healthy and the various genital tubes are patent. The question can be definitely determined by the examination of a condom specimen, which should contain numerous motile spermatozoa.

## Council on Medical Education and Hospitals

### COMING EXAMINATIONS

ALASKA Juneau Sept 4 Sec Dr W W Council Juneau  
AMERICAN BOARD OF DERMATOLOGY AND SYPHILIGOLOGY *Written*  
(Group B candidates) The examination will be held in various centers  
throughout the country Oct 1 *Oral* (Group A and Group B candidates)  
San Antonio Texas Nov 13 16 Sec Dr C Guy Lane 416 Marl  
borough St Boston  
AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written* (Group  
B candidates) The examination will be held in various cities of the  
United States and Canada, Nov 3 Sec Dr Paul Titus 1015 Highland  
Bldg Pittsburgh  
AMERICAN BOARD OF OPHTHALMOLOGY Chicago, Sept 8 Sec Dr  
William H Wilder 122 S Michigan Bldg Chicago  
AMERICAN BOARD OF OTOLARYNGOLOGY Chicago Sept 8 and San  
Antonio Texas Nov 16 Sec Dr W P Wherry 1500 Medical Arts  
Bldg Omaha  
ARIZONA Phoenix Oct 23 Sec Dr J H Patterson 320 Security  
Bldg Phoenix  
COLORADO Denver Oct 2 Sec Dr Wm Whitridge Williams 422  
State Office Bldg Denver  
CONNECTICUT *Basic Science* New Haven Oct 13 Address State  
Board of Healing Arts 1895 Yale Station New Haven  
GEORGIA Atlanta Oct 9 10 Joint Secretary State Examining  
Boards Mr R C Coleman 111 State Capitol Atlanta  
IDAHO Boise Oct 2 Commissioner of Law Enforcement Hon  
Emmitt Post 205 State House Boise  
IOWA Des Moines Oct 8 10 Dir Division of Licensure and  
Registration Mr H W Grefe Capitol Bldg Des Moines  
MICHIGAN Lansing Oct 9 11 Sec Board of Registration in Medi-  
cine Dr J Earl McIntyre 202 34 Hollister Bldg Lansing  
MINNESOTA *Basic Science* Minneapolis Oct 23 Sec Dr J  
Charnley McKinley, 126 Millard Hall University of Minnesota Minne-  
apolis *Medical* Minneapolis Oct 16 18 Sec Dr E J Engberg  
350 St Peter St St Paul  
MONTANA Helena Oct 2 Sec Dr S A Cooney 7 W 6th Ave  
Helena  
NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in  
Parts I and II will be held at centers in the United States where there  
are five or more candidates Sept 12 14 Ex Sec Mr Everett S  
Elwood 225 S 15th St Philadelphia  
NEBRASKA *Basic Science* Omaha Oct 23 Dir Bureau of Exam-  
ining Boards Mrs Clark Perkins State House Lincoln  
NEW HAMPSHIRE Concord Sept 13 14 Sec Board of Registration  
in Medicine Dr Charles Duncan State House Concord  
NEW MEXICO Santa Fe Oct 8 9 Sec Dr P G Cornish Jr 221  
W Central Ave Albuquerque  
NEW YORK Albany Buffalo, Syracuse and New York Sept 24 27  
Chief Professional Examinations Bureau Mr Herbert J Hamilton  
Room 315 Education Bldg Albany  
OKLAHOMA Oklahoma City Sept 11 12 Sec Dr J M Byrum  
Mammoth Building Shawnee  
PUERTO RICO San Juan Sept 4 Sec Dr O Costa Mandry  
Box 536 San Juan  
WISCONSIN *Medical Reciprocity* Green Bay Sept 11 Sec Dr  
Robert E Flynn 401 Main St La Crosse *Basic Science* Madison  
Sept 22 Sec For Robert N Bauer 3414 W Wisconsin Ave,  
Milwaukee  
WYOMING Cheyenne Oct 1 Sec Dr W H Hassel Capitol Bldg,  
Cheyenne

### Maryland (Homeopathic) June Report

Dr John A Evans secretary, Board of (Homeopathic)  
Medical Examiners, reports the written examination held in  
Baltimore, June 12-13, 1934. The examination covered 7 sub-  
jects and included 70 questions. An average of 70 per cent  
was required to pass. Four candidates were examined, all of  
whom passed. One physician was licensed by reciprocity. The  
following schools were represented:

School	PASSED	Year Grad	Per Cent
Hahnemann Medical College and Hospital of Phila- delphia (1933) 82 91 (1934) 91		(1930)	86
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Michigan Homeopathic Medical School (1922)		(1922)	Delaware

### Delaware June Report

Dr Harold L Springer, secretary, Medical Council of Dela-  
ware, reports the written examination held in Wilmington,  
June 12 14, 1934. The examination covered 10 subjects and  
included 100 questions. A grade of 75 per cent was required  
in each subject. Thirteen candidates were examined, 10 of  
whom passed and 3 failed. One physician was licensed by  
reciprocity. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Johns Hopkins University School of Medicine University of Maryland School of Medicine and College of Physicians and Surgeons (1933)		(1933)	80 3 77 3

Hahnemann Medical College and Hospital of Phila- delphia 86 2 87 9 (1933)		85 8
Jefferson Medical College of Philadelphia (1933) 77 1		80 6
Temple University School of Medicine (1933)		81 1
University of Pennsylvania School of Medicine (1930)		81 5

School	FAILED	Year Grad	Per Cent
University of Michigan Medical School (1933)		(1933)	77 9
Jefferson Medical College of Philadelphia (1931)		(1931)	75 4
University of Pennsylvania School of Medicine (1932)		(1932)	73 8
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Medico Chirurgical College of Philadelphia (1914)		(1914)	Penna

### New Hampshire March Report

Dr Charles Duncan, secretary, Board of Registration in  
Medicine, reports the oral, written and practical examination  
held March 15-16, 1934. An average of 75 per cent was  
required to pass. Five candidates were examined, all of whom  
passed. Four physicians were licensed by reciprocity and 1  
physician was licensed by endorsement. The following schools  
were represented:

School	PASSED	Year Grad	Per Cent
Georgetown University School of Medicine (1933)		(1933)	75 83
Boston University School of Medicine (1933)		(1933)	77
Temple University School of Medicine (1933)		(1933)	76
McGill University Faculty of Medicine (1928)		(1928)	85
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Maryland School of Medicine and College of Physicians and Surgeons (1931)		(1931)	Maryland
Tufts College Medical School (1928) Maine		(1928)	Mass
University of Vermont College of Medicine (1885)		(1885)	Illinois
School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
College of Medical Evangelists (1933)		(1933)	N B M Ex

## Book Notices

*Modern Clinical Syphilology Diagnosis Treatment Case Studies* By  
John H Stokes MD Duhring Professor of Dermatology and Syphilology  
in the School of Medicine University of Pennsylvania Second edition  
Cloth Price \$12 Pp 1400 with 973 illustrations Philadelphia &  
London W B Saunders Company 1934

This monograph, first published in 1926 and reprinted in 1927  
and 1928, the author has now found necessary to revise and  
rewrite. Many changes have been made. As the author him-  
self states, fifteen of the twenty-three chapters have been com-  
pletely rewritten and a new chapter on relapse and progression  
has been added. The book has been written for the completely  
uninitiated practitioner and student, as well as for the expert  
syphilologist. That the author has achieved this dual purpose  
and yet kept it entirely readable, there is no doubt. The dis-  
cussions on progression, relapse and cure in syphilis are  
thorough and brought down to the latest continental and  
American views on these subjects. The chapter on the funda-  
mental principles of treatment has been intelligently handled.  
The latest views in regard to types of arsenical and bismuth  
salts used in the treatment of syphilis are carefully considered.  
The use of acetarsone in the treatment of syphilis is discussed,  
and Dr Stokes feels that this drug is not yet sufficiently per-  
fected and studied to be safely used by the general medical  
man. He also advises only such antisyphilitic medicaments as  
are approved by the Council on Pharmacy and Chemistry.  
Throughout the volume the enormous statistical material from  
the Cooperative Clinical Group of five American University  
Syphilis Clinics, working in cooperation with the United States  
Public Health Service, has been utilized to bring out various  
factors as to the epidemiology, pathology, diagnosis and treat-  
ment of various phases of syphilis.

In such a well written volume it is difficult to pick out  
chapters for special mention. The chapters on the problems of  
immunity and syphilis, on cardiovascular syphilis, on central  
nervous system syphilis and on syphilis and pregnancy have  
been particularly well written.

Much value has been given to the book, for the student and  
the practitioner, through the case records, through the excellent  
illustrations and through the discussions of differential diagnosis.

On the other hand, the expert will find plenty of food for thought and sufficient citations at the beginning of the chapters to guide him into any channels that he may desire to follow through

Naturally, in a formidable volume of this type it is impossible to devote as much space to each problem as could be desired. Possibly syphilis of the rectum and its relation to inguinal lymphogranulomatosis should have been more fully discussed. Moreover, despite their importance in differential diagnosis from syphilis, no mention of esthiomene or of the anorectal syndromes of lymphogranuloma inguinale is even made. In the tabulation of bismuth preparations on pages 252 and 253, figure 115, it is unfortunate that the amounts of metallic bismuth per dose have not been more carefully worked out. For example, the metallic bismuth content of bismuth oxychloride is 80 mg per cubic centimeter. It is difficult to figure out how a 2 cc dose would thus contain 0.2 mg of metallic bismuth. The milligrams of metallic bismuth in Biliposol is incorrectly put as 0.180 with a 2 cc dose. It should have been 0.080. There are numerous other errors in this one figure 115 that should be corrected in the next revision.

Throughout the entire volume there is a tendency to use the term "gland" for "lymph node," as on pages 657, 688, 966 and 1045, though in most places the proper term "lymph node" is employed. This is, no doubt, simply an oversight. And yet, for such a large volume it is remarkable how few mistakes have been made.

As far as is known, there is no single volume in the French, German or English language that so fully and so authoritatively handles syphilis as does this volume of Professor Stokes. One marvels that any one physician could be at the same time competent enough and brave enough to handle such an enormous task. The book is a landmark in American and continental medicine and is bound to be quoted more and more frequently as physicians become familiar with its scope, probity and clarity. It can be unhesitatingly recommended to both the practitioner and the expert syphilologist. It should be an integral part of every physician's library, for where is the physician or the specialist who at some time or other does not come into intimate contact with syphilis in his particular patient?

As far as the format and binding of the volume are concerned, it is especially well done. Moreover, a painstaking index of subjects and of authors, amounting to seventy-four pages, is appended.

**Chirurgie infantile d'urgence** Par M. Fèvre. Préface du P<sup>r</sup> Ombredanne. Paper. Price 70 francs. Pp 4+2 with 110 illustrations. Paris: Masson & Cie 1933.

This is a new monograph by Fèvre covering urgent surgery of infants and young children. The author, an assistant of Professor Ombredanne, offers this volume as a complement to the third edition of Ombredanne's *Precis clinique et opératoire de chirurgie*, which appeared in 1932. The volume is prefaced by a complimentary criticism by Ombredanne, who admits that Fèvre is justified in adding the volume to supplement his own relative to urgent surgical conditions, as there is need for additional details concerning preoperative precautionary management and postoperative care both of which are of such great importance, particularly in the emergency surgery of infants. Besides this it is well to have some of the newer urgent operations described in greater detail with proper emphasis given to their indications. This volume, therefore, truly supplements the one by Ombredanne, and the two together represent a valuable contribution to the work done by this large children's surgical service. This new volume presents, in valuable detail, the clinical considerations concerning the indications, preoperative preparation, operative procedures and postoperative management of the surgical emergencies of infants and young children as these are carried out in this important clinic today. The operative procedures consist essentially of those which are used and found most valuable. It is a volume based on personal experience. The material begins with a short chapter on general preoperative and postoperative considerations, including the choice of anesthetic, complications during and following operation, blood transfusion, and hemophilia. The largest part of the volume considers the urgent surgical conditions of the various regions of the body. This

is followed by a chapter on general infections and burns. The final chapter discusses congenital malformations demanding immediate surgical intervention. The indications of operation are thoroughly discussed. When they vary, depending on the age, the pathologic variations and the clinical course at various ages, he discusses them in the case of the newly born, young infants, young children and, in some instances, older children. The considerations are handled in a masterful manner and the information is down to date. The operative details are similarly handled and the book contains a vast amount of valuable, practical, clinical information. It is not at all a mere catalogue of well known fundamental facts but, instead, a scholarly presentation and critical analysis of present knowledge.

This volume, together with Ombredanne's volume, constitutes a valuable presentation of modern surgery in infants and young children.

**Arbeit und Gesundheit. Sozialmedizinische Schriftenreihe aus dem Gebiete des Reichsarbeitsministeriums.** Herausgegeben von Professor Dr. Martineel. Ministerialdirekt im Reichsarbeitsministerium. Heft 24. Die Folgen der Entmannung Erwachsener an der Hand der Kriegserfahrungen dargestellt von Professor Dr. Johannes Lange. Direktor der Psychiatrischen und Nervenklinik der Universität Breslau. Paper. Price 5 marks. Pp 178 with 2 illustrations. Leipzig: Georg Thieme 1934.

A series of cases of emasculation resulting during the World War are discussed by the author. He states that while the loss of the testes, after full sexual maturity, is not followed by serious consequences in a certain number of cases, marked somatic and psychic manifestations follow castration in a greater number. The problem is of social and forensic importance. The conclusion that emasculation results in epilepsy and in insanity is not true. Castrated individuals may be useful members of society. The author disagrees with the conclusions of Möbius that loss of the gonads results in diminution of combativeness and initiative, and to the dicta of Fischer that emasculation produces schizophrenia or schizophrenic tendencies. The loss of the testicles may create, the author states, serious somatic and psychic manifestations, such as eunuchoid retrogressive changes accompanied in some cases by gynecomasty and regressions of the secondary sex characteristics. The thyroid plays here no active part. The basal metabolic rating is reduced and psychic manifestations are frequent. While libido may persist for a long time, it is gradually blunted and finally disappears. Occasionally, sexual hyperexcitability is observed. Neurasthenic and vasomotor disturbances ensue. Castrates often become dull and apathetic, lose initiative and develop phobias and depressions resembling serious organic disease. Individuals of neuropathic type are particularly affected. Practically all the manifestations of the female climacterium become manifest. These gradually abate but often persist stubbornly, rendering the victim incapable of concentration or work (important in evaluating compensation). Castration results in discordant glandular endocrine interactions. Testicular transplantation seems in some cases to be followed by good results. If this is not practicable, large doses of testicular extract should be tried. The advisability of the castration of individuals with criminal tendencies is discussed. This is not only unjust but tends to aggravate, in the author's opinion, the existing condition by engrafting a new symptom complex. As a whole, the work is an excellent compilation of instructive material.

**Mental Hygiene in the Community.** By Clara Bassett. Consultant in Psychiatric Social Work. Division on Community Clinics, the National Committee for Mental Hygiene, Inc. Cloth. Price \$3.50. Pp 394. New York: Macmillan Company 1934.

The author, a well trained worker in the field of mental hygiene, has accurately gaged the need for authoritative information concerning the hygiene of the mind and has made a laudable effort to fill the void. She has produced an excellent book. No doubt repeated disappointments resulting from the lack of mental hygiene consciousness in physicians, nurses, lawyers, parents, teachers, educators and others led the author into the error of making her book too inclusive. In twelve chapters there is discussed the relation of mental hygiene to medicine, nursing, social service, delinquency and law, parental education, the preschool child, education and teacher training, the church and the theological training, industry, recreation and psychiatric institutions and agencies. The chapters on medicine,

nursing and education are especially good. They point a need that continues to hamper progress in these fields and indicate clearly that mental hygiene should not be an adornment but a closely integrated part of medicine, nursing and teaching. The remaining chapters are not as distinguished as these three, but they do deserve reading by those who are seeking to raise the community to higher levels. Even though the book is not a comprehensive picture of the relation of mental hygiene to all the phases of community life, it is a decidedly stimulating exposition of several of these phases and it is a valuable contribution to a subject that is still sadly neglected by the community. The index and bibliography are excellent, but the questionnaires at the end of each chapter are of doubtful value, since they give a pedagogic aspect to a book that is fortunately not a textbook.

*Die Praxis der Nierenkrankheiten* Von Professor Dr. L. Lichwitz  
Vorsteher der Inneren Abteilung des Montefiore Hospitals New York.  
Fachbücher für Ärzte Band VIII Herausgegeben von der Schriftleitung  
der Klinischen Wochenschrift Third edition Cloth Price 26 marks  
Pp 349 with 52 illustrations Berlin Julius Springer 1934

This is a scholarly exposition on diseases of the kidney. While the outline of the book has been changed little from its previous editions, the material has undergone a thorough revision and includes practically all the recent advances in the subject. Because of the exhaustive nature of its contents it will not be possible to give a detailed review in this column. The organization of the monograph allows the presentation of a vast amount of data to the reader in a concise form. The opening chapters concern themselves with definition and classification and the following chapters are on the anatomy and physiology of the kidney. It would seem that the reader might obtain a more comprehensive conception of the terms if he had first read the excellent chapters on anatomy and physiology. Few books on the kidney have presented the subject in such a fundamental way as this one does. The discussion of the physiologic and pathologic basis for separating the various disturbances of the kidney is particularly well done. The chapter on kidney function tests is as comprehensive an exposition of this subject as there is in print, yet the balance of the book is maintained and each subject receives its proper emphasis. The volume is deserving of a place on every reference library shelf. It is highly recommended for those who are desirous of having an intelligent understanding of the kidney and its derangements.

*Hypochlorémie et accidents post opératoires* Etude clinique pathologique et thérapeutique Par H. Chabanier et C. Lobo Onell Paper Price 2<sup>fr</sup> francs Pp 146 with 9 illustrations Paris Masson & Cie 1934

The authors go into considerable detail regarding postoperative complications which they classify in four main groups: (1) those resulting from hemorrhage, (2) those caused by infectious complications either at the local operative site or in some distant part of the body, (3) those caused by mechanical disturbances such as a mechanical intestinal obstruction and gastric dilatation and (4) those due to various toxic manifestations. The last group is considered in most detail and comprises a discussion, for the most part, of disturbed blood chemistry, resulting in uremia, alkalosis, acidosis, hypochloremia and other chemical disturbances. The cause, prevention and treatment of these conditions are discussed and the underlying chemical factors considered. Emphasis placed on the preoperative and postoperative treatment of patients makes this book well worth reading.

*Die normale und pathologische Physiologie der Milz* Von Dozent Dr. Ernst Lauda Assistent der II. medizinischen Universitätsklinik in Wien Paper Price 18 marks Pp 280 with 2 illustrations Berlin & Vienna Urban & Schwarzenberg 1933

For those who are interested in any phase of knowledge pertaining to the spleen, this work should be of great value. Its review of the literature is particularly international and well correlated and is systematized under headings especially adapted for ready reference without ones necessarily having to read the whole volume. The book is well indexed and therefore should be also of value for ready reference especially for those wishing immediate orientation for further detail study. It deals with both experimental and clinical facts and presents no par-

ticular theory as a dominant theme. The author has apparently submerged his own conceptions for the sake of breadth of scope, despite the fact that he has been a voluminous contributor to the subject. Such an extensive review of literature would naturally not lend itself to illustration.

*Handbook of Therapeutics* By David Campbell M.C. M.A. B.Sc.  
Regius Professor of Materia Medica and Therapeutics University of Aberdeen Second edition Cloth Price \$4.75 Pp 444, with 72 illustrations Baltimore William Wood & Company 1934

The second edition of this rather small, practical book, which "aims to supply the medical student with sufficient knowledge to treat disease rationally," has been somewhat enlarged to permit of revision of many articles in the light of more precise current knowledge. Among the new features included may be mentioned the articles on celiac disease and on sprue, the discussion of the use of phenylethylhydantoin in chorea, the ketogenic diet in urinary sepsis and in epilepsy, the high carbohydrate diet in diabetes, cortical extract in Addison's disease, and carbon dioxide in asphyxia and in whooping cough. Praiseworthy is the author's attempt to "present the truth stripped of unnecessary detail, and to give the student a clear conception of principles without obscuring his mind by a mass of detailed information that, after all, can be usefully acquired only at the bedside." This does not mean that he has eliminated all detail. The real problem in a book dealing with special therapeutics, i.e., the therapeutics of the various diseases, is what details to omit. As, unfortunately, this handbook of therapeutics deals with diseases in much the same way as do the books on the practice of medicine and most other books now on the market, it will probably not lead to the establishment of special courses on therapeutics, as might happen were a book to appear that would deal with therapeutics from the standpoint of pathologic physiology.

## Medicolegal

**Hospital's Contract to Furnish Medical Services Enforceable**—The Colgin Hospital and Clinic, a corporation, alleging that, at the request of the defendant insurance company and on its promise to pay, it had treated one J. T. King, sued to recover charges for hospitalization and physicians' fees for professional services. The insurance company contended that, as a corporation could not legally practice medicine, the plaintiff, a corporation, could not collect its charges for professional medical or surgical attention it rendered a patient. Judgment was given in favor of the Hospital and Clinic, and the insurance company appealed to the court of civil appeals of Texas, which certified certain questions to the Supreme Court of Texas. The Supreme Court seems to have referred the questions to the commission of appeals of Texas, section A.

In ordinary acceptance, said the commission of appeals, a sanatorium is an institution for the medical treatment of sick persons, as well as for ministering to their related needs. The statute expressly authorizes the formation of corporations for the "erection and maintenance of sanatoriums." Revised Statutes, art. 1302, subd. 6. Authority in such a corporation to provide medical treatment for patients, and to employ for that purpose persons duly licensed to practice medicine, is reasonably implied. It is true that article 742 of the Penal Code makes it a crime for any person to practice medicine without complying with the requirements prescribed in the Texas medical practice act. When those requirements are met, however, there is nothing in the statutes which implies a prohibition against a person so qualified engaging his services to another. In the present case, the Colgin Hospital and Clinic was vested with implied authority in performing its corporate functions with respect to supplying medical treatment to its patients, to employ persons qualified under the medical practice act to practice medicine. The commission of appeals, therefore, was of the opinion that the Hospital and Clinic could sue to collect its charges for professional medical and surgical attention rendered a patient.

In the absence of pleading and proof to the contrary, it is not to be presumed, said the commission, that any person



employed by the corporation as an instrumentality for supplying treatment practiced medicine without a license or that the corporation committed an unlawful act in that respect. Such a violation of law must be affirmatively pleaded and proved as a defense in order to be of avail. The commission, therefore, deemed it unnecessary for the plaintiff to allege and prove that its physicians who rendered professional services were licensed to practice medicine in Texas, in the absence of any pleading or proof on that subject on the part of the defendant.

The opinion of the commission of appeals was adopted by the Supreme Court—*Republic Reciprocal Ins Assn v Colgin Hospital & Clinic (Texas)*, 65 S W (2d) 286

**Medical Practice Acts Admissibility of Deposition in Revocation Proceedings**—Proceedings to revoke Moormeister's license to practice medicine for the alleged performance of a criminal abortion were instituted by the director of the department of registration of the state of Utah in January, 1930. At the hearing in March of that year the only evidence presented to show the commission of the abortion was the deposition of a woman patient of the physician, which was admitted in evidence over the physician's objections. Subsequent to the hearing, but before the director could revoke the physician's license, which he indicated he intended to do, the third district court, Salt Lake County, on petition by Moormeister, enjoined the director from revoking the license. The director then appealed to the Supreme Court of Utah.

The law setting forth the rights and duties of the department of registration (Chapter 130, Laws of Utah, 1921, as amended by chapter 49, Laws of Utah, 1923), said the Supreme Court, does not authorize the department to take or to use a deposition in a proceeding had before it. One section of that law (section 5, chapter 130, Laws of 1921) authorizes the director to administer oaths, conduct hearings and subpoena witnesses. It is well settled that the right to take a deposition in an action at law is entirely statutory and that statutes in derogation of common law are strictly construed. Consequently the authority of a court, board, commission or department to procure evidence by deposition, and to use the same, must be clearly conferred and authorized by statute. The power to issue a commission to take a deposition, or to use the same, is not implied from the power conferred on a board or commission to compel the attendance of and to examine witnesses. That the department in 1930 lacked this power was recognized by the legislature in 1933 when in adopting the Revised Statutes of 1933 it inserted in title 79, Department of Registration, chapter 1, section 30, a specific provision authorizing the department to take depositions. It follows, therefore, that there was no competent evidence adduced at the hearing on which the director could act.

The director contended that, notwithstanding the absence of competent evidence at the hearing, the district court was not warranted in affording injunctive relief because the physician had an adequate remedy at law, namely, an appeal from the order of revocation of the director to the district court, where a trial de novo could have been had. The physician contended, however, that the remedy by appeal is not plain, speedy and adequate. If the director, he argued, ordered his license revoked, his right to practice medicine would be suspended pending the outcome of an appeal which might take several years. In this way he would be deprived of a valuable property right and suffer irreparable injury. If the physician, said the court, were in fact deprived of his right to practice pending a final determination of the case, it unquestionably would justify a court of equity in granting injunctive relief. In *Baker v Department of Registration* 78 Utah 424, 3 P (2d) 1082, it was held that, in the absence of specific provisions in the medical practice act of Utah relating to appeals from orders entered by the department, an appeal may be taken to the district court where the case is tried de novo. The judgment of the lower court appealed from is vacated pending the determination of the appeal. In the present case, continued the court, Moormeister can, if and when the department revokes his license, serve notice of appeal on it, and the order of revocation will be automatically vacated. That being so, he will be free to practice his profession pending the outcome of the

appeal. Thus the court concluded that the physician had an adequate remedy at law by appeal and that the district court was without jurisdiction to enjoin the director, and ordered the injunction dissolved—*Moormeister v Golding, Director of Registration Department (Utah)*, 27 P (2d) 447

**Workmen's Compensation Acts Refusal to Undergo Operation**—If an employee receiving compensation for an injury sustained in the course of employment refuses to undergo a minor operation, simple, safe and reasonably certain to effect a cure, the continuing disability, said the Supreme Court of Nebraska, is to be considered as resulting from his own wilful act, and a suspension of compensation is warranted. Where, however, medical experts of similar skill and experience disagree as to the probable success of an operation, a refusal by an employee to submit to it is not unreasonable. What constitutes reasonable or unreasonable refusal on the part of an injured employee to submit to treatment, including minor surgical operations, is a question of fact to be determined from the evidence. The burden of proof is on the employer to prove that the tendered operation is simple, safe, and reasonably certain to effect a cure—*Simmerman v Felthausen (Neb)*, 231 N W 831

## Society Proceedings

### COMING MEETINGS

- American Academy of Ophthalmology and Otolaryngology Chicago Sept. 9-14 Dr William P Wherry 107 South 17th Street Omaha Executive Secretary
- American Association for the Study of Neoplastic Diseases Washington D C Sept 6-8 Dr Eugene Whitmore 2139 Wyoming Avenue N W Washington D C Secretary
- American Association of Obstetricians Gynecologists and Abdominal Surgeons White Sulphur Springs W Va Sept 6-8 Dr A M Mendenhall 23 East Ohio Street Indianapolis Acting Secretary
- American College of Surgeons Boston Oct 15-19 Dr Franklin H Martin 40 East Erie Street Chicago Director General
- American Congress of Physical Therapy Philadelphia Sept 10-13 Dr Nathan H Palmer 921 Canal Street New Orleans Secretary
- American Hospital Association Philadelphia Sept 24-28 Dr Bert W Caldwell 18 East Division Street Chicago Executive Secretary
- American Public Health Association Pasadena Calif Sept 3-6 Dr Kendall Emerson 50 West 50th Street New York Executive Secretary
- American Roentgen Ray Society Pittsburgh Sept 25-28 Dr Eugene P Pendergrass 3400 Spruce Street Philadelphia Secretary
- Associated Anesthetists of the United States and Canada Boston Oct. 15-19 Dr F H McMechan 318 Hotel Westlake Rocky River Ohio Secretary
- Association of Military Surgeons of the United States Carlisle Barracks Pa Oct 8-10 Dr J R Kean Army Medical Museum Washington D C Secretary
- Colorado State Medical Society Colorado Springs Sept 19-22 Mr Harvey T Sethman 537 Republic Bldg Denver Executive Secretary
- Delaware Medical Society of Dover Oct 9-10 Dr William H Speer 917 Washington Street Wilmington Secretary
- Idaho State Medical Association Lewiston Sept 7-8 Dr Harold W Stone 105 North Eighth Street Boise Secretary
- Indiana State Medical Association Indianapolis Oct 9-11 Mr T A Hendricks 23 East Ohio Street Indianapolis Executive Secretary
- Kansas City Southwest Clinical Society Kansas City Mo Oct 1-4 Dr Hugh Wilkinson 750 Minnesota Avenue Kansas City Kansas Secretary
- Kentucky State Medical Association Harlan Oct 1-4 Dr A T McCormack 532 West Main Street Louisville Secretary
- Michigan State Medical Society Battle Creek Sept 12-14 Dr F C Warnshuis 148 Monroe Avenue Grand Rapids Secretary
- Nevada State Medical Association Reno Sept 21-22 Dr Horace J Brown 120 North Virginia Street Reno Secretary
- New England Surgical Society Burlington Vt Sept 28-29 Dr J M Burnie 14 Chestnut Street Springfield Mass Secretary
- Northern Minnesota Medical Association Brainerd Sept 10-11 Dr Oscar O Larsen Detroit Lakes Secretary
- Ohio State Medical Association Columbus Oct 4-6 Mr Don K Martin 1005 Hartman Theatre Building Columbus Secretary
- Oregon State Medical Society Corvallis Sept 27-29 Dr L Howard Smith Medical Arts Building Portland Secretary
- Pacific Northwest Orthopedic Association Seattle Sept 1 Dr J C Brugman 1215 Fourth Avenue Seattle Secretary
- Pennsylvania Medical Society of the State of Wilkes Barre Oct. 1-4 Dr Walter F Donaldson 500 Penn Avenue Pittsburgh Secretary
- Virginia Medical Society of Alexandria Oct 9-11 Miss Agnes V Edwards 1200 East Clay Street Richmond Secretary
- Washington State Medical Association Spokane Sept 10-13 Dr Curtis H Thomson 1305 Fourth Avenue Seattle Secretary
- Western Branch of American Public Health Association Pasadena Calif Sept 3-6 Dr W P Shepard 600 Stockton Street San Francisco Secretary
- Wisconsin State Medical Society of Green Bay Sept 12-14 Mr J G Crownhart 119 East Washington Avenue Madison Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

### American Journal of Medical Sciences, Philadelphia

ISS 1144 (July) 1934

- Clinical Observations on Aortic Stenosis S McGinn and P D White Boston—p 1
- \*Intravenous Injection of Methylene Blue in Man with Reference to Its Toxic Symptoms and Effect on the Electrocardiogram J E Nadler H Green and A Rosenbaum New York—p 15
- Therapeutic Efficacy of Bismuth Subnitrate in Arterial Hypertension C Bruen New York—p 21
- \*Iontophoresis of Acetyl Beta Methylcholine Chloride in Treatment of Chronic Arthritis and Peripheral Vascular Disease Preliminary Report J Kovacs New York—p 32
- Bone Marrow in Idiopathic Thrombopenic Purpura J S Lawrence and R E Knutti Rochester, N Y—p 37
- Megakaryocytosis in White Mice with Spontaneous Mammary Carcinomas W C Hueper, Philadelphia—p 41
- Leukocytosis After Parenteral Injection of Liver Extract O O Meyer W S Middleton and Ethel M Thewlis Madison Wis—p 49
- Surgical Aspects of Pernicious Anemia with Especial Reference to the Treatment R G Hahn Boston—p 60
- Relation Between Oral and Rectal Temperatures in Normal and Schizophrenic Subjects H T Carmichael and F E Linder Worcester Mass with the collaboration of the research staff of the Worcester State Hospital—p 68
- Insulin Therapy in Tuberculosis A L Banyai and G H Jurgens Wauwatosa Wis—p 76
- Cinchophen Oxidation Test of Liver Function in Pulmonary Tuberculosis J B O Connor H Young J Steidl and F H Heise Trudeau N Y—p 81
- Gaucher's Disease Report of Case with Presentation of Table Differentiating the Lipoid Disturbances A Capper H Epstein and R A Schless Philadelphia—p 84
- Arthritis Anabolic Nutrition and Health Study of Nourishment and Health of Joints F L Burnett and F R Ober Boston—p 93
- Survey of Human Intestinal Protozoan Parasites in Philadelphia H C Hinchshaw and Ethel M Showers Philadelphia—p 108
- Age Incidence Relations in Diabetes Mellitus G Pincus E P Joslin and Priscilla White Boston—p 116
- Present Status of Diagnostic Intradermal Test for Human Trichiniasis R D Friedlander Boston—p 121

**Toxic Symptoms of Methylene Blue**—Nadler and his associates observed that methylene blue has two actions. The first is the oxidation of hemoglobin to methemoglobin. The amount of methemoglobin found immediately following the injection of the average therapeutic dose is small. The second is that the drug used intravenously, excites the individual and by its rapid elimination into the stomach and urine produces transitory gastro-intestinal and urinary irritation. The most frequent toxic symptoms observed were restlessness, paresthesias, a sense of burning in the mouth and stomach, pain in the chest and strangury. These manifestations usually subsided in from twenty-four to forty-eight hours. Leakage of a small amount of methylene blue about the vein gives rise to painful infiltration. Electrocardiographic studies show that methylene blue produces a reduction in the height or even reversal of the T wave frequently with lowering of the R wave. This suggests depression of the ventricular musculature. The amount of methemoglobin found and the subsequent decrease in hemoglobin are not of sufficient magnitude to account for the clinical picture described on the basis of anoxemia. Therefore the indiscriminate use of methylene blue may produce unpleasant results and be dangerous to the patient.

**Iontophoresis of Acetyl-Beta-Methylcholine Chloride in Treatment of Arthritis**—Kovacs used a 1 per cent solution of acetyl beta-methylcholine chloride (1 Gm in 100 cc of water) in treating forty cases of chronic rheumatism sixteen of rheumatoid arthritis, fourteen of osteo-arthritis, three of bursitis, three of sciatica and four of neuritis. Reinforced asbestos fabric paper is saturated with the solution and wrapped round the affected joints. A fairly large malleable metal plate

is placed over the wet asbestos paper and connected to the positive pole of a galvanic generator. A dispersive, large, regular moist pad electrode is applied to the back or abdomen and is connected with the negative pole. The current is turned on and slowly increased to from 20 to 30 milliamperes, always being kept within comfortable toleration to the patient. Treatments of from twenty to thirty minutes are employed. The metal electrode or electrode clamps must not come in direct contact with the skin. Sweating was observed immediately after treatment and continues for from eight to ten hours. It is probably due to a direct action of the drug on the sweat glands or their nerve supply. The increased temperature of the skin was in cases in which a spasm of the peripheral blood supply was present. The increase of temperature varied from 4 to 10 degrees F and remained for from two to four hours. There was an increase of the rate of the capillary flow without enlargement of the capillaries. The visible capillaries did not increase in number after treatment. Slight redness of the skin was produced, which remained for from one and one-half to two hours and was due probably to the enlargement of the deeper small arteriole vessels. A questionable slight increase in the local leukocyte count was noted. A feeling of warmth of the treated part lasted from twenty-four to seventy-two hours, for longer periods after repeated treatments, and in some cases for a whole week. There was a reduction of the swelling, increased mobility and relief of pain. A general effect causing flushing, sweating, an increase of pulse rate and salivation, slight lowering of blood pressure and evidence of intestinal peristalsis was observed when large areas were treated. The most promising results were obtained in the most stubborn cases of rheumatoid arthritis, 95 per cent of the cases showed improvement. In the osteo-arthritic type the results were likewise encouraging, giving definite improvement in 80 per cent of the cases. There was full recovery in the three cases of sciatica, in which diathermy and galvanic treatment had failed to give relief. In the three cases of bursitis, two responded quickly but in the third case the treatment failed to give relief. The four cases of neuritis reacted well to the treatment and in every case there was a quick full recovery. In the few cases of peripheral vascular disease treated, desirable results have been obtained release of spasm with increased circulation.

### American Journal of Ophthalmology, St Louis

17 579 682 (July) 1934

- Scotoma of Glaucoma Simplex R I Lloyd Brooklyn—p 579
- Gonorrheal Ophthalmia Statistical Report of One Hundred and Eighty Nine Cases J I Farrell Utica N Y—p 591
- \*Correlation Between Pupillary Area and Retinal Sensibility M Luckiesh and F K Moss Cleveland—p 598
- Delimiting Keratotomy H Gradle and S R Gifford Chicago—p 602
- Electrocautery in the Treatment of Corneal Ulcers A W Morse Butte Mont—p 608
- Testing of Visual Acuity II Comparative Merits of Test Objects and New Type of Broken Circle as Test Object C E Ferree and G Rand Baltimore—p 610
- Lipids of Retina Brain and Blood P J Leinfelder and P W Salit, Iowa City—p 619
- Ophthalmologic Survey of Illinois State School for the Blind A L Adams, Jacksonville Ill R C Gamble S R Gifford and H S Gradle Chicago—p 624
- Experimental Production of Detachment of the Retina H Weiss and J N Evans Brooklyn—p 627
- Parinaud's Conjunctivitis C E Harner Long Beach Calif—p 629

**Correlation Between Pupillary Area and Retinal Sensibility**—The analysis of Luckiesh and Moss of the experimental data from fifteen subjects indicates that the variation in retinal sensibility between the subjects is of the same order as the variation in the areas of the natural pupils. It is also evident that pupillary area and retinal sensibility are opposing factors with respect to their possible influence on the level of illumination selected by an introspective appraisal of seeing. In general, the subjects with the larger pupils usually have the lower retinal sensibility, and vice versa. Differences in the size of the pupil and in retinal sensibility account only in part for the wide differences in levels of illumination selected as "desirable" by various subjects for a given critical visual test, such as reading. Apparently these differences are not due chiefly to physiologic factors associated with the visual sense.

**American Journal of Public Health, New York**

24 677 812 (July) 1934

- Industrial Intoxication Following Skin Sorption C P McCord Cincinnati—p 677
- Pollution Indexes of Natural Bathing Places W L Mallmann and A Syplen East Lansing Mich—p 681
- Effectiveness of Vaccines Used for Prevention of Typhoid Fever in the United States Army and Navy P R Hawley and J S Simmons Washington D C—p 689
- New Life Table for the City of New Haven J H Watkins New Haven, Conn—p 710
- Metal Tank for Preparation of Mass Cultures of Anaerobic Bacteria C Weiss and E J Czarnetzky San Francisco—p 713
- Modern Trends in Public Health Administration County Health Work J W Mountin, Washington, D C—p 715
- Use of Laymen in Official Public Health Nursing Programs Mrs Arch Trawick, Nashville, Tenn—p 722
- Complement Fixation Test for Syphilis Standard Procedure of American Public Health Association A Wadsworth Ruth Gilbert Albany, N Y and N M Harris Ottawa Ont—p 727
- Place Variation in Death Rates from Puerperal Septicemia Large Cities of the United States 1922-1929 G E Harmon Cleveland—p 732
- Purification of Vaccinia Virus M Schaeffer and Helen Nalibow New York—p 736
- Sanitary Works of Indianapolis C K Calvert, Indianapolis—p 739
- New Deal in Health Education B Brown New York—p 743

**Am J Roentgenol & Rad Therapy, Springfield, Ill**

31 721 860 (June) 1934

- Specificity of Pulmonary Consolidation in Tuberculous Patients (Epi tuberculosis) Resolution of Experimental Tuberculous Pneumonia H S Willis Northville Mich—p 721
- Some Mechanical Factors of Gastric Physiology Study I Empty Stomach and Its Various Ways of Filling Pressure Exerted by Gastric Walls on Gastric Content Physical Changes Occurring to Foodstuff During Digestion C Gianturco Rochester Minn—p 735
- Id Study II Pyloric Mechanism Effect of Various Foods on Emptying of the Stomach C Gianturco Rochester Minn—p 745
- \*Colon Studies VII Variations in Fixation of Cecocolon Their Clinical Significance J L Kantor and S Schechter New York—p 751
- Myocardial Calcification J J Moore Washington D C—p 766
- Spontaneous Pneumothorax in Infant with Complete Recovery Case G S Reitter Orange N J—p 770
- Tertiary Syphilis of the Esophagus Report of Case Recognized Roentgenologically L F Wilcox Detroit—p 773
- Pyelo Ureteritis Cystica Report of Case W D Bieberbach P H Cook and R H Goodale Worcester Mass—p 778
- Encephalography Under Nitrous Oxide Anesthesia R W Waggoner and L E Humler Ann Arbor Mich—p 784
- Carcinoma in Chronic Osteomyelitis J J Collins Thomasville Ga—p 787
- Solution of Roentgen Diagnostic Problem in Chronic Appendicitis Conclusions Based on Studies Covering a Period of Twenty Years and Including a Comparative Analysis of Roentgenologic Clinical Surgical and Postmortem Findings T Scholz New York—p 792
- Roentgen Ray Standards and Units Standardizing Procedure of the National Laboratories—p 815
- \*New Method for Treatment of Bleeding Nipple by Radium Implantation M Cutler Chicago—p 819
- Roentgen Therapy of Actinomycosis E G Smith Boston—p 823
- Radium Salts and Emanation F B Flinn New York—p 830

**Variations in Fixation of the Cecocolon**—Kantor and Schechter believe that there is no need for operative intervention in atypical fixations of the colon except when actual evidence of intestinal obstruction is demonstrable. This would practically restrict such intervention to cases of volvulus and intussusception when excessive mobility is present and to cases of obstruction by bands when excessive fixation is present. The observation that hepatic flexure fixation is not associated with either gallbladder disease or gallbladder operations may be explained by the fact that in the majority of instances the fixation represents a congenital and not an acquired phenomenon. Similarly, the majority of cecal fixations may also be regarded as congenital rather than acquired in origin. The average vertical range of mobility of the hepatic flexure is  $1\frac{1}{2}$  inches. Normal variations in mobility range from more than 1 inch to less than 3 inches. The average vertical range of mobility of the cecum is  $1\frac{1}{2}$  inches. Normal variations range from 1 to  $2\frac{1}{2}$  inches. Hypermobility of the hepatic flexure may be said to exist when the vertical range is 3 inches or more, and hyperfixation when the vertical range is 1 inch or less. Hypermobility of the cecum may be said to exist when the vertical range is  $2\frac{1}{2}$  inches or more, and hyperfixation when the vertical range is 1 inch or less. The authors' study does not appear to reveal any marked clinical disturbances associated with the usual ranges of variations in fixation of the cecocolon as a whole, or of either of its terminations regarded separately. Such disturbances as are present seem to be adequately handled by the usual methods of conservative

medical management, such as are implied in the competent treatment of the unstable colon. In none of their cases did the authors recommend surgical therapy.

**Treatment of "Bleeding Nipple"**—Cutler points out that there is ample proof available that an adequate dose of radiation administered to a papilloma by interstitial treatment results in destruction of the lesion and its replacement by fibrous connective tissue, therefore he suggests the implantation of removable radium element needles for the treatment of selected patients suffering from a serous or serohemorrhagic discharge from the nipple. The method offers the advantage of avoiding the radical procedure of breast amputation for a lesion which may not be cancer and usually is not cancer when treatment is administered and which may possibly never become cancer. It is a more complete procedure than local excision, as it treats the entire duct system of the breast and at the same time avoids surgical intervention. It should be adequate to destroy completely a recent duct carcinoma, especially if it is unaccompanied by a palpable tumor. The author reports two cases of discharge from the nipple treated by the implantation of removable platinum radium needles. In both instances the discharge has stopped and there is no clinical evidence of disease after twenty four and eighteen months, respectively.

**Canadian Medical Association Journal, Montreal**

31 1118 (July) 1934

- Staphylococcus Antitoxic Serum in Treatment of Acute Staphylococcal Infections and Toxicemia II When No Staphylococemia Is Demonstrable C E Dolman Toronto—p 1
- Early Diagnosis of Cancer of the Breast E M Eberts Montreal—p 9
- \*Phosphatase in Obstructive Jaundice A R Armstrong E J King and R I Harris Toronto—p 14
- Silicosis and Metabolism of Silica E J King and Margery Dolan Toronto—p 21
- Parathyroid Disturbances Following Thyroidectomy Report of Case A G McGhie Hamilton Ont—p 27
- Infection Treatment of Hemorrhoids H G Pretty Montreal—p 29
- Macular Aberration and Reversal of Macular Curvature R Kerry Montreal—p 32
- Chronic Arthritis Treated by Crowe's Vaccine J A Nutter and E R Watson Montreal—p 34
- Hiccups E C Noble Toronto—p 38
- \*Bacillus Alkalescens (Andrews) Bacteremia with Serologic Confirmation Case D H Starkey Montreal—p 42
- Estimate of Usefulness of Some Newer Anesthetics in Practice W Bourne Montreal—p 44
- Spontaneous Subarachnoid Hemorrhage W I Waite Brantford Ont—p 47
- Perforation of Gallbladder Case Report L L Wyse Toronto—p 50
- Use of Caudal Anesthesia in Urology and Proctology V F Onhauser Winnipeg Manit—p 51
- Observations on Actinomycosis S Gordon Toronto—p 54
- Chorea Gravidarum Case Report S Kobrinsky, Winnipeg Manit—p 59
- Diabetes Mellitus in Twins E M Watson London Ont—p 61

**Phosphatase in Obstructive Jaundice**—Armstrong and his associates produced obstruction to the common bile duct in nineteen dogs and determined daily the serum phosphatase activity and bilirubin content. The serum phosphatase in every case rose to progressively higher values each day following the obstruction, reaching from thirty to a hundred times the initial amount after six days. In two cases the obstruction was later relieved and the animals were allowed to recover. The recovery period was accompanied by a fall in the serum phosphatase until the initial value had been reached. Gallbladder bile contains large amounts of phosphatase, while bile from a fistula has been noted to contain even greater amounts. Feces from the dogs before and after obstruction possessed great phosphatase activity. The authors observed daily five hospital cases of proved obstructive jaundice in regard to the serum phosphatase activity. During the development of jaundice the serum phosphatase increased from day to day, while during the subsidence of the jaundice the value diminished, although somewhat more irregularly. When the patient recovered it reached nearly the range given by normal persons. The height to which the phosphatase activity rose in the human cases was considerably less than that attained in dogs. Three cases of experimentally produced latent hemolytic jaundice in dogs and two cases of latent hemolytic jaundice in man were investigated. No appreciable rise was observed in serum phosphatase.

**Shigella Alkalescens Bacteremia**—Starkey reports a case of *Shigella alkalescens* infection in which there was a lack of agglutination reaction throughout the illness and the specific

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Ophthalmology, London

- 18 369 432 (July) 1934  
Certain Clinical Features of the Normal Limbus B Graves—p 369  
Senile Cataract Study of Biology and Chemistry of Crystalline Lens D B Kirby and R v E Wiener—p 388  
Variation and Refraction W R Dunstan—p 404

**Biology and Chemistry of Crystalline Lens**—Kirby and E-Wiener present a study of the development, growth and structural changes, chemistry and nutrition of the normal lens in its relation to the etiology of senile cataract, review analogous age changes in structure and chemistry of bradytropic cataract and the chemistry and nutrition of such lenses. The theory that considers senile cataract germ-plasmatically determined is elaborated on. Pathologic changes in the structural configuration of the lens protein molecules predispose to a lack of resistance of the lens as an organ, to changes in permeability, to changes in water binding power and to fatty degeneration. These have an effect of promoting degenerative phenomena of denaturation, coagulation and precipitation of lens protein and of inducing abnormal infiltration of fat and deposition of inorganic material. This hypothesis considers senile cataract to be a genetically induced change in the structural configuration of the lens protein molecule, which makes it susceptible to the physical and chemical phenomena concerned in the production of cataract.

## British Journal of Physical Medicine, London

- 9 21 36 (June) 1934  
Spa Treatment of Skin Disease with Especial Reference to Sulphur Waters of Harrogate S E Dore—p 22  
Spa Treatment of Skin Disease Contribution to the Discussion at the Harrogate Conference W B Watson—p 25  
Volcanic Mud Its Origin and Uses P Veres—p 27  
Physical Methods in the Treatment of Disease C Nicory—p 29

## Journal of Laryngology and Otology, London

- 49 429 492 (July) 1934  
Protracted Fractional X Ray Method (Coutard) in Treatment of Cancer of the Larynx J H D Webster—p 429  
Function of the Sacculi D W Ashcroft and C S Hallpike—p 450  
Malignant Tumor of Vocal Cord with Unusual Histologic Features Note S L Baker and V Lambert—p 461  
Treatment of Postoperative Pain in Chronic Sinusitis by X Rays Kisch and R W A Salmond—p 464

**Malignant Tumor of Vocal Cord**—Baker and Lambert report a case in which a person, aged 59, complained of hoarseness for nine months, which became progressively worse after the onset. Laryngoscopic examination revealed a red sessile mulberry-like swelling occupying the greater part of the right vocal cord, with the exception of a free area at the anterior and posterior ends of the cord. The affected cord was still mobile, but the growth was producing mechanical malapproximation on phonation. The general macroscopic impression of the tumor was benign rather than malignant. A portion of the growth was removed for biopsy. Histologic examination suggested that the tumor was a sarcoma, therefore it was decided to do a laryngofissure with excision of the affected cord. Unfortunately, the patient collapsed and died in the early stages of anesthesia before the operation could be commenced and no postmortem specimen was obtained. The sections examined showed a small nodule of tumor tissue measuring 6 by 3 mm. This was covered in part by stratified squamous epithelium. The examination of a section stained with hematoxylin and eosin showed, with the low power objective, numerous irregular, angular and spindle shaped cells lying in what appeared to be a fibrous tissue matrix. Among them occasional multinucleated giant cells were scattered. Most of the cells sent out processes, which merged with the general fibrillar matrix. The first impression produced by these appearances was that of a sarcoma. A more careful examination, however, led to the conclusion that the growth was in reality of epithelial origin, being perhaps best described as a polymorphic prickle cell carcinoma with spindle and giant cell formation.

systemic reaction to the infection could be demonstrated only by means of the precipitin and complement fixation reactions. In the absence of agglutination reactions it seems possible to the author that infection by *Shigella flexneri* may be more common than is supposed, because in most cases, if a positive agglutination has not been observed when the patient's serum is tested, the organism has been discounted as a possible pathogen. The author's patient gives a history of constipation and ill health prior to the development of her first symptoms, and therefore the suggestion that the constipation might be considered to be the primary cause of the invasion of the urinary system by organisms from the intestine might be put forward. The mode of infection of the urinary tract by organisms commonly found only in the large intestine has not been satisfactorily explained, but in the present case there is a proved invasion of the blood stream. The urinary symptoms antedated the symptoms usually associated with a bacteremia, but it has been shown that even *Shigella typhosa* can be isolated from the blood stream of contacts many days before the development of any clinical signs of the disease (Conradi). Therefore it might be postulated that the organisms in the author's case invaded the blood stream from the intestine, giving no symptoms until they attacked the urinary system.

## Johns Hopkins Hospital Bulletin, Baltimore

- 54 383 466 (June) 1934  
Surgical Affections of the Pancreas Met with in the Johns Hopkins Hospital from 1889 to 1932 Including Report of Case of Adenoma of the Islands of Langerhans and Case of Pncreatolithiasis W F Rienhoff Jr and D Lewis Baltimore—p 386  
Alleged Toxicity of Cod Liver Oil W M Cox Jr and A J Roos Baltimore—p 430  
Occurrence of Cyclic Variations in Motor Activity in Relation to Menstrual Cycle in the Human Female E G Billings Baltimore—p 440

**Surgical Disorders of the Pancreas**—Rienhoff and Lewis summarize the results of 158 operative cases of pancreatic disease. Of the eighteen patients with acute pancreatitis, ten were well, one improved and seven died. Of the twenty patients with chronic pancreatitis, twelve were well, five improved and two were unimproved. One died and in this case death was due to a high intestinal obstruction, which had nothing to do with the operative procedure on the pancreas. In the carcinoma of the pancreas none of the patients were well, thirty-one were improved, thirty-nine were unimproved and thirty-nine died. Of the seven patients with pancreatic cysts, four were well and three were improved. Both patients who had pancreatic abscesses were well following operation. There was one case of pancreatic apoplexy and one of adenoma of the pancreas. Both patients succumbed to the operative procedure. The authors report a case in which a pancreatic stone produced first an acute hemorrhagic pancreatitis, to be followed a year later by a chronic pancreatitis. The stone was removed and the patient has remained well for a period of ten years.

**Alleged Toxicity of Cod Liver Oil**—Cox and Roos found no histologic evidence of any pathologic lesion in the hearts of rats fed for 130 days on a diet adequate in protein, salts and vitamins but containing 78 per cent of the calories as cod liver oil. The rate of growth of the rats so fed was definitely subnormal.

## Journal of Bacteriology, Baltimore

- 27 539 650 (June) 1934  
Bacteriology of Swiss Cheese I Growth and Activity of Bacteria During Manufacturing Processes in the Swiss Cheese Kettle W C Frazier G P Sanders A J Boyer and H F Long Washington D C—p 539  
Genetic Significance of Dissociants of *Staphylococcus aureus* Rachel E Hoffstadt and G P Youmans Seattle—p 551  
Accessory Factor for Legume Nodule Bacteria Sources and Activity F E Allison and S R Hoover Washington D C—p 561  
Disociation in Yeasts F W Fabian and N B McCullough East Lansing Mich—p 583  
New Thermophilic Actinomycetes A Bernstein and H E Morton Philadelphia—p 625

## Kansas Medical Society Journal, Topeka

- 35 241 288 (July) 1934  
X Ray Therapy of Malignant Tumors G M Tice Kansas City—p 241  
Localization of Intraspinal Tumor by Means of Lipiodol Injection Case Report with Operation and Recovery C C Underwood Kansas City and F R Teachenor Kansas City Mo—p 246  
Cancer Survey of Kansas F L Rector Evanston Ill—p 253

Examination of further sections stained by various methods has confirmed this diagnosis and has further elucidated the cellular detail of the tumor. The feature which, in hematoxylin and eosin stained sections, suggests that the epithelial origin of the tumor is the peculiar angular and "prickly" contour of the majority of the cells. This is well seen in some of the larger cells. An examination of sections stained by van Gieson's stain and Weigert's iron hematoxylin, and Mallory's connective tissue stain, reveals the fact that the fibrillar matrix of the tumor is composed of a true connective tissue forming in one part an intercellular network of five wavy fibers and in another more compact masses separating groups of epithelial cells, and a complex network of interlacing processes derived from the epithelial cells themselves.

### Journal of Tropical Medicine and Hygiene, London

37 145 160 (May 15) 1934

Predators of the Culicidae (Mosquitoes) II Predators of Adult Mosquitoes E H Hunman—p 145

Postmalarial Anemia with Marked Reticulocytosis Case E D W Greig—p 150

Further Note on Strain of *Trypanosoma Brucei* from Zululand J F Corson—p 152

37 161 176 (June 1) 1934

Slaughter Stock and Human Infections I G Cawston—p 161  
Studies on Ascaris III Etiology and Prophylaxis R Girges—p 162

The Stroke in Malaria S de Silva—p 166  
Sporendonema Epizootum (Corda) Cif et Red Entity Including Hemispora Stellata and Oospora D Agatae R Ciferri and P Redaelli—p 167

37 177 192 (June 15) 1934

Pellagra in Sudan N L Corkill—p 177  
\*Very Rare Case of Bancroftosis (Bancroft Filariasis) Summary and Conclusions H P Froes—p 183

**Rare Case of Bancroftosis**—Froes observed a case in which a Negro, aged 30, who was admitted to the hospital for cardiac disease, had suffered before from malarial attacks, and at the examination of his blood a small number of young schizonts of *Plasmodium falciparum* were detected. At the examination of blood taken at night some microfilarias were found which the author identified as embryos of *Wuchereria bancrofti*. Such embryos were detected again in the blood obtained at different times (night and day) and were most numerous between the hours 2 and 4 a m and 9 and 11 a m. Microfilarias were also found in ascitic fluid (obtained by puncture). The patient was suffering also from ascites (2 or 3 liters of fluid), 1,700 cc being removed by puncture. The microfilarias detected in this fluid—nonhemorrhagic and nonchylous—were embryos of *Wuchereria bancrofti*. The author considers the present case as one of latent filariasis, as no complaint, no lesion or symptom could be attributed with certainty to the parasite.

### Chinese Medical Journal, Peiping

48 515 606 (June) 1934

Clinical Study of Cerebrospinal Fever with Especial Reference to the Disease in Shanghai F D Zau—p 515

Epidemic of Cerebrospinal Meningitis in Canton in 1932 W W Cadbury—p 536

Mycologic Study of Case of Actinomycosis Report of Three Cases Observed in North China T L Chin—p 551

\*Use of Benzylephedrine as Analgesic in Chaulmoogra Injections C T Feng—p 563

Soybean Digest Medium for Diagnostic Work F C Lin—p 571

Recent Advances in Anesthesia with Especial Reference to Spinal and Intravenous Methods C Chang—p 577

Comparative Study of the Clinical Value of Solu Salvarsan and Neosalvarsan K L Yang—p 583

Acute Opium Poisoning C P Li—p 586

**Use of Benzylephedrine in Chaulmoogra Injections**—Feng found that the substitution of benzylephedrine for benzocaine in Johansen's benzocaine-chaulmoogra mixture showed marked resultant advantage. The benzylephedrine-chaulmoogra combination containing only 0.1 per cent benzylephedrine base, appeared to fulfill the requirements of a nontoxic, non-habit forming, painless preparation for intramuscular administration, which will also remain chemically stable and aseptic over a long period. Tolerance for this preparation is two or three times as great as tolerance for the ordinary chaulmoogra preparations, with the advantage of painless and rapid absorption. The oral administration of this preparation has been suggested to certain workers who are interested in its use by this route.

### Presse Médicale, Paris

42 873 888 (May 30) 1934

\*Acute Articular Rheumatism and Tuberculous Bacillema. Personal Results in Ninety Five Cases Studied by Lowenstein's Method F Meersseman and R Lumaret—p 873

Contraction of Iris in Mental Disorders A Barbe—p 876  
Is Tuberculosis Really Contagious? G Carbognin—p 877

**Acute Articular Rheumatism and Tuberculous Bacillema**—Meersseman and Lumaret, using the modified Lowenstein technic of blood culture described in the *Zentralblatt für Bakteriologie* (part 1, 120 127 [Feb 23] 1931), prepared 100 blood cultures of ninety-five rheumatic patients. Before taking this up, however, the authors used the same technic in thirteen confirmed tuberculous cases with only one positive result, in fifteen suspected tuberculous cases with entirely negative results and in six cases of erythema nodosum with negative results. Ninety-one of the ninety-five cases of articular rheumatism were of the acute or subacute type presenting the classic characteristics of Bouillaud's disease. There were one case of acute gonorrheal polyarticular rheumatism, two cases of clinically tuberculous rheumatism and one case of questionable syphilitic or tuberculous nature developing in a syphilitic patient. All these cases of Bouillaud's disease and the case of gonorrheal rheumatism gave negative results. The last three patients gave one positive and two doubtful results. The authors believe that the differences in results from those of Lowenstein are not assignable to technic alone but perhaps to a difference in clinical material. The authors' observations, however, give absolutely no argument in favor of the usual, frequent or even possible tuberculous etiology of Bouillaud's disease.

### Schweizerische medizinische Wochenschrift, Basel

64 609 640 (July 7) 1934 Partial Index

\*Kyphoscoliosis and Spinal Cord M Borchardt—p 613  
Luxation Fracture of Cervical Vertebral Column B Bretnier—p 617

\*Wound Closure in Garter Operations W Capelle—p 617  
Conservative Surgery of Myoma H Guggenberger—p 622

Operation on Testicle Retained in Inguinal Canal E Hagenbach—p 625

\*Simulation of Hemopericardium by Acute Traumatic Cardiac Dilatation C Henschen—p 626

Leukemia and Pregnancy P Hussy—p 629  
Posttraumatic Meningococcal Meningitis F Jakob—p 630

Relation Between Coracoiditis and the Sympathetic C Julliard—p 636

**Kyphoscoliosis and Spinal Cord**—Borchardt maintains that in severe kyphoscoliosis there occasionally occur mild root and compression manifestations. They are easily overlooked, because they usually disappear again without resort to therapeutic measures. Severe injuries of the spinal cord are rare. If they appear, it is usually during the growth period as "late injuries" in the form of transverse myelitis or, in exceptional cases, in the form of serous spinal meningitis. These two disturbances are the result of circulatory disturbances in the spinal cord or its meninges. However, the existence of a severe, congenital or rachitic kyphoscoliosis is of course no protection against other disturbances that, independent of the existing malformation of the vertebral column, may cause an injury of the spinal cord. In addition to myelodysplasia and other conditions, two cases are reported in which the disease of the spinal cord had no connection with the malformation of the vertebral column. One patient had an intradural extramedullary spinal tumor that, of course, had no connection with the deformity of the vertebral column. The other patient had a vertebral osteitis fibrosa osteoplastica with tumor and cyst formation, which led to a compression of the spinal cord. The author thinks that the compression had no connection with the existing kyphoscoliosis. So far it is unknown that a deformity of the vertebral column leads to softening or degeneration of the spinal cord but the author admits that it is not entirely impossible.

**Wound Closure in Garter Operations**—Capelle shows that the technic of garter operations has been perfected to such a degree that primary closure of the wound predominates. If drainage becomes necessary however, cosmetic demands and an effective drainage should not interfere with one another. The author suggests a method that combines the advantage of Kocher's incision and primary closure of the wound with improved discharge of the secretion by separating the opening for drainage from the surgical wound. He followed pointers

given by spondylitic abscesses of the cervical vertebral column. He found that they generally gravitate behind the sternocleidomastoid muscle toward the lateral cervical triangle and open outward in the region of the clavicular fossa beside the lateral rim of the sternocleidomastoid muscle. This space gives drainage possibilities also to the deeper portions of the goiter wound, as soon as the median cervical fascia has been opened toward it. Thus the drainage incision would be located below the external jugular, close to the outer rim of the clavicular insertion of the sternocleidomastoid muscle, in the cavity that lies between the insertion and the clavicle. In this region scars are less noticeable than on the anterior portion of the neck.

**Simulation of Hemopericardium by Traumatic Cardiac Dilatation**—Henschen reports an acute traumatic cardiac dilatation that developed following a gunshot injury of the thorax. Whereas the clinical examination indicated the presence of a pericardiac hematoma, the postmortem examination revealed intactness of the cardiac muscle and of the pericardium and the absence of a pericardiac effusion of blood. The simulation of a hemopericardium could therefore be explained only by an acute traumatic dilatation of the heart. Judging from the type, the author suspects an injury of the extracardiac nerve trunks or a concussant lateral action of the shot on the heart (sort of 'commotio cordis') or the two combined as the cause of the acute traumatic dilatation. He thinks that a reduction in the tonus by way of the nervous system may lead to a dilatation of the heart. He cites clinical and experimental observations indicating that atonic and myogenic dilatations may develop in the space of days, hours, or even in less than an hour (fifteen minutes or less). In the reported case the acute dilatation must have developed in the space of a few minutes. The author points out that Sauerbruch's statement to the effect that the hemocardium is clinically easily recognizable by the enormous widening of the cardiac dullness is not always true. On the one hand, the vertical shortening of the mediastinum produced by the elevation of the diaphragm and the transverse position of the heart connected therewith may indicate a hemopericardium as well as an acute cardiac dilatation. On the other hand, the acute traumatic cardiac dilatation may assume completely the character of a hemopericardium. Thus the surgeon enters the same misleading diagnostic paths as does the internist in the differential diagnosis of pericarditis and cardiac dilatation. The author thinks that, if the condition of the injured person permits, it would perhaps be possible to resort to the contrast visualization of the right heart by means of Forssmann's catheterization of the right auricle.

### Archivio Italiano di Chirurgia, Bologna

36 529 644 (May) 1934

- \*Senile Involution of Mammary Gland and Cystic Fibrosis R. Gatta —p. 529
- Osteomyelitis of Scapula G. Bianchi —p. 575
- Experimental Research on Action of Ultraviolet Rays in Healing of First and Second Intention of Wounds of Skin, Muscles and Parenchymatous Organs E. Repetto —p. 597
- \*Contribution to Knowledge of Death from Intestinal Occlusion A. G. Chiariello —p. 628

**Senile Involution of Mammary Gland and Cystic Fibrosis**—Gatta observed in a number of subjects that there is a gradual disappearance of fibrillary connective tissue, which is replaced by adipose tissue in senile involution. Fixed limits cannot be assigned to involution; it begins after the menopause and sometimes before it and is complete only in extreme old age. During involution at any age the parenchyma presents proliferations in addition to regressive processes. The proliferations are especially numerous immediately after the menopause. The dilatations of the alveoli and of the galactiferous ducts which take place in the breasts after the menopause are attributed to a direct activity of the epithelium and not to a sclerogenous action of the connective tissue. They must be distinguished from the cysts due to stasis, which are rare and often absent, their genesis being totally different. They are formed in great abundance immediately after the menopause and become less numerous with the progress of the involution of the gland until complete regression. The clear or eosinophilic cells are found in the female breast after the menopause; they are derived from the normal cells of the gland and repre-

sent their final stage. The aspect presented by the breast in its involution may be similar to that presented by cystic fibrosis. There are, however, always differences in the intensity of the proliferative processes, which allow for distinction between the two forms.

**Death from Intestinal Occlusion**—Chiariello conducted four series of experiments on dogs for the purpose of confirming the importance of the loss of gastro-intestinal juices in the pathogenesis of death from intestinal occlusion. In the first series, after having resected the jejunum at a suitable distance from the ligament of Treitz, the author injected into the distal opening fixed to the skin a 1 per cent solution of sodium chloride; he obtained thus a survival which in one case lasted fifty one days. In the second series the saline solution was replaced by distilled water, but the survival has been minimal. In the third series the saline solution was administered intravenously but the survival was not as striking as in cases of the first series, in that it never exceeded fifteen days. In the fourth series the administration of a solution of dextrose gave a minimal survival. These experiments demonstrate that the cause of death lies in the loss of the gastro-intestinal secretions, which would produce an increase of the nitrogen elements of the blood, an expression of the disintegration of the protein substances, and that the administration of saline solution through an intestinal fistula succeeds in delaying death for some time.

### Beitrage zur Klinik der Tuberkulose, Berlin

85 172 (June 25) 1934

- Serial Roentgen Examinations for Pulmonary Tuberculosis in Army Marine Corps and Police H. J. Beese —p. 1
- \*Determination of Blood Cholesterol in Pulmonary Tuberculosis Marie von Babarczy —p. 9
- Several Biologic Actions of Old Tuberculin D. Kanocz —p. 15
- \*Sero-Albuminous Expectorations Following Pleural Puncture C. Mumme —p. 20
- Nodule Like Outlines on Pictures of Thorax W. Glitsch —p. 32
- Pathogenesis of Bronchiectasis Pulmonary Cysts M. Kartagener —p. 45
- Observations on Behavior of Tuberculin Susceptibility in Children Endangered by Tuberculosis and in Those not Threatened A. Viethen —p. 50
- Failures in Pneumothorax Therapy and Its Causes H. Mayrhofer —p. 57
- Evaluation of Serum Protein Fractions in Tuberculosis E. von Frolich —p. 64

**Blood Cholesterol in Pulmonary Tuberculosis**—It is shown by von Babarczy that the behavior of the cholesterol content in tuberculosis is determined by the activity of the process, by the allergy and by the degree of tissue disintegration. The activity of the tuberculous process is accompanied by a reduction in the cholesterol content of the blood. The increased allergy is accompanied also by a reduction in the cholesterol values. However, the increased tissue disintegration produces an increase in the cholesterol content of the blood. Thus the actual cholesterol content of the blood in pulmonary tuberculosis is determined by the activity and the allergy that effect a decrease, and by the tissue disintegration that produces the opposite effect, namely, an increase.

**Sero-Albuminous Expectorations Following Pleural Puncture**—Mumme describes the clinical aspects of sero-albuminous expectoration following pleural puncture. He rejects all pathogenic theories according to which the expectorate in sero-albuminous expectoration following pleural puncture is an expectorated pleural exudate. He maintains that the cause of sero-albuminous expectoration following pleural puncture is a local acute pulmonary edema, which develops in the prolongedly compressed and in the rapidly extended (during puncture) lung. Thus the expectorate is transudated blood serum. The development of the pulmonary edema following pleural puncture must be ascribed to degenerative changes on the capillary endothelium, also to mechanical and finally to angioneurotic factors. Epinephrine can prevent a sero-albuminous expectoration only when it is given early, that is, approximately fifteen minutes before the puncture is made. By introducing air into the pleural space and by thus renewing the pulmonary collapse, it proved possible to counteract a sero-albuminous expectoration and thereby save the patient. If in case of more extensive pleural punctures a part of the discharged fluid is replaced by air, the development of the pulmonary edema is prevented and with it also



the sero-albuminous expectoration. The author rejects the puncture treatment of the serous "idiopathic" pleural exudates, because the measure does not reduce the duration of the disturbance. In "idiopathic" serous pleurisy, puncture should be resorted to only if, disregarding vital factors immediately following the discharge of the exudate, collapse treatment is instituted by inducing a pneumothorax.

### Munchener medizinische Wochenschrift, Munich

81 1003 1044 (July 6) 1934 Partial Index

- Prognosis of Complicated Deliveries and Its Consequences for the Physician H Guggisberg—p 1003  
 Treatment of External Eye Diseases A Siegrist—p 1006  
 \*Significance of Occurrence of Tubercle Bacilli in Urine of a Patient H Wildbolz—p 1012  
 \*Disorders of Thyroid in Their Relations to Adjoining Organs C Wegelin—p 1018  
 Status of Campaign Against Goiter in Switzerland F de Quervain—p 1020  
 \*Utilizability of Friction Method for Determination of Outlines of Organs A Bukovala—p 1026

**Significance of Tubercle Bacilli in Urine**—Wildbolz points out that formerly the presence of tubercle bacilli in the urine was considered indicative of a tuberculous disorder in the urogenital system. Some of the more recent investigations, however, have called the general validity of this rule into question. The author mentions several investigators who have reported cases of tuberculous bacilluria without the presence of tuberculous disease of the kidney. However, the majority of workers, studying the problem of tuberculous bacilluria, agree that, if it occurs at all, it is extraordinarily rare. The author states that the practitioner should assume the presence of a tuberculous disease of the urogenital organs when tubercle bacilli are found in the catheter urine. It is, of course, possible to mistake smegma bacilli for tubercle bacilli, but, if attention is given to the arrangement of the microorganisms, differentiation is readily possible, for the smegma bacilli are never close together but either are scattered or appear in loose groups. Moreover, they are generally shorter and plumper than the long and small tubercle bacilli. Because of their lipid covering, the tubercle bacilli are usually massed together. The presence of other signs of urogenital tuberculosis dispels the doubts about the nature of the acid-fast bacilli. Such signs are in men, infiltrations in the seminal vesicles and in the prostate or nodules in the epididymis, in women, infiltration of a ureter, which can be felt in the anterior vaginal vault. But, if in addition to the acid-fast bacilli no other tuberculous changes are demonstrable and a cystoscopic examination is not feasible, animal experiment should be resorted to. If the animals develop tuberculosis a urogenital tuberculosis can be assumed even if there are no other signs of tuberculosis, and the physician should see to it that the patient is subjected to a careful urologic examination. The good general condition and the absence of renal and vesical symptoms should not tempt the physician to regard the presence of tubercle bacilli in the urine as of minor importance, for not only is the patient in danger himself but he is also a danger to those who come in contact with him. The author maintains that the majority of patients whose urine contains tubercle bacilli have a caseous tuberculous lesion of the kidneys, genital tuberculosis being much less frequent. Since renal tuberculosis has only a slight tendency to scar formation, nonsurgical methods are of little avail, but surgical removal of the diseased kidney leads to complete cure in approximately 60 per cent of the cases. However, in some patients nephrectomy is contraindicated, this is the case particularly in bilateral tuberculosis, but even in unilateral renal tuberculosis nephrectomy may be inadvisable. Nonsurgical treatment should first be tried in all cases in which little or no pus is found in the urine and in which the function of the kidney is satisfactory.

**Disorders of Thyroid in Their Relations to Adjoining Organs**—Wegelin shows that the inflammatory diseases of the thyroid (acute and chronic thyroiditis, tuberculosis, lymphogranulomatosis) develop as a rule hematogenously but may lead to involvement of the neighboring organs. On the other hand in exceptional cases the changes may have an external origin, namely when the protecting wall of the thyroid capsule is perforated. In benign goiter there develop in addition to displacements and compressions of the neighboring organs also

adhesions with the larynx and the trachea. The author calls especial attention to the intralaryngotracheal goiter, in which the thyroid tissue grows even between the cartilages and underneath the mucous membrane of the larynx and the trachea. Malignant goiters frequently penetrate the capsule of the thyroid, but, on the other hand, the thyroid may be infiltrated and finally destroyed by neoplasms of the neighboring organs.

**Friction Method to Determine Outlines of Organs**—Bukovala recommends the friction method for determination of the outlines of organs whenever the more simple methods such as percussion, auscultation and palpation, fail. The stethoscope is placed with one hand on that region of the skin under which the organ is ordinarily found. At the same time the forefinger of the other hand makes scraping movements in a definite direction away from the stethoscope. On auscultation a scraping sound becomes perceptible. In order to exclude optic influences, the examiner should close his eyes. As soon as the friction reaches the point corresponding to the projection of the border of the organ on the skin, the auscultatory phenomenon disappears or changes in intensity and tone. If the same friction movements are made in various directions from the stethoscope, a number of points are detected the connection of which indicates the outline of the organ. The author recommends the friction method (1) for abdominal organs (liver, stomach and spleen), (2) for determining to what organs abdominal tumors belong and (3) for the determination of the lower limits of the heart.

### Hygiea, Stockholm

96 401 432 (June 30) 1934

- \*Treatment of Tuberculosis of Knee Joint in Adults (Especially Tuberculous Dropsy) H Waldenström—p 401  
 Report on Social Hygienic Investigation in Norrboten and Västerbotten Districts Introductory Statement N Hellström—p 411  
 General Observations Concerning Care of Homes, Personal Hygiene, and So on G Ankarsward—p 418

**Treatment of Tuberculosis of Knee Joint**—In three fourths of Waldenström's twenty-five cases of microscopically established tuberculous synovitis treated during the last ten years, dropsy was noted at the outset. In five of the twenty-three cases treated conservatively from the start the treatment was completed, with good result in one case and a fairly good result in one case, in the seventeen, conservative treatment was discontinued and resection was done, in five cases after five years, in five cases after three years, and in eight cases after two years, with satisfactory ankylosis. Resection was done in two cases as soon as the tuberculosis was established. Because of the far longer and indefinite time required for conservative treatment, the far greater uncertainty as to the outcome, and the danger of recurrence in all these cases, the author advocates careful radical operation in every case of pathologically anatomically established tuberculosis of the knee joint in adults.

### Ugeskrift for Læger, Copenhagen

96 685 714 (June 28) 1934

- Mustard Gas J P Skot Hansen—p 685  
 \*Primary Epidemic Alveolar Pneumonia A A Rasmussen—p 691  
 Cinchophen Jaundice Fatal Case S Horneman—p 694  
 Keratosis of Palm and Sole H J Pedersen—p 695

**Primary Epidemic Alveolar Pneumonia**—Rasmussen says that this epidemic pneumonia in the southern Faroe Islands in September 1933 was marked by sudden high fever, lasting from two to five weeks, with lytic fall, stethoscopic phenomena in the lungs, usually unilateral, demonstrable after from the third to the eighth day, headache, insomnia, low pulse frequency, often constipation, sometimes diarrhea, absence of stitch in the side, cough or expectoration and, in the four pregnant patients, abortion or premature delivery. Of the sixty-eight patients, 90 per cent were women in middle life or older, seven patients or 10 per cent died. The etiology of the disturbance is unknown.

### CORRECTION

**Duration of Ventricular Systole**—In the abstract of the article by Lian and his co-workers in THE JOURNAL August 4, page 378 in the eighth line, the formula should read

$$K = \frac{D}{C(C+41)} \text{ instead of } K = \frac{D}{C(C-41)}$$

# The Journal of the American Medical Association

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## THE IMPORTANCE OF THE STREPTOCOCCUS IN GENITO-URINARY DISEASES

CHAIRMAN'S ADDRESS

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A casual understanding of the role of the streptococcus in genito-urinary diseases among any group interested in the clinical aspects will place its importance in widely varying spheres. Wrong conclusions, in this connection, can easily be made from one's own clinical experience. Without a careful search of the available sources of information and study of both the clinical and the experimental aspects of the subject, no measure of the role of the streptococcus in urology can be made.

With no thought of adding anything new to the subject, but for the purpose of directing attention briefly to the most important pertinent facts and probabilities, I open this subject of nonspecific infections of the urogenital tract.

Parks<sup>1</sup> says, "The group of bacteria known as streptococci is one of the most, if not the most important of the bacterial groups known to have a great influence upon man's welfare. Frequently there is not the sharp limitation of a streptococcus to a clinical disease as is the case with most other forms of bacteria. It seems as if the temporary adaptation of the organism to growth in a special tissue or tissues frequently determines its virulence and the localization of its growth."

In general, streptococci are found wherever man has been found and are essentially parasitic on an animal host. In a normal healthy man the surface of the mucous membranes of the nasopharynx, the crypts of tonsils, the intestine and the skin are normal habitats of various types of streptococci, each tissue harboring a preponderance of a certain type. Although the mucous membranes of the nasopharynx commonly contain green-producing streptococci, broadly speaking this variety is essentially intestinal, while the hemolytic type is confined to the upper respiratory tract, especially the tonsillar crypts. These potentially virulent organisms living a saprophytic existence have no influence on the welfare of the host until local or general tissue defense decreases, they may then invade the tissues of the host and produce the pathologic changes which their nature and the various tissue susceptibilities permit.

The genito-urinary tract, excepting the anterior urethra, is normally sterile. While the anterior urethra

harbors as saprophytes some thirty odd species of bacteria,<sup>2</sup> including several varieties of streptococci, this structure probably plays a minor role in the production of streptococcic infections of other urogenital organs.

The fact that streptococci are found on and in the healthy human body is not necessarily important if the normal defense mechanism remains intact, but, as Williams<sup>3</sup> states, if the local susceptibility is slightly greater or the coccus a little more poisonous there may be a slow growth of the cocci in the tissues with a slow cellular response resulting in a subacute or chronic infective focus or a focal infection. By some it is contended that a more or less continuous absorption of bacteria or their products from such a focus into the blood or lymph streams may result in subacute or chronic disease conditions in distant organs.

During acute local infections and, as some contend, also during subacute and chronic focal infections, some bacteria pass into the general circulation. Usually these invaders are rapidly removed from the circulation by the body cells, but repeated bacteremias, regardless of the number of available bacteria, in susceptible individuals may react eventually on special tissues.

An observation pertinent to the practice of urology was made by Hopkins and Parker,<sup>4</sup> who injected intravenously slightly virulent hemolytic streptococci into insusceptible animals (cats). They found that the bacteria quickly disappear from the blood stream and are found most numerous in the lungs, less in the liver and spleen, and still less in the bone marrow, lymph nodes, muscle and kidney. While not conclusive, it is at least suggestive that the kidney is a factor in removing virulent organisms from the circulation during transient bacteremias, making it a recipient of repeated attacks under the circumstances previously mentioned. Going further in clinical application, one finds that such attacks on kidney tissue previously abnormally susceptible, owing to malformation, malposition or disease, or, as held by some, to the presence of circulating streptococci with a special affinity for this tissue, furnish local conditions that may result in inflammatory processes of varying degrees.

Commonly, clinical bacteriologic studies of various urogenital infections place the streptococcus as a minor offender. There is very little doubt that it plays a much greater role when one considers the necessity for special cultural mediums, the inability to obtain cultures of some organisms under any circumstances, the overgrowth of more readily cultivable secondary organisms

<sup>2</sup> Jungano Michele. La flore de l'appareil urinaire normal et pathologique. Paris G. Jacques 1908.

<sup>3</sup> Williams Anna W. Streptococci in Relation to Man in Health and Disease. Baltimore Williams & Wilkins Company, 1932.

<sup>4</sup> Hopkins J. G., and Parker J. T. Effect of Injections of Hemolytic Streptococci on Susceptible and Insusceptible Animals. J. Exper. Med. 27: 1 (Jan.) 1918.

Read before the Section on Urology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.  
<sup>1</sup> Parks W. H. Introduction to Williams<sup>3</sup>

and the technical experience necessary to cope with this problem

The studies of Young, Colston and Hill<sup>5</sup> are representative clinical observations. These workers recovered streptococci in 11 per cent of 600 cases of bladder infections. In slightly less than half of the cases the streptococci were in pure culture. The same relative proportion of streptococcic infections was found in the kidney specimens studied.

That the kidney has a special susceptibility for certain streptococci or their toxins, or both, has been recognized clinically as exemplified by the kidney complications of scarlet fever. It remained for Duval and Hibbard<sup>6</sup> to reproduce experimentally in rabbits, by the injection of a preparation of *Streptococcus scarlatinae*, a kidney lesion similar in many respects to that of acute scarlatinal nephritis in man. This observation constitutes evidence of a possible specific relationship of the streptococcus.

Bumpus and Meisser<sup>7</sup> did outstanding work, both clinical and experimental, in emphasizing the importance of streptococcus-harboring foci of infection and their relationship to certain instances of pyelonephritis. They point out that oral focal sepsis is a common associated lesion in patients with pyelonephritis and demonstrate the frequent selective action on the kidneys of streptococci removed from these foci. The common bacillary infections of the kidneys are presumed to be caused in most instances by secondary invaders. Rational treatment should be directed toward the primary cause as well as toward the secondary local infection. This presumption has been strengthened by the clinical observations of Cabot and Nesbit,<sup>8</sup> who found that early pure coccic infections of the kidneys were sometimes succeeded by a mixed infection with colon bacilli. Bumpus and Meisser observed that following the removal of a suspected focus there frequently would occur an exacerbation of the urinary symptoms accompanied by chills and a rapid rise in temperature. They considered this a favorable sign indicating that the causative focus had been removed. Following such reactions streptococci would appear, for a time, in the urine, which previously had apparently contained only colon bacilli.

Rosenow and Meisser<sup>9</sup> similarly demonstrated a relationship between experimentally infected devitalized teeth in dogs and various forms of nephritis, using streptococci having an elective affinity for kidney tissue. In similar experiments, infecting devitalized teeth of dogs with streptococci isolated from urine of patients with urinary stone, they found urinary stones in the dogs in the majority of cases. The streptococci were isolated from the kidneys, from some of the stones and from the teeth of the dogs. By a carefully controlled technic Eisenstaedt<sup>10</sup> found streptococci in the substance of kidney stones in 16 per cent of the stones studied.

Grulee and Gaarde<sup>11</sup> observed clinical instances of acute hemorrhagic nephritis in children from acute infections of the tonsils and nasopharynx. Hemolytic streptococci showing a great similarity to the organisms found in the throat were found in the urine in some instances.

The infrequently mentioned and less frequently diagnosed entity of renal infarction commonly, but not necessarily, secondary to endocarditis, is in a great majority of the properly studied instances, of streptococcic origin. Barney and Mintz,<sup>12</sup> in analyzing 143 such lesions, found the streptococcus in 72.7 per cent of the positive cases. Huggins<sup>13</sup> reports an instance of bilateral streptococcic renal infarction clinically cured by nephrectomy and subsequent drainage of the remaining kidney. There was no finding of endocarditis.

Falls<sup>14</sup> and his co-workers have found by tissue culture from the depths of the uterine cervical glands that the green-producing streptococcus was the predominating organism in most of the cases of endocervicitis studied. This is an important observation when considered in conjunction with the conclusion of Winsbury-White<sup>15</sup> that cystitis is a common companion of cervicitis, the bladder infection, localized at first to the region of the trigon, at least suggests a lymphatic connection between the cervix and the trigon. Certainly this combination of lesions is a common observation.

Submucous cystitis probably represents the lone streptococcic infection of the urogenital tract with more than presumptive evidence of specificity, with the possible exception of the orchitis of mumps. When not associated with ordinary cystitis, pure cultures of green-producing streptococci have been repeatedly recovered from the urine and from resected tissues. There can be little doubt from a clinical point of view that these lesions are metastatic and the well known experimental results of Bumpus and Meisser<sup>10</sup> add strength to this assumption. They injected nineteen animals with primary cultures from the teeth and tonsils of patients having submucous cystitis, sixteen of these animals developed lesions of the urinary tract, and in thirteen the lesions were in the urinary bladder. Only ten of 239 animals injected with streptococci from the teeth and tonsils of patients having diseases other than urinary infections developed lesions of the urinary tract.

Without bacteriologic facts to substantiate it but with pathologic observations to suggest it, Hunner<sup>17</sup> has indicated that streptococci from similar foci may produce ureteral lesions resulting in stricture. Probably the primary ureteral lesion is much more common than the resulting stenosis.

The anatomic situation of the prostate and seminal vesicles, together with their construction, make them especially susceptible to all types of infection. Herrold,<sup>18</sup> using special cultural methods, isolated streptococci in

5 Young H H, Colston J A and Hill Justina H. Infections in the Genito Urinary Tract and Complications. *J A M A* 98 715 (Feb 27) 1932.

6 Duval C W and Hibbard R J. Experimental Glomerulonephritis Induced in Rabbits with the Endotoxic Principle of Streptococcus Scarlatinae. *J Exper Med* 44 567 (Oct) 1926.

7 Bumpus H C and Meisser J G. Focal Infection and Selective Localization of Streptococci in Pyelonephritis. *Arch Int Med* 27 326 (March) 1921.

8 Cabot Hugh and Nesbit R M. Coccus Infections of the Kidney. *Ann Surg* 92 766 (Oct) 1930.

9 Rosenow E C and Meisser J G. Elective Localization of Bacteria following Various Methods of Inoculation and the Production of Nephritis by Devitalization and Infection of Teeth in Dogs. *J Lab & Clin Med* 7 702 (Sept) 1922. Nephritis and Urinary Calculi After Production of Chronic Foci of Infection. *J A M A* 78 266 (Jan 18) 1922.

10 Eisenstaedt J S. Certain Tangible Factors in Etiology of Urinary Calculus. *Tr Chicago Urol Soc* 1 65 1931.

11 Grulee C G and Gaarde F W. Involvement of the Urinary Tract as a Result of Focal Infections in Children. *J A M A* 65 312 (July 24) 1915.

12 Barney J D and Mintz E R. Infarcts of the Kidney. *J A M A* 100 1 (Jan 7) 1933.

13 Huggins C B. Surgical Management of Bilateral Septic Infarction of the Kidneys. *S Clin North America* 13 1257 (Oct) 1933.

14 Falls F H. Personal communication to the author.

15 Winsbury White H P. The Spread of Infection from the Uterine Cervix to the Urinary Tract and the Ascent of the Infection from the Lower Urinary Tract to the Kidneys. *Brit J Urol* 5 249 (Sept) 1933.

16 Bumpus H C and Meisser G D. Focal Infections in Relation to Submucous Ulcer of the Bladder and to Cystitis. *J Urol* 6 285 (Oct) 1921.

17 Hunner G L. Ureteral Stricture Excluding Cases Due to Tuberculosis and Cases Immediately Associated with Stone. *Tr Am Urol A* 10 87 1916.

18 Herrold R D. The Interpretation of Chronic Infections of the Prostate and Seminal Vesicles. *J A M A* 91 557 (Aug 25) 1928.

34 per cent of 109 cases of chronic prostatitis and seminal vesiculitis, the types being equally divided between the hemolytic and green-producing organisms. He observed also a more pronounced and persistent lesion, as determined by palpation, than in the non-streptococcic lesions. All are familiar with the clinical frequency with which these structures become infected by metastases from distant foci, and more and more importance is being attached to these infections as a focus for further dissemination. Pelouze<sup>19</sup> states that so much attention is placed on certain primary areas of focal infection that other foci, though commonly secondary to them, and at times having a place of equal importance have been obscured. This is especially true of the prostate gland, which he believes is rarely a primary focus and that it cannot be cleared up as long as the primary focus remains. It is a common occurrence in large urologic wards to observe quite typical gonococcic infections of joints gradually assume the characteristics of streptococcic lesion and recovery cannot be expected until the various primary foci of infection, both streptococcic and gonococcic, have been eradicated.

Nickel<sup>20</sup> injected rabbits with green-producing streptococci isolated from infected prostates and seminal vesicles and found a marked tendency for them to localize in the tissues of the rabbits corresponding to the diseased tissue of the patients. Frequently the strains injected could be recovered from the experimental lesions in pure culture when often all other tissue cultures remained sterile. Obviously this important experimental result clearly points out the prostate and seminal vesicles as foci from which more generalized disease may originate.

In passing I shall only call attention to the specific streptococcic orchitis of mumps and postoperative erysipeloid infections.

Nonspecific infections of the urethra deserve more than passing attention at this time, owing to the vast number of intra-urethral manipulations being done. While streptococci are occasionally the predominating organisms in locally unprovoked nonspecific urethral infections, it is much more frequently the case following urethral trauma. This is especially so in long-continued trauma such as is obtained in indwelling urethral catheters. Nonspecific urethritis is the usual accompaniment of indwelling catheters. Cultural study of these infections shows an abnormally high incidence of streptococci as the predominating organism. The potential danger of this condition is obvious when followed by procedures such as transurethral vesical neck resections. Early in this work of resection I observed the most marked postoperative reactions following such local conditions. To obviate this danger I no longer prepare a patient for resection with an indwelling catheter for any extended period. In cases in which preparation is indicated, intermittent catheterization is done. If a considerable time for such preparation seems indicated a suprapubic cystostomy is much preferred, as a result of this practice I am now doing 20 per cent of all resections following cystostomy. Following the same line of thought the postoperative indwelling catheter carries a like danger and should be removed as soon as is consistent with local conditions.

It is logical to state that the streptococcus group of bacteria plays a really important role in the various phases of genito-urinary diseases. The presence of the organism is often not detected even in instances in which this is readily possible, and too frequently the significance is not properly interpreted. Although much effort has been expended in attempts to devise a specific chemical or biologic substance to attack these infections, nothing conclusive has resulted.

Much advance has been made in topical applications to local streptococcic infections, but this rarely has practical application in the practice of urology. The many researches in intravenous chemotherapy have emphasized the fact that it involves not only the direct effect on both parasite and host tissues but a number of indirect effects which may influence one way or another the curative results.<sup>21</sup> Most observers agree that with the exception of such diseases as syphilis there has been no evidence of satisfactory response to intravenous chemotherapy. The mechanism of immunity in these streptococcic endotoxic infections, as demonstrated by Gay,<sup>22</sup> depends chiefly on the large phagocytes of the reticulo-endothelial system. The opsonins in antisera aid some, but the large phagocytes must be present in sufficient numbers to complete a cure. The part that these large phagocytes play in local or tissue infections has received much attention from Besredka<sup>23</sup> and others and perhaps eventually something definite will result from the use of streptococcus antiviral and endotoxic vaccine, clinical investigation of which is now being carried out in various places. It is maintained by some, however, that such immunity is strictly local, at the site of the injection. Gay indicates that Besredka's results may be explained by the stimulating effect of certain nonspecific and even nonantigenic substances, such as plain broth, which, as he has shown, stimulate and collect the tissue macrophages in their vicinity. Regardless of this contention, there is very definite clinical evidence of a value, striking in some instances, of the intracutaneous injection of antiviral in other infections, notably gonococci. This method should not be eliminated on experimental data only and should be discarded in the treatment of the streptococcic infections only when found wanting after adequate clinical application.

When one appreciates that practically all of the streptococcic urogenital infections are secondary to some distant focus, usually in the head or the intestine, the first thought should be to eradicate the source of the infection before any hope of cure can be anticipated. Even though streptococci are not isolated from the urogenital lesion in certain persistent and recurrent urogenital infections, their presence as a primary and intermittent invader of these structures should be assumed and the patient should be treated accordingly.

7 West Madison Street

21 Kolmer J A. *Chemotherapy of Bacterial Diseases*. The Newer Knowledge of Bacteriology and Immunology. Philadelphia W B Saunders Company 1926, p 1101.

22 Gay F P. *Fundamental Factors of Immunity*. Medicine 8 211 (May) 1929.

23 Besredka Alexandre. *Local Immunization*. Specific Dressings, edited and translated by Harry Plotz. Baltimore Williams & Wilkins Company 1927.

Eggs and Milk—Man is the only animal that ingests eggs and milk throughout its lifetime. Man is also the only animal, as far as is known, which dies in early life from coronary sclerosis, and which acquires atherosclerosis almost universally in advanced life—Leary, Timothy. *Experimental Atherosclerosis in the Rabbit Compared with Human (Coronary) Atherosclerosis*. *Arch Path* 17 453 (April) 1934.

19 Pelouze P S. *Medical Importance of Focal Infective Prostatitis*, *Am J M Sc* 184 254 (Aug.) 1932.

20 Nickel A C. *The Bacteriology of Chronic Prostatitis and Seminal Vesiculitis*. *J Urol* 24 343 (Oct) 1930.

THE PROBLEM OF ACCIDENTAL POISONING IN CHILDHOOD

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Toxicology as it has been taught in medical schools has chiefly considered poisons in relation to homicide and suicide and as poisoning occurs in industrial medicine. Less attention is given to accidental poisonings. Textbooks on pediatrics have but little to say regarding accidental poisonings as a problem in diagnosis and treatment in children. Yet poisons are a real menace to the children of this country, as can be shown by hospital records and mortality statistics. These figures do not show nonfatal cases, those cases never seen by physicians, and those in which treatment was given but not placed on record. The experience of every pediatrician proves that poisonings are not infrequent in children. It is also obvious that such cases may not be recognized. Individual physicians see but few cases of any one poisoning, such as strychnine, but in the aggregate the cases amount to a total that goes far beyond that of diseases to which much more attention is given. The duration of symptoms in most cases is very brief, and records of the case are only those of the ambulance and coroner's office.

When the ever increasing number of poisons about the home and farm is considered it is not surprising that these tragedies occur, and it is evident that the problem will increase unless the attention of the profession and the public is directed along this line.

Accidental poisoning should be especially interesting to pediatricians because so many of these accidents occur in small children and because of the frequent difficulties in diagnosis, the high mortality from certain poisons, and the fact that children have a special susceptibility to certain poisons, such as opium and aniline.

Naturally, suicides are rare in childhood. Mortality statistics from the Bureau of Census for 1929 show but one suicide by poisoning (gas) under 10 years of age. Between 10 and 14 years of age this increases to thirty suicides.

A study of hospital records shows that poisoning due to drugs and poisons may be divided into two groups, those due to therapeutic accidents and those due to accidental ingestion of poisons. Out of 5,059 children admitted to the Strong Memorial Hospital in Rochester, forty-seven instances of poisoning were recorded. Of these, twelve were due to accidental poisoning by drugs, eight from food poisoning, and six from mushroom poisoning, and twenty-one were classified as therapeutic accidents. The latter were chiefly dermatitis medicamentosa due to phenobarbital, bromides and the like.

The accidents that occur in the treatment of disease are largely due to an idiosyncrasy or sensitivity that patients have to certain drugs. But other more serious accidents may occur, such as the administration of boric acid solution in place of saline solution by mouth or subcutaneously, also the administration of adult sized preoperative hypodermic injections to children.

Mortality statistics for 1929 show that 530 deaths from acute poisonings (gas excepted) occurred in the United States in children under 5 years of age, while only forty-seven instances were reported in children aged from 5 to 9 years. During the second year of life

260 deaths occurred, and during the third year 118. As might be expected, the small child just able to walk and get into things is the most frequent innocent victim, usually of some one's carelessness. When uncertainty exists as to diagnosis in children attacked with profound illness, the question of accidental poisoning must always be seriously considered. This is especially true if several members of the family have the same symptoms.

Poisonings have been confused with perforation or rupture of an abdominal viscus, general convulsions of gastro-intestinal or other origin, diabetes, nephritis, severe gastro-enteritis and the like.

TABLE 1—*Fatal Poisonings of Children Five Years of Age and Under in New York State (Exclusive of New York City) from 1926 to 1932*

Kind of Poison	1926	1927	1928	1929	1930	1931	1932
Acetanilid						1	
Arsenic	1	4	2	1	1		1
Atropine	1						
Barbital							1
Belladonna	1						
Blephoride of mercury					1		
Boric acid		1				1	
Camphorated oil	1						
Carbon disulphide					1		
Caustic potash	1						
Compound cathartic				1			
Cresosote						1	1
Cresoline					1		
Compound solution of cresol		2	1				
Cyanide					1		
Fireworks							1
Gasoline			1	1		2	
Grip tablets		1		1			
Hellebore					1		
Horse chestnuts		1					
Kerosene		1	1	2	1	1	1
Leaves of hedge						1	
Lye	2		1				
Medicine						1	1
Mercury (fireworks)		1	1				
Methyl salicylate		1	2				
Morphine sulphate			1				
Muriatic acid			1	1	1		
Nickel polish						1	
Nightshade berries				1			
Nitroglycerin					1	1	
Phosphorus (fireworks)	3				1		
Phosphorus (rat poison)		2	1				
Pitch	1						
Salicylate					1		
Sodium nitrate					1		
Soldering fluid	1						
Seed of Jimson weed			1				
Spraying solution (grapes)					1		
Strychnine	14	10	12	12	9	13	2
Turpentine				1			
Unknown poisons			2				
Whisky						1	
Wood alcohol					1		
Zinc stearate				2			
Total	26	27	27	23	23	24	8

The symptoms produced by certain drugs also cause problems in diagnosis and treatment. The disturbances in body temperature, flushing of the skin and increased respiratory or pulse rates produced by atropine have caused confusion. The extreme cyanosis seen in shoe dye poisoning from nitrobenzene or in aniline poisoning occurring from ink used in marking diapers may be puzzling. The serious symptoms that may be produced in small infants by the use of mentholated nose drops and also the serious consequences following the inhalation of zinc stearate powder are both pediatric problems. The fact that bismuth subnitrate can produce nitrite poisoning must be kept in mind when a bismuth compound is prescribed for children.

Table 1 shows the deaths from accidental poisonings of children 5 years of age and under in New York State (exclusive of greater New York) classified under the international list number 177. These figures were

furnished by the New York State Department of Health. The poisons are recorded as they appeared on the death certificates and are not always clear and convincing. The table shows the wide range of poisons taken and also that certain poisons claim victims each year, poisoning due to arsenic from rat pastes, phosphorus or mercury poisoning from fireworks, lye kerosene, cresol poisoning and lastly that ever present group due to strychnine. Strychnine poisoning<sup>1</sup> is chiefly due to brightly colored sugar-coated cathartic and tonic pills, such as A B & S, A B S & C and Hinckle's Cascara. These tablets sold over the drug counters without warning as to their danger cause more deaths than any other poison.

The one favorable showing in table 1 is for strychnine poisoning, which shows a considerable reduction. This must be due to improved treatment although I would like to think that increased knowledge regarding this hazard has reduced the actual number of these accidents. One also wonders whether persons with chronic constipation have been influenced by high pressure radio and newspaper advertisements of saline and phenolphthalein cathartics to change from the older

TABLE 2—Poisons Found in Insecticides, Rodenticides and Fireworks

Roaches, Ants, Fleas and Crickets	
Pyrethrum	Paris green (aceto arsenite of copper)
Sodium fluoride	Thallium
Bedbug, Fly and Mosquito	
Cresol	Naphthalene
Phenol	Nicotine
Pyrethrum	
Rodents, Rats, Mice, Moles, Gophers, Wood Chucks	
Cyanide	Sulphur
Arsenic	Yellow phosphorus
Phosphorus	Formaldehyde
Thallium sulphate	Hydrocyanic acid
Red squill	Chloroform
Fireworks	
Mercuric sulphocyanide	Phosphorus (spit devil or son of a gun)
Arsenic	Mercury in victory snakes

household remedies such as Hinckle's Cascara and A B & S pills.

Table 2 lists some of the poisons to be found in insecticides, rodenticides and fireworks. Many instances are found in which whole families have been poisoned by mistaking an insect powder for a food ingredient or in which children have eaten preparations put out for rats.

Arsenic, sodium fluoride, nicotine, thallium and hydrocyanic acid, mercury and phosphorus are dangerous poisons and have all caused deaths of children.

The materials used in the painting trade contain many dangerous poisons. The widespread use of paints in the home results in many cases of poisoning. The habit of eating paint from cribs and toys has also caused much poisoning. Table 3 shows some of the poisons found in this group.

Many cosmetic preparations contain poisons and, as they do not come under the pure food laws, may have no warning on the label. The ingredients of these preparations are discussed in "Cosmetics and Allied Preparations," issued by the American Medical Association. There have been few deaths reported from cosmetics except in Japan, where many fatalities have occurred from lead in face powders.

Table 5 lists commonly used preparations containing poison substances which may be found about the home. The acids and alkalis contained in these articles come under the federal Caustic Poison Act, which requires, if the poison is used in or over a specified percentage,

TABLE 3—Poisons in Paints

Lead	
White lead	
Chrome yellow, chrome orange and chrome green	
Glazes, enamels, putty	
Spray paints, lacquers and enamels	
Arsenic	
Sheels green	
Emerald green	
Benzene (C <sub>6</sub> H <sub>6</sub> )	
Quick drying paints	
Spray paints, lacquers, varnish	
Paint removers, shellac stains	
Covering for automobile tops	
Bronzing and gilding fluids	
Methyl Alcohol and Denatured Alcohol	
Varnish and shellac	
Varnish and paint removers	
Solvents for gums, dyes, resins	
Coatings containing cellulose nitrate	
Naphtha	Turpentine
Benzine	Aniline

that poison labels and directions for treatment be placed on containers. Similar legislation should cover more of the poison articles about the home.

The public must first be informed that the articles contain poisons and then that unused medicines and poisons should either be destroyed or be kept away from children. Both the public and the profession must consider poison cases more seriously.

Treatment, especially stomach washing, should be instituted whenever suspicion of poisoning exists. Patients have died while speculation was going on as to diagnosis and treatment. More attention should be given to this subject in medical schools and hospitals and especially in the children's departments.

Emergency departments should be equipped for adequate treatment. An easily accessible outline of accepted methods of treatment should be available.

TABLE 4—Cosmetic Preparations

Freckle Removers	
Corrosive mercuric chloride	
Ammoniated mercury	
Bismuth	
Mole and Wart Removers	
Acids or caustics	
Skin Foods and Creams	
Mercury	
Salicylic acid	
Lead	
Hair Tonics and Dyes	
Lead	
Sulphur	
Silver salts	
Pyrogallol	
Bismuth	
Arsenic	
Salicylates	
Aniline derivatives	
Deodorants	
Solution of an aluminum salt (practically harmless)	
Depilatories	
Barium or sodium sulphide	
Thallium acetate	

The mimeographed outline prepared by Hanzlik<sup>2</sup> for the San Francisco Department of Health gives such instruction. Such an outline can be easily replaced or changed when necessary.

<sup>1</sup> Aikman, John. Strychnine Poisoning in Children. J. A. M. A. 95: 1661 (Nov. 29) 1930.

<sup>2</sup> Geiger, J. C. Cyanide Poisoning in San Francisco. J. A. M. A. 99: 1944 (Dec. 3) 1932.



Therapeutic accidents can be prevented by better written instructions and by more careful supervision of inexperienced interns and nurses. Parents must be warned when dangerous drugs are prescribed. Special safeguards must be thrown about all hypodermic subcutaneous and intravenous medications.

Medical science, having already reduced to a large degree the mortality rates in many childhood diseases, is looking for new fields in which advance can still be made. It seems to me that the profession and especially this section will find the problem here presented as worthy of its attention.

TABLE 5—*Caustic Poisons*

Hydrochloric Acid
Tinners acid (for mixing soldering fluid)
Hand and toilet bowl cleaners
Sink cleaners
Weed killers
Sulphuric Acid
Acid for refilling fire extinguishers
Electrolyte for lead storage batteries
Metal cleaners
Toilet bowl cleaners (acid sodium sulphate)
Nitric Acid
Metal cleaners
For wart removal
Phenol (Carbolic Acid)
Carbolic disinfectant soaps
Coal tar disinfectants and dips
Carbolated petrolatum and oils
Toothache remedies and other dental preparations
Oxalic Acid and Its Salts
Metal and wood polishes
Straw hat cleaners
Photographic materials (blue print and platinotype processes)
Ink removers
Rust removers
Bleaching preparations
Soluble laundry blue
Acetic Acid
Ink eradicators
Photographic hardeners
Shoe polishes
Metal polishes
Wart removers
Potassium and Sodium Hydroxide
Potash or lye
Paint and varnish remover
Washing and cleaning preparations
Dehorning preparations
Sink and drainpipe cleaners
Electrolyte for Edison storage batteries
Manicuring preparations
Silver Nitrate (Lunar Caustic)
Wart removers
Hair dyes
Silver polishing and plating compounds
Intensifiers for photographic work
Indelible marking inks
Ammonia
Ammonia water
Household ammonia
Cleaning compounds
Hartshorn liniments
Hair waving solutions

## SUMMARY

1 Too little attention is given to accidental poisoning as it occurs in children

2 More than 500 deaths from acute poisonings (gas excepted) occur yearly in the United States in children under 5 years of age. Practically one half of these occur during the second year of life and one fifth during the third year.

3 Poisoning presents special problems as to diagnosis and may be overlooked.

4 Strychnine poisoning due to brightly colored sugar-coated cathartic and tonic tablets causes more deaths in children than any other poison.

5 In order to reduce these accidents the public must be informed of the dangers of poisons kept within reach of children.

6 The contents of articles containing poisons should be placed on packages and poison labels required by law.

7 Better instructions regarding accidental poisoning should be given in medical schools and hospitals.

184 Alexander Street

## ABSTRACT OF DISCUSSION

DR S W CLAUSEN, Rochester, N Y. Dr Aikman's contribution demonstrates that physicians have much to do in preventing death from accidental poisoning. In the training of medical students, toxicology has been slighted in some schools. Whether or not this subject is taught in preclinical years, the responsibility for instruction in practical toxicology rests on the clinical teachers. We include in our final examinations in pediatrics a question on the source, symptoms and treatment of the commoner poisonings in children. We also provide in our emergency department copies of the *Outline of Symptoms and Treatment of Poisoning* by Hanzlik and Leake. To teach the prevention of poisoning, we insist that wherever possible active poisons be not prescribed where less active poisons or nontoxic substances will suffice. For example, in the treatment of ammonia dermatitis (diaper rash), we prescribe a diaper rinse of boric acid, instead of one of mercuric chloride. To keep poisons away from children, it might be wise for the physician occasionally to inspect the family medicine cabinet. Difficult as it is to interest medical students in legal matters, an effort should be made in our schools to promote interest in legislation designed to enforce proper labeling of dangerous articles, such as lye, ammonia and insecticides, and to regulate the sale directly to the public of poisonous proprietary medicines and cosmetics.

DR C W WICKOFF, Cleveland. I have had only two cases of aloin, belladonna and strychnine tablet poisoning. One patient died in strychnine convulsions, and the poisoning of the other was discovered in sufficient time to allow early and effective lavage, so that the child had only a slight increase in muscle tonicity and an enteritis. Proprietary phenolphthalein tablets are the most commonly selected by children. The color is attractive and the odor and taste are pleasant. This past winter such a case was reported in *THE JOURNAL*. The child died in convulsions. Fortunately, zinc stearate powder inhalation pneumonias have been greatly decreased in the last few years because of the educational efforts of pediatricians and the manufacturers arranging a spring slide top on the container. Boric acid poisoning is not uncommon. The pound package is nearly identical with that of lactose. Others are corrosive mercuric chloride tablets, selected by children because of the attractive blue color, also tincture of iodine used in place of mild silver protein because of the similarity in the size of the bottle and the color of the contents. I believe that all physicians should make it a routine practice to caution emphatically the parents of runabouts and older children as to the dire results of accidental drug and chemical poisoning, and that all medicines and household chemicals should be kept in a locked cabinet out of the reach of children. This section might go on record as recommending to the Council on Pharmacy and Chemistry and the Bureau of Investigation and to the American Academy of Pediatrics that immediate and definite action be taken with the manufacturers, wholesalers and retailers in regard to the contents and labels and containers of all the more commonly used drugs and chemicals, and that physicians be instructed to caution parents.

DR JOHN AIKMAN, Rochester, N Y. It is important that the public be informed regarding the hazards of poisoning. Proper legislation also will reduce these accidents. I attempted to get some action on strychnine poisoning three years ago and there was one editorial written which promised support, but little has been done. Children make a great effort to get into poisons. They go out of their way to get them. I had the experience one hot Sunday last summer of having to wash out the stomach of a five-year-old boy who had eaten a whole package of E-X-LAX tablets that he had taken from a locked

bureau drawer. The chief danger comes from strychnine and the other pills disguised with sugar coating. The bright color of the sugar coating imitates candies. I think it is a very vicious thing to have tablets and medicines that imitate candy, because they make a dangerous trap for the innocent child. One wonders how much the pediatricians need to use strychnine. It has been shown quite definitely that strychnine in the cathartic tablet is not necessary. It is simply a shotgun prescription handed down from years back. It would be quite a job to get the manufacturers to reduce the sale of such tablets unless they can see that some other cathartic will sell better.

## CARBON MONOXIDE POISONING

HARRISON S. MARTLAND, M.D.

NEWARK, N. J.

Highway accidents and asphyxiations from carbon monoxide greatly exceed all other forms of violent death and the investigation of such deaths constitutes a very large and important part of the medical examiner's work.

It is now a well known fact that in the United States the automobile causes about 30,000 deaths a year and injures close to a million, with a resultant cost of many billion dollars per year. Furthermore, in the last five years little has been accomplished in the prevention of such accidents.

The total number of deaths from carbon monoxide is more difficult to estimate, since, in many localities, bureaus of vital statistics and departments of health separate suicidal from accidental asphyxiations. Further, the very low ebb to which forensic medicine has sunk in this country, owing to an ancient, politically bad coroner's system, renders investigations inaccurate and often of no value.

It may be roughly assumed, however, that there are 50,000 asphyxial deaths a year in this country, approximately 1,000 every week, and that about one half of them are caused by carbon monoxide.

In New York City, where the population is about 7,000,000, statistics are of real value, since all such deaths are reported to and investigated by the office of the chief medical examiner.

During a five year period (1928-1932) there were 5,289 deaths from carbon monoxide poisoning, an average of over 1,000 deaths a year, as shown in the accompanying table. As a cause of violent death it is exceeded only by highway accidents, which, for the same period, averaged 1,400 a year.

Certainly more than half of such deaths throughout the country are accidental and due, on the one hand, to such factors as faulty and leaky gas fixtures, carelessness and intoxication, and, on the other, to a lack of interest on the part of the public, the hospital authorities and the medical profession in quick, competent resuscitation methods.

### THREE MAIN SOURCES OF CARBON MONOXIDE POISONING IN CIVIL LIFE

In civil life by far the most common source of danger is the inhalation of illuminating gas. In 5,289 deaths from carbon monoxide in New York City, 5,090 were

caused by illuminating gas, 102 by automobile exhaust, 74 by coal gas and 23 from all other sources.

**Illuminating or City Gas**—Illuminating gas, as now used, is a mixture of "coal gas" made by the destructive distillation of coal, containing about 7 per cent of carbon monoxide, and "water gas" made by blowing steam through hot coal and containing about from 40 to 50 per cent of carbon monoxide. This mixture contains usually about 20 per cent of carbon monoxide. Illuminating gas composed chiefly of coal gas contains much less carbon monoxide and is distinctly less dangerous.

**Exhaust Gas**—Exhaust gas contains the products of combustion escaping from the exhaust pipes of automobiles, motor boats and airplanes. These vehicles are all run by engines of the internal combustion type, in which the explosion within the cylinders occurs in the presence of gasoline containing 85 per cent carbon and 15 per cent hydrogen and air containing 80 per cent nitrogen and 20 per cent oxygen. Theoretically a motor operating with 100 per cent efficiency would present no carbon monoxide in the exhaust. However, since this is impracticable, the gas is present in direct proportion to the inefficiency of the engine. In an average rich mixture the carbon monoxide content may reach as high as 7 per cent, in leaner mixtures it is proportionately less.

Henderson<sup>1</sup> has shown that the average car in a small one-car garage will raise the carbon monoxide content of the air in five minutes to 0.25 per cent, which is not only enough to paralyze a man in a few minutes but to cause death if preventive measures are not taken quickly. If the engine is raced, so frequently the modus operandi of suicides, death will ensue with extreme celerity.

**Coal Gas**—Coal gas contains carbon monoxide that escapes into the air from the improper combustion in any stove or apparatus which burns coal, wood, charcoal or coke. It is especially apt to be present in banked coal fires, in which the air supply has been checked and a top layer of fresh coal has been added. Carbon monoxide again is formed in the top coal layers, where it may be seen burning with a pale blue flame above the layer of black coal. Much of the carbon monoxide escapes into the air and in the event of ill fitting flues the house to a greater or less extent becomes permeated. The recent tragedy among the Dartmouth students occurred in such a manner following the insidious escape of gas throughout the night into the sleeping rooms. Because of the extreme cold weather, all the windows had been closed.

### OTHER MORE UNUSUAL SOURCES OF CARBON MONOXIDE POISONING

Improper combustion in any apparatus burning coal, wood, oil, gas, charcoal or coke, or in conflagrations and smoke, may occasionally be responsible for asphyxial death.

Inefficient exhaust pipes may lead carbon monoxide into the cockpit of an airplane in amounts sufficient to affect the pilot.

Sailors entering "blisters" (the false, external hulls of battleships, designed for torpedo defense) or submarine pontoons (metal drums used for raising sunken submarines) may be overcome and occasionally are killed by carbon monoxide.

<sup>1</sup> Henderson, Yandell. The Dangers of Carbon Monoxide Poisoning and Measures to Lessen These Dangers. Report 1 of the Committee on Poisonous Gases. J. A. M. A. 94: 179-185 (Jan. 18) 1930.

Read before the Section on Miscellaneous Topics, Session on Forensic Medicine at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.  
From the office of the Chief Medical Examiner of Essex County (Newark), N. J., and the Department of Forensic Medicine, New York University and Bellevue Hospital Medical College.

In times of war, asphyxial deaths due to carbon monoxide may occur in turrets filled with explosive gases from recoiling guns, machine gun pits, tanks, engine rooms of small war craft, and with the bursting of high explosives

#### SINGLE EXPOSURE TO LETHAL AMOUNTS

*Suicidal Asphyxiations*—The inhalation of illuminating gas is the most common method of committing suicide in the majority of civilized countries, because of its accessibility, cheapness and supposed freedom from pain

In my district nearly one half of the suicides are executed in this manner, other methods of suicide, in the order of frequency being hanging, jumping from buildings, shooting, poisoning, cutting, stabbing and drowning

The number of suicidal asphyxiations from carbon monoxide would be much larger if many probable suicides were included which, because of a reasonable doubt or from lack of proof, had to be classified as accidental

*Deaths from Carbon Monoxide Investigated by Chief Medical Examiner of New York City for Five Year Period 1928-1932*

Year	Derived from Illuminating Gas			Derived from Automobile Exhaust			Derived from Coal Gas			Unusual Sources
	Accidental	Suicidal	Homicidal	Accidental	Suicidal	Homicidal	Accidental	Suicidal	Homicidal	
1928	567	520	3	12	1	0	14	0	0	1
1929	502	582	11	14	0	0	17	0	0	6
1930	413	616	13	12	1	0	22	0	0	1
1931	293	636	12	16	6	0	10	0	0	3
1932	262	649	6	25	15	0	11	0	0	12
Total	2,042	3,003	45	79	23	0	74	0	0	23
Grand total	5,289									

In New York City of 7,219 consecutive suicides reported to the Medical Examiner's Office, 3,003, or 41 per cent, were accomplished by illuminating gas, eight by automobile exhaust and none by coal gas. The small number of automobile exhaust cases may well be explained by the relative scarcity of one car garages and the great difficulty in deciding whether death was suicidal or accidental. Since there has been considerable publicity concerning the danger of running a motor in small garages, it is my opinion that most asphyxiations by automobile exhaust are suicidal in nature. In no other form of suicide can the circumstances of an accident be so closely mimicked as in the individual garage cases. Often the reliance of an astute insurance company clarifies the case when the question of payment of a double indemnity accident policy is later raised.

The suicides from illuminating gas are performed in a great variety of ways, some by turning on gas fixtures and flooding the room with gas, some by placing such instruments as paper cones and flexible hoses with or without funnels in or near the mouth, and others by leaning over gas ranges and ovens. Regardless of the method, the effect is due to unburned gas in the inhaled air.

Resuscitation methods are of little avail in most of these cases, since a suicide usually performs the act secretly and without publicity. Rigor mortis is often present when the body is discovered.

*Accidental Asphyxiations*—Likewise, nearly one half of all accidental asphyxiations are caused by carbon monoxide, the remainder consisting chiefly of accidental asphyxiation due to drowning and a miscellaneous group comprising asphyxia in the new-born from such causes as overlying, smothering, postural asphyxiations and aspiration of vomitus.

In 4,677 accidental asphyxiations in New York City in a five-year period (1928-1932), 2,222, or 47 per cent, were by carbon monoxide. The carbon monoxide was from illuminating gas in 2,069 cases, from auto exhaust in 79 cases and from coal gas in 74 cases.

Accidental asphyxiations by carbon monoxide are due to a great variety of causes, the most of which are such conditions as faulty and leaky gas fixtures, flexible and worn out gas hose, carelessness, intoxication, tripping over and disconnecting a gas hose, pots boiling over and putting out a gas fire, hot water heaters and stoves without flues and quarter meters. There is practically always a direct escape of unburned gas into the surrounding air.

Furthermore, in gas stoves and water heaters it must not be forgotten that carbon monoxide may escape into the air with every hole of the burner lit. The chilling of the flame when it comes into contact with a cooking utensil or pipe containing cold water may stop the combustion at its first stage and large amounts of carbon monoxide may escape, producing low grade intoxication characterized by such symptoms as headaches and occasionally in closed rooms may cause a gradual building up of carboxyhemoglobin in amounts sufficient to produce death. To avoid this, cooking utensils and water pipes should be just above, not in, the visible flame.

In a somewhat similar manner incomplete combustion in hot water heaters without flues may occur with the escape of carbon monoxide directly into the room.

It is in this group of cases that the greatest opportunity is offered for resuscitation by means of artificial respiration and the inhalationary treatment, since they are often found shortly after the onset of asphyxiation.

It is in these accidental asphyxiations that the most important role is played by preventive measures, such as education of the public regarding daily hazards of carbon monoxide, abolition of badly designed stoves, flexible tubing, quarter meters and similar apparatus, efficient inspection, supervision and control of household fixtures made necessary by the increasing use of gas for heating purposes, constant warning against the danger of starting cars in small, closed garages, and proper ventilation and health regulations for workers in large garages, with the possible use of flexible exhaust tubes on cars being repaired. Since all these precautions have been described in a classic manner by Henderson,<sup>1</sup> it is only necessary to enumerate the most important here.

Henderson further believes that a reduction in the amount of carbon monoxide in illuminating gas is desirable and if it could be cut to one half without increasing the price it would greatly reduce accidental asphyxiations. The discovery of a less poisonous gas should be financially encouraged.

*Homicidal Asphyxiations*—Committing murder by turning on the gas is not common, but it occurs with sufficient frequency to warn the medical examiner not to dispose of gas cases quickly and carelessly, without careful investigations.

Most of the homicides by gas in my experience have been caused by a person committing suicide who kills another person at the same time, either accidentally or with homicidal intent.

In New York City during this five-year period forty-five homicides were accomplished by illuminating gas.

#### RESULTS OF THE MEDICAL EXAMINER'S STUDY IN CARBON MONOXIDE DEATHS

It is of prime importance, from scientific, therapeutic and medicolegal aspects, to recognize two main groups of cases: (1) bodies found dead as the result of carbon monoxide from illuminating gas, automobile exhaust, coal gas or other more unusual forms of carbon monoxide asphyxiation, (2) persons resuscitated so that respiration is restored and carbon monoxide eliminated but who never regain consciousness and die in coma from one to three days later or occasionally recover.

**1 Examination of the Body**—In bodies found dead as the result of carbon monoxide or in bodies of individuals dying a very short time after exposure, the most important and characteristic finding is the bright pink color of the skin and the postmortem lividity. This color is distinctive and not seen to such an extent in any other form of death. The face often appears natural, as if alive. Occasionally a similar color, although rarely so pronounced, may be seen in bodies exposed to extreme cold or following the ingestion of cyanide.

If the body is found lying on the back, this color will be most pronounced over the posterior parts. If the body is lying face down, the bright red lividity will be noted over the ventral surface and will shift in a short time to dependent parts if the body is turned over, provided the blood is still confined to the capillaries and postmortem decomposition has not set in.

It is important that physicians, especially ambulance surgeons, should recognize this typical color in gas poisoning and report all such cases immediately to the medical examiner.

If the medical examiner is satisfied as to the cause of death and contemplates releasing the body for burial without an autopsy, it is often wise to obtain a specimen of blood for the toxicologist by aspiration from the heart. The toxicologic examination of the blood often settles any argument as to the cause of death.

If such a body is exhumed several months or even years after death, carboxyhemoglobin may still be detected in the blood or in extracts of the organs, although the amount of saturation cannot be quantitatively estimated.

Usually the body of an individual killed by carbon monoxide remains in a state of good preservation, but I have occasionally seen instances in which the postmortem decomposition was very rapid.

**Autopsy**—At the autopsy of a body found dead from carbon monoxide or of an individual dying shortly after exposure, the outstanding finding is the bright pink to cherry red of the blood and all blood-containing organs. When the body is opened this color is so pronounced that it is characteristic of carbon monoxide poisoning. The right heart and large veins of the mediastinum are distended with bright red fluid blood containing no clots. The muscles, stomach, intestine, liver, kidneys and brain all show this same bright pink.

Other characteristic changes often present are pulmonary edema with bright pink foam in the air passages and cerebral hyperemia and edema. The cerebral arteri-

oles, capillaries and venules are frequently distended as in an injection preparation. Petechial hemorrhages occur sometimes, especially in the subcortical white matter.

**2 Clinical Course**—If breathing has been restored by artificial respiration and inhalational treatment, such as the administration of carbon dioxide and oxygen, carbon monoxide is almost entirely eliminated in a few hours and an examination of the blood for carboxyhemoglobin in amounts known to be toxic will often be negative.

The patient, however, may remain comatose and die in from one to three days or longer without regaining consciousness. Often in these cases futile attempts are made to save the victim, such as the giving of blood transfusions and methylene blue.

Occasionally the victim eventually recovers completely. Others may develop later some form of psychosis, or even idiocy. Postasphyxial encephalitic syndromes are more apt to occur in cases in which the original period of anoxemia has been a long one and inhalational treatment for quick elimination of carbon monoxide has not been used.

**Autopsy**—In the cases which result in death all chemical and spectroscopic tests for carboxyhemoglobin are negative. The correct diagnosis rests on the history of the case and the finding of bilateral degeneration in the globus pallidus of the lenticular nuclei (Kolisko's lesion), together with edema of the pia-arachnoid and parenchyma of the brain.

These bilateral areas of softening are usually from 1 to 2 cm in diameter, elongated, brownish, and grossly resemble areas of thrombotic softening. They are caused during the period of asphyxia by the resultant anoxemia. Their peculiar location has been thought by some to be determined by the sharp right angle made by the nutrient arteries supplying this portion of the brain and the increased tendency to thrombosis in carbon monoxide poisoning. They are seen best about the third day after asphyxiation.

Freeman,<sup>2</sup> who has studied these lesions histologically, states that the process begins with a rather selective anemic necrosis of the anterior portion of the pallidum, which soon breaks down and becomes infiltrated with blood. Leukocytes may be found in considerable numbers about the walls of the necrotic vessels. The main processes seem to be autolysis, fatty degeneration and necrosis.

In two of my recent cases, in which intravenous injections of methylene blue were given, typical bilateral areas of softening of the lenticular nucleus were found. On exposure to the air they turned a distinct blue, the rest of the brain remaining normal in appearance. This is a beautiful example and confirms the work of Burrows<sup>3</sup> on the localization in inflammatory areas of certain dyes injected into the blood stream. The other organs which showed discoloration by the methylene blue were those chiefly involved in its elimination, i.e., the bladder, which was a deep blue, kidney pelvis, ureters, mucosa of the stomach, colon and gallbladder which became bluish on exposure to the air.

Patients with these lesions often recover. Old healed cystic areas may sometimes be seen in patients dying from other causes years after exposure to carbon

<sup>2</sup> Freeman, Walter. *Neuropathology*. Philadelphia: W. B. Saunders Company, 1933. p. 239.  
<sup>3</sup> Burrows, Harold. *Some Factors in Localization of Disease in the Body*. London: Baillière, Tindall & Cox, 1932.

monoxide. The degenerated material has been taken up by microglia cells that have become ballooned with fat, pigment and iron. Cyst formation with connective tissue overgrowth and encrusted vessels is the common end stage.

In addition, other parts of the brain may be similarly affected, particularly the subcortical white matter and the putamen. Rarely are these areas visible to the naked eye, and precise methods of neuropathology are necessary to demonstrate them. Freeman<sup>2</sup> states that sometimes the diffuse fibrosis with marked formation of new capillaries may lead to gross deformity of the cortical architecture.

I had an opportunity recently of examining sections from the cerebral cortex of a patient who, during a tonsil operation, stopped breathing for several minutes, respirations were subsequently restored, but the patient never regained consciousness and died the next day. Extensive central chromatolysis of the neurons in the deep layers of the cortex with vacuolated cytoplasm and even ruptures of the cell membranes were found, clearly demonstrating the disastrous effect of prolonged anoxemia on the brain. This lesion would have been entirely missed and the cause of death not clearly established except for careful histologic studies.

Likewise in many cases of carbon monoxide poisoning the damage to the brain is more diffuse and extensive than the gross focal lesions in the corpora striata would lead one to believe. Only careful histologic study will detect the extent of the damage done.

Such lesions undoubtedly account for the psychosis, and in some cases imbecility, following carbon monoxide asphyxiation. It is interesting to note, however, that the parkinsonian syndrome rarely occurs in these cases, in spite of the location of the gross lesions, suggesting that there is something more to the syndrome of paralysis agitans than a focal lesion in the globus pallidus.

#### RESULTS OF TOXICOLOGIC EXAMINATION

While the external appearance of the body together with the results of the autopsy are usually conclusive in carbon monoxide deaths, this evidence should be supported in a routine way whenever possible by spectroscopic and chemical examinations of the blood for carboxyhemoglobin.

Samples of blood for the toxicologist should be taken from the heart chambers or from the interior of the body, since samples from the superficial veins might show traces of carboxyhemoglobin in a body that was dead before it was exposed to carbon monoxide. The blood should be placed in small vials, filled to the top and tightly corked. Properly preserved specimens may be kept for years. The toxicologist Gettler has one in his laboratory taken over twenty-nine years ago which still shows carboxyhemoglobin.

In exhumed bodies, blood may sometimes be obtained either from the cerebral sinuses or by maceration of organs in cases in which it cannot be procured easily from other locations.

Qualitative tests for carbon monoxide are very good. The changing of diluted normal blood to a brown or greenish brown does not occur after the addition of a small quantity of alkali, the original pink color being persistent. The spectroscope affords another test through the identification of carbon monoxide bands, but, contrary to some opinions, it is not highly sensitive.

In medicolegal work one should no longer be satisfied with qualitative tests. Quantitative estimations show-

ing the percentage of saturation in the blood, using preferably the methods of gas analysis devised by van Slyke, are essential for a proper interpretation of the case.

As to the amount of saturation necessary to produce symptoms it is usually stated in the literature, based chiefly on the work of Haldane and Henderson, that little inconvenience is felt until the blood is saturated about 20 per cent, that the saturation must reach 30 to 50 per cent to produce muscular weakness, incoordination and serious symptoms, and that it must be from 50 to 70 per cent to cause paralysis and death. If the saturation reaches 80 per cent it is rapidly fatal.

These figures unfortunately are based mainly on animal experimentation and Gettler<sup>4</sup> has never encountered in human beings a saturation higher than 65 per cent. It would seem improbable that a man could live long enough to show a saturation of 80 per cent.

In an analysis of approximately 2,000 human cases Gettler found that the saturation must reach from 18 to 20 per cent for symptoms to begin, a saturation of over 30 per cent is dangerous and most bodies found dead from carbon monoxide show a saturation of from 45 to 65 per cent. Deaths have occurred, however, with a saturation as low as 28 per cent.

These estimations of Gettler are being used constantly by the Medical Examiner's Office of New York City and Essex County as a basis for medicolegal testimony.

#### MODE OF ASPHYXIATION IN CARBON MONOXIDE POISONING

Death by inhalation of irrespirable gases is usually an asphyxiation, and one may, for instance, sign with accuracy a death certificate stating "Asphyxiation by illuminant gas, accidental, gas range, coffee pot boiled over."

Much, however, depends on the nature of the gas inhaled as to whether death is due to true asphyxiation, to some specific poisonous action of the gas, or to a combination of the two.

Henderson and Haggard<sup>5</sup> have called attention to two types of asphyxia that may be caused by the inhalation of noxious gases. In the first, which is caused by gases not usually considered as asphyxiants, for example, hydrocyanic acid gas, respiration is quickly stopped by their poisonous effects on the respiratory centers. The tissues are deprived of oxygen and the elimination of carbon dioxide ceases. In the second type, which is caused by the real asphyxiant gases, such as carbon monoxide, there is no cessation of breathing, except as a terminal event. The tissues are primarily deprived of oxygen but carbon dioxide continues to be eliminated and may be greatly depleted, as breathing with even more than normal vigor takes place. To the anoxemia is added a condition of acapnia.

It should be recalled that carbon monoxide is not truly a poisonous gas. Its fatal action is due chiefly to the replacement of oxygen. The gas itself is nonirritating and odorless.

Because the literature contains many vague references to thrombosis in carbon monoxide poisoning, recently there was called to my attention a medicolegal argument in which the so-called experts claimed that a gas asphyxiation from which the patient recovered was

<sup>4</sup> Gettler, A. O. Personal communication to the author.

<sup>5</sup> Henderson, Yandell and Haggard, H. W. Noxious Gases and the Principles of Respiration Influencing Their Action. American Chemical Society Monograph Series. New York: Chemical Catalog Company, 1927.

responsible for the later development of an ordinary attack of coronary thrombosis

#### TREATMENT OF CARBON MONOXIDE ASPHYXIATION

Henderson<sup>6</sup> has clearly shown that in asphyxiation by carbon monoxide the first stage is due to oxygen deficiency and the second stage to insufficient carbon dioxide caused by the rapid elimination of this gas. There is an associated compensatory decrease in the blood bicarbonates without great loss in the systemic alkali.

The treatment devised by Henderson and Haggard<sup>5</sup> has been so well established and has saved so many hundreds of lives that it must, for the present, be considered the method of choice. It is based on the restoration of an ample supply of oxygen and a normal amount of carbon dioxide, with a resultant normal relationship of oxygen, carbon dioxide and blood alkalis, causing the circulation, respiration, muscle tonus and mental status to return to normal.

On cessation of respiration, immediate artificial respiration by the prone pressure or other modern methods must be used. Such treatment as a mixture of oxygen and 7 per cent carbon dioxide administered by rescue squads, or up to and even higher than 10 per cent administered by qualified physicians, may be followed and continued after arrival at the hospital.

Blood transfusion, hypodermic medications, respiratory stimulants and intravenous injections are not necessary. A striking demonstration of the effectiveness of the treatment devised by Henderson and Haggard may be noted in the reduction of deaths from accidental asphyxiation in New York City during a period of five years, as shown in the table. This reduction is also due to such factors as the efforts of the Society for the Prevention of Asphyxial Deaths and better inspection of leaky fixtures by the department of health.

If respirations have been restored and carbon monoxide eliminated but the patient still remains unconscious, the treatment of the cerebral edema may be of some benefit.

The injections of methylene blue are not an antidote for carbon monoxide poisoning, since they cause the formation of methemoglobin and still further reduce the capacity of the red cells to absorb oxygen. Such injections are not only useless but may be distinctly harmful from their additional toxic effects.

#### SINGLE OR REPEATED EXPOSURE TO SMALL AMOUNTS OF CARBON MONOXIDE

The "Normal" Carbon Monoxide Content of the Blood—Gettler and Mattice<sup>7</sup> have recently investigated the carbon monoxide content of the blood in supposed normal individuals. They state that an ideal normal individual should have no carbon monoxide in his blood but that the average person under ordinary conditions is exposed so frequently that it is not possible to regard him as being carbon monoxide free unless procedures are employed that are suitable only for the detection of large amounts. They found that the hemoglobin saturation in twelve inmates of a state institution in an ideal rural locality was usually less than 1 per cent, while the blood of eighteen persons living in New York

City under conditions of minimal exposure ranged from 1 to 15 per cent. The saturation, however, in twelve street cleaners in New York City averaged about 3 per cent, and two taxicab drivers were found on several occasions to have a saturation of from 8 to 19 per cent. They also found that tobacco smoking appreciably increases the carbon monoxide in the blood and cannot be ignored in the interpretation of laboratory results.

*The Danger of Small Amounts to Motorists*—The evidence of the existing suspicion that some of the minor ailments such as weakness, dimming of vision, and nausea, especially common in people riding in improperly ventilated cars, may be caused by small amounts of carbon monoxide, had not been proved until recently.

The first complete study of gasoline propelled vehicles from the standpoint of combustion has recently been made in Connecticut by White,<sup>8</sup> an engineer. The investigation was later confirmed in Massachusetts.

Briefly, the survey consisted in determining (1) the efficiency of combustion of 250,000 automobile engines and (2) the gas analysis of the interior of numerous automobiles "flagged" on the road. Sixty per cent of cars in general operation contained measurable quantities of carbon monoxide and 7 per cent contained it in sufficient quantities to cause collapse of the driver with exposures of four or more hours.

The carbon monoxide usually enters the interior of the car from its own motor or from one preceding it on the road. The increase of carbon monoxide in the car may result from obvious causes, such as a poorly adjusted engine or an ill fitting exhaust pipe.

Although carbon monoxide is odorless, sharp exhaust odors attest that there is improper combustion and furnish a priori evidence of the presence of carbon monoxide.

It is highly possible that in some of the 85 per cent of all automobile accidents with undetermined causes the dulling of the reaction time, when quick coordinated movements are required, may be due to small amounts of carbon monoxide.

In a recent case of mine, a driver in a completely closed truck drove his vehicle into the back of a parked car for apparently no reason. The assumption was that he had fallen asleep. At autopsy, in addition to the obvious traumatic injuries, a pink lividity of the body and a cherry red color of the blood were noted. The latter was subsequently shown to have a 20 per cent carbon monoxide saturation.

#### THE SO-CALLED CHRONIC CARBON MONOXIDE POISONING

A condition similar to overtraining in athletes, noted in mechanics in automobile repair shops, workmen in gas plants and blast furnaces, and cooks working in small, badly ventilated kitchens, and characterized by such conditions as impairment of general health, nervousness and ill temper, has been attributed by Henderson<sup>1</sup> to exposure to small, more or less constant amounts of carbon monoxide. However, the frequent incidence of such minor ailments in other conditions, notably alcoholic conditions, loss of sleep and chronic diseases, will always make this a moot question, and unfortunately will open another opportunity for the compensation lawyers and physicians.

<sup>6</sup> Henderson, Landell. *Fundamentals of Asphyxia*. J. A. M. A. 101: 261-266 (July 22) 1933.  
<sup>7</sup> Gettler, A. O. and Mattice, Marjorie R. *The Normal Carbon Monoxide Content of the Blood*. J. A. M. A. 101: 92-97 (Jan. 14) 1933.

<sup>8</sup> White, L. T. *Carbon Monoxide in Automobiles*. *Travelers' Standard* 22: 41-52 (March) 1934. New England Safety Council, Boston, May 1, 1934.



## ABSTRACT OF DISCUSSION

DR J N PATTERSON, Cincinnati I want to ask Dr Martland the method he used in determining the percentage of saturation of carbon monoxide in the blood, also what he thought of the accuracy of the pyrogallic-tannic acid outfit put out by the Bureau of Mines of Pittsburgh in determining the percentage of saturation of carbon monoxide in the blood

DR ALEXANDER O GETTIER, New York In the laboratory with which I am connected we use the van Slyke method for quantitative analysis When the amount of carbon monoxide is expected to be large, in bodies with pink coloration, we use the ordinary van Slyke method for measuring the volume of the liberated carbon monoxide For very small amounts of carbon monoxide we make use of van Slyke's manometric method

DR WILLIAM D McNALLY, Chicago When the body has been dead for thirty-six hours to a week, the blood is dark and the colors cannot be compared When the blood is old and dark, the carmine method or the dilution test cannot be used That statement is based on thousands of examinations of blood for carbon monoxide

DR HARRISON S MARTLAND Newark, N J All analyses are referred to the toxicologist A technic devised by Dr Gettler, based on the well known gas analysis of van Slyke, is being used

THE ADEQUACY OF TREATMENT IN  
THE CONTROL OF SYPHILIS

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The public health aspects of an attack on disease focus on two problems first, the adequate treatment of existing cases so that they cease to be a menace to the individual infected or affected and to those about or in intimate contact with him, and, second, the prevention of the development of new cases The latter problem, far more important, is already an accomplishment in many infectious diseases Unfortunately, some of the most serious public health problems present insuperable difficulties in control Because of its unique natural history, the manner of its acquisition, the long duration of its potential dangers, and for many other reasons, the prevention of syphilis as a public health measure is perhaps the most difficult problem of all

To be sure, in time of national emergency, as during the late war, wonderful advances were made in the prevention of the spread of syphilis among the soldier population These were accomplished, however, under conditions not applicable to civil life and by means which could be applied only to large groups of men operating under military laws Further, while indirectly protecting the whole population, the laws were primarily concerned with the problem of keeping the male portion and only that part of military age free from infection

This paper will concern itself with another phase of syphilis control, namely, the adequacy of modern methods of treatment in preventing the late sequelae of the disease The full discussion of this problem quite naturally involves a taking of stock as it were, of the advances made in the armamentarium of treatment which have occurred within the past few years Have

these indeed advanced with the frontiers of knowledge concerning syphilis, biology, pathology and natural history? Is the profession better prepared today to treat syphilis than heretofore, and can it prevent those late sequelae which up to now are the evidence in part at least of the inadequacy of its previous efforts?

With regard to the first question, I believe it may be said that, although advances have occurred in methods of treatment, these are in no way comparable to those which have enhanced knowledge of the clinical, pathologic and biologic aspects of the disease The treatment of syphilis is still in a state of experimental flux Each year sees some new drug or modification of older methods advanced as the last word and each in turn is either rejected as useless or, after due trial, accepted as possibly adding something to accepted methods In the last two or three decades the arrival of arsphenamine has been heralded a cure at one dose of neoarsphenamine and silver arsphenamine adjoined improvements over the older drug, of bismuth, arsphenamine sulphonate and countless others, each falling far short of the anticipated promises, many rejected entirely, the remainder now carefully weighed as to what may be expected of them and added to the pre-existing armamentarium at the physician's disposal To these may now be added the definite advances achieved by the substitution of bismuth salts for those of mercury, and the application of fever therapy, artificially induced, in the treatment of neurosyphilis accidents

Among all the advances, one thing stands out as an axiom unchanged through centuries, that the basic ground, the understructure on which all treatment must be laid down, is the continuous use of a heavy metal With all the kaleidoscopic changes that have occurred in the management of syphilis, the continuous use of mercury and more latterly bismuth has been the most constant factor, and around this the modern syphilologist, until something better appears, must build his attack Looking back over the development of methods of treatment and changes in drugs used, it may safely be said that what is now set forth as adequate or as the best treatment today may well be discarded in the near distant future, as have older methods in favor of those in use today The last word in the treatment of syphilis is still unspoken, and the ultimate solution and the successful search for a cure comparable to that which exists for certain other infections is, I believe, something to be attained in the very remote future

The answer to the second query, Are physicians better prepared by modern methods of treatment to prevent the late sequelae of the disease? may unhesitatingly be answered in the affirmative While practically any system of the body may be and frequently is attacked as a late sequel, those which are economically and physically the costliest are the accidents in the cardiovascular system, the late neurosyphilitic lesions and the multifarious manifestations which characterize the cases of heredo or congenital syphilis The most recent investigation and thought on these dreaded complications leads to the conviction that they are for the most part preventable accidents

During the past few years, a detailed study of clinical syphilis has been undertaken by five cooperative clinics under theegis of the United States Public Health Service The many thousand cases seen in these several clinics have been pooled and most valuable information concerning treatment, course, complications, prog-

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nosis, effect on pregnancy, and many other phases of the disease have been gleaned and published. The results of these joint studies and a personal experience of over a quarter of a century convince me that the important factor in the causation of late accidents is inadequate treatment during the first year of the infection. Thus, the analysis of any group of late accidents, let us say of a thousand cases of cardiovascular syphilis or neurosyphilitic disease, would show a negligible percentage of these cases to have received an adequate treatment program. By adequate is not meant ideal treatment carried on over a period of two or three years, but a few months of energetic treatment with a combination of arsphenamine and heavy metal. A large number of the group indeed are represented by patients who have received no treatment whatever. Of these many again would be shown to have been misdiagnosed or unrecognized by the physicians, either passed off as soft sore (chancroid, herpes) or dismissed as nothing at all of consequence. This group thus left to infect others and to develop disabling late sequelae involving economic dependence, and in many cases premature death, are definitely preventable in the great majority, and their occurrence is an indictment against medical practice. It must be admitted, however, that a not inconsiderable number of patients with late accidents escape diagnosis and treatment not through the carelessness of the physicians but because of the unfortunate tendency of syphilis occasionally to occur early as an occult infection.

The chancre is not always an obvious phenomenon and not infrequently secondary manifestations occur in so evanescent a manner that they escape both the patient's and the physician's attention. This occult type of infection is particularly common in conjugal syphilis in women who contract their infection from a latently syphilitic husband.

The occurrence of late sequelae in this group could be prevented or cut down in numbers only if periodic health examinations, including a serologic test of the blood, were made at intervals and became a matter of general practice. Needless to say, such an examination would result in an enormous saving of life and in prolongation of economic usefulness, not only by the detection of occult syphilis but in the early diagnosis of many other organic diseases.

While the occult infected cases represent an appreciable proportion of the whole, one gains the distinct impression that the infection was either known and not treated or inadequately treated in the large majority of the cases of late sequelae.

The tremendous importance and influence of energetic adequate treatment as a preventive measure against late accidents is further borne out by the common experience of syphilologists who over a long period of time have been able to follow their adequately treated cases through years of good health and who can testify that but a very small number of such patients contribute to the group of late accidents. This has been my personal experience and I believe it is that of others having equal or longer periods of observation of such cases.

Mention has been made of adequate treatment, and it seems that this should be defined more accurately. Adequate treatment is that amount over a specified time which has served to protect the average patient from recurrence. In a sense it is empirical, but the cooperative studies have shown that a very fair degree

of protection is conferred by an amount of treatment very short of what may be considered ideal. Thus, from twenty to thirty injections of arsphenamine and perhaps double the number of injections of a bismuth compound have been shown to confer a very high rate of protection in a large group of early cases against recurrence and late accidents. This amount, however, should not be taken as axiomatic of all that may be required or approaching even the ideal. The weekly treatment over two or preferably three years with an insoluble bismuth preparation, prefaced by several courses during the first years or eighteen months of arsphenamine, is a safer course for the average physician to pursue. The damage to vital tissues does not begin late in the course of the infection. The trail is blazed in the septic period of the disease. It is in this stage that vital structures, the heart, the great vessels, the brain and the cord and all the viscera are invaded.

It is a peculiarity of *Spirochaeta pallida* to provoke a low grade of infection, which progresses very slowly, particularly in parenchymatous tissue and in blood vessels, thus producing a period of quiescence or latency that is equaled by no other disease and surpassed only by leprosy. It is for this reason that so many years elapse between invasion of an organ or tissue and its subsequent dysfunction from fibrous displacement or degeneration.

The energetic treatment in the invasive period, therefore, is the watchword or the best preventive measure against late tissue damage. During the early weeks and months, treatment must be vigorously and relentlessly carried out. If the early manifestations were resistant to treatment and not so easily masked by it, the prognosis would be vastly better. The ease and rapidity of the disappearance of early lesions is a factor tending to make light the seriousness of the infection to the patient and frequently undermines the vigor of the therapeutic attack on the part of the physician.

With regard to cerebrospinal late accidents, much valuable knowledge has come during the past two decades through the routine procedure of lumbar puncture during the early weeks of the infection. By this procedure it can be definitely established that cases of late cerebrospinal accident can be detected in their incipency by changes in the spinal fluid. Conversely, it can be determined that in the main, if a patient's spinal fluid remains negative during the first year, the integrity of his nervous system is preserved and he will not fall into the group having late neurosyphilitic accidents. The demonstration of early neurosyphilis, however, calls for energetic treatment not only to the constitutional infection but directly to the system involved. The institution of one form or another of intraspinal treatment in the early period, along with the constitutional treatment, has been shown definitely to protect the individual against a late neurosyphilitic accident. Too much emphasis cannot be placed on the necessity for early and repeated lumbar puncture during the first year of the infection, not only as a diagnostic measure but as an invaluable guide to the prognosis, as pointing to involvement or integrity of the most important of all systems.

Of tremendous importance and of real therapeutic merit has been the introduction of fever therapy into the therapy of late neurosyphilis. The contribution of Wagner von Jauregg of the induction of artificial malaria in the treatment of dementia paralytica has been the outstanding therapeutic procedure of recent times.

Not only has it been extremely successful in the treatment of selected cases of brain syphilis but it has led to a much earlier diagnosis and has been found to be extremely useful somewhat outside the field for which it was first suggested. Although the information concerning its use was given to the profession only a few years ago, the theory was not hastily conceived but was based on observations extending over a long time.

The extraordinary results occasionally achieved by malarial therapy have led to the conviction in many minds that much of what was formerly regarded as dementia paralytica possibly falls into some other groups of brain syphilis. It seems now fairly established that the syndrome of dementia paralytica involving confusion of ideas and disorientation, together with the characteristic spinal fluid changes, can really be induced by syphilitic encephalitis and occasionally even by cases of cerebral edema associated with syphilitic leptomenigitis. Cases of the latter may present forms of psychosis involving character changes and behavioristic phenomena that closely simulate those due to actual degeneration encountered in late dementia paralytica. The very prompt recovery of some of these patients under malarial therapy can mean only that one is dealing with a much more acute process than occurs in dementia paralytica. I believe that out of these cases will come a clearer concept and differentiation between true dementia paralytica and cases of syphilitic psychosis with active cortical lesions.

However, it seems now evident from the cases treated with malaria that even in advanced dementia paralytica much of the confusion, disorientation and other maladjustments that make up the syndrome may not be due to permanent damage in the form of degeneration. In part, at least, they must be due in those cases which show recovery or partial recovery to acute inflammatory or edematous processes which are absorbed or disbursed as a result of the malarial treatment.

As so frequently happens with a new remedy, the malarial treatment has been found of equal usefulness in other forms of neurosyphilis. My own experience leads me to regard it as of equal value in the treatment of selected cases of tabes, notably those with intractable foot pains and various forms of visceral crises which are so resistant to other forms of treatment. In these types of cases, as well as in diffuse types of cerebrospinal syphilis, it has been possible in selected cases to achieve most happy therapeutic results.

The literature during the past few years is replete with other forms of fever-inducing agents which, it is hoped, are improvements on the induction of artificial malaria. Time does not permit me to go into detail into the results of the treatment of neurosyphilis, both late and early, with fever induced by other agents, both physical and biologic. From the increasing reports, it would seem that fever itself induced from any source, either in paroxysms or continuously, is of some value in the treatment of neurosyphilis. I am still unconvinced, however, that the various newer forms of fever induction have thus far demonstrated any great advantage over the use of malaria, and I am satisfied from my own experience that the fever induced by ordinary bacteria or their products in no way compares with the results achieved by malarial inoculation.

Perhaps a word of caution might here be injected regarding the risks of fever therapy. There are certain definite contraindications to its use, particularly advanced age, cardiac lesions and other organic dis-

ease. Even under the most careful selection, the treatment occasionally not only fails but under certain circumstances may be attended by a fatal outcome.

During the last few decades there has been a great advance in the methods and results of treatment in that large group of innocent victims of syphilitic disease who acquire their infection in utero. Much valuable information has been gained concerning the treatment of the expectant syphilitic mother, and it can definitely be stated that, in the majority of cases in which the treatment is begun during the early months of pregnancy, not only are the chances of a living child enormously enhanced but the many developmental structural defects as well as the active syphilomas that characterize the syphilized child can be definitely prevented. The intelligent treatment of a syphilitic mother and the effect of this treatment on the unborn child, as carried out along modern lines, represents a most gratifying stride toward therapeutic effectiveness. It is safe to predict that, if physicians at large applied to the treatment of syphilitic expectant mothers the principles laid down as a result of the studies of the cooperative group, the vast numbers of syphilitic children seeking relief from the unfortunate sequelae of their inherited infection would be enormously decreased, as would also the fetal mortality from intra-uterine infection.

Considerable progress has been achieved also in the successful treatment of children not treated during intra-uterine life but developing the stigmas and manifestations of intra-uterine infection and presenting themselves with the many-sided pictures, both developmental and active, of congenital syphilis.

Modern studies teach that even the worst case of interstitial keratitis, the most common and the costliest form of congenital syphilis, can be successfully treated and children restored to useful and independent life through the prolonged and energetic treatment of their condition. It is in these forms of congenital syphilis that a drum fire of attack must be directed against the infection. Not only are the arsphenamines and bismuth compounds necessary over a long period of time, but it is in these cases particularly that the iodides in combination with the others are of greatest use. Coupled with this form of treatment, there is special ophthalmologic treatment involving continuous miotics.

The unfortunate cases of blindness due to interstitial keratitis are for the most part preventable occurrences. Through long continuous treatment, at times attended by repeated recurrences, these conditions can be successfully treated and for the most part with a workable amount of visual restoration. Looking back over thousands of cases treated, I count as one of the happiest therapeutic results those cases in which syphilitic women through energetic treatment have given birth to healthy infants, and the hundreds of malformed and partially or totally blinded children, for the most part mentally normal, who have been restored to a useful and normal life through the prolonged use of modern methods of treatment.

As stated before, the treatment of syphilis is still in a state of constant flux. The happy results achieved during the last three decades as a result of the pooled experience of observers in different parts of the country, and as a result of newer methods involving not only new drugs and new procedures but also greater refinement in early diagnosis, lead to the conviction that the next few decades will see, if not the last word, at

least equally great progress in the treatment of already infected patients

The prevention of syphilis from the public health standpoint is a major problem deserving of the greatest effort on the part of the agencies concerned with the prevention of diseases

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## INTESTINAL PARASITIC WORMS IN THE UNITED STATES

### THEIR DIAGNOSIS AND TREATMENT

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The search for drugs for the expulsion of the large worms of man is very old. Old accounts list many drugs and heroic treatments devised to expel *Ascaris* and tapeworm. Since the hookworm epidemic among workers building the famous St Gothard tunnel some fifty years ago, many drugs for the treatment of hookworm disease have been introduced. The discovery by C W Stiles of the wide prevalence and pathologic significance of hookworm disease in this country and the organization by the Rockefeller Foundation of treatment campaigns against this disease led to the treatment of millions of cases. Likewise, large numbers of persons harboring *Ascaris*, whipworm, tapeworm and pinworm have been treated with various drugs. There are, therefore, certain groups who have had considerable experience in the treatment of these parasitic infestations. Much has been written about the drugs used in the treatment of these various infestations, but most of the articles are written for those specializing in the treatment of parasitic diseases and lack certain basic information that is necessary for those less acquainted with the various factors involved. For this reason, I have brought together in as concise a form as possible data which should be of help to the general practitioner in the treatment of individual cases of infestation by any of the common intestinal helminths found in the United States.

The ridding of a patient of intestinal parasites has for centuries been considered a serious procedure, and violent methods have been used to that end. One reads of long periods of pretreatment starvation and purgation, followed by the administration of the drug and then by another period of terrific purgation. Much of this treatment was felt necessary owing to the inefficiency of many anthelmintics, and it is not surprising that the treatment of intestinal parasites was carried out with a good deal of dread because of the danger of such procedures. All the older and more commonly used anthelmintics are occasionally quite toxic, and it is well known that each causes severe intoxication in certain individuals, this usually being ascribed to the idiosyncrasies of the patient. Although thousands of cases have been treated with some of these substances without a fatality or definite signs of intoxication, severe injury and even death have followed without any warning the administration of these anthelmintics in proper therapeutic amounts to apparently normal individuals.

During the past ten years there have been found for the treatment of certain types of intestinal helminths

several new substances which are fully as effective as any of the older remedies and which, as far as is known at present, can be given without fear of intoxication. On the other hand, there are no effective and safe drugs for all types of intestinal helminths. I shall outline the various treatments that have been found most effective and point out the dangers inherent in such forms of treatment.

For successful treatment of patients harboring helminths one must consider the life cycle of the parasite, the method for determining its presence, the substances that may be used most successfully against a particular parasite and the details of their administration, as well as methods of estimating the effectiveness of treatment. It should be remembered that these various species of parasites of such extremely different types must be considered and treated individually, for a drug that will remove practically 100 per cent of one type of parasite may be ineffective against another.

### DIAGNOSIS OF THE PRESENCE OF INTESTINAL HELMINTHS

Since all the common intestinal helminths to be described, with the exception of *Trichinella*, can be diagnosed by examination of the stool for the worms or their eggs, it is inexcusable to treat a person for worms unless a positive diagnosis has been made. Diagnosis of worms from symptoms alone is likely to be very inaccurate, and it is not at all scientific after such a haphazard diagnosis to subject a patient to treatment that may be very disagreeable.

The common intestinal helminths found in this country which I shall consider are the hookworm, *Necator americanus*, the roundworm, *Ascaris lumbricoides*, the whipworm, *Trichuris trichiura*, the pinworm or seatworm, *Enterobius vermicularis*, *Strongyloides stercoralis*, *Trichinella spiralis*, the beef and pork tapeworms, *Taenia saginata* and *Taenia solium*, the fish tapeworm, *Diphyllobothrium latum*, and the dwarf tapeworm, *Hymenolepis nana*.

The presence of these worms can be determined by (a) eggs in the stool, hookworm, *Ascaris*, *Trichuris*, *Diphyllobothrium*, and *Hymenolepis*, (b) eggs or segments in the stool, *Taenia saginata* and *T. solium*, (c) worms in the stool or about the anus of the patient at night, occasionally eggs in the stool, *Enterobius*, (d) larvae in the stool, *Strongyloides*, and (e) adult worms in the stool during the first week of infestation, or larvae in excised muscle and spinal fluid after the first week, *Trichinella*. Marked eosinophilia, diarrhea, muscle cramps and edema of the lids are important diagnostic aids.

The simplest method of finding eggs is to examine a fecal smear on a glass slide. In preparing a smear, a small bit of the feces to be examined should be mixed with water on an ordinary glass microscopic slide. The smear should be mixed with enough water so that ordinary print can be seen through it. If the smears are too dense, it will greatly lessen the chance of finding the eggs. The accuracy of the smear method depends on the number of slides examined. A single smear will disclose heavy infestations, but to detect lighter cases a number of slides must be examined. If no eggs are found by the smear method, it is well to stir up in a small container a gram of feces in 20 cc of saturated salt solution and allow it to stand for from fifteen to twenty minutes. The eggs will float up to the surface and can be transferred to a slide by touching the mouth

of an inverted test tube to the surface of the fecal flotation mixture. Unfortunately, operculate or porous eggs do not float in a salt solution, so this method is not satisfactory for the detection of *Diphyllobothrium* or *Taenia*. Since ascarids pass an enormous number of eggs, several negative smears indicate that no ascarids are present. One should, however, remember that in very rare cases one or more male ascarids may be present but overlooked, owing to the absence of eggs. Since hookworms, *Hymenolepis*, *Diphyllobothrium* and *Trichuris* pass fewer eggs than *Ascaris*, a more careful examination is necessary to prove the presence of these parasites. However, if several smears and the flotation examination are carefully carried out and no eggs are found, it may be assumed that the patient has no worms or that there are probably not a sufficient number present to be of pathologic significance. Those interested in diagnosing very lightly infested persons should refer to the method of Lane. His method, though very accurate, involves the use of apparatus too expensive for the average physician who has only an occasional case to diagnose.

The two tenias and the pinworm do not pass their eggs regularly and, because of this, several whole stools passed over a period of several days should be examined both macroscopically for tapeworm segments or adult pinworms and microscopically for eggs of both worms before one feels certain that none of these parasites are present. In case of negative stools a magnesium sulphate purge may often be of help in causing the passage of tapeworm segments or adult pinworms. In cases in which tapeworms and pinworms are suspected, it is well to instruct the patients to inspect their stools for segments or wormlike material, which should be brought to the physician. If the suspected material is unrecognizable, it can be macerated with water and examined microscopically for any contained eggs. Inspection of the perianal region an hour after the patient has retired will sometimes reveal adult pinworms, and perianal scrapings examined microscopically will often disclose pinworm eggs.

Many states have laboratories where fecal diagnosis is a part of the routine and where specimens may be sent for examination. The accompanying illustration of the different types of eggs is given for those unfamiliar with them.

#### PURGATION IN ANTHELMINTIC TREATMENT

Adequate purgation following most anthelmintics is of great importance and may aid in several ways. Macht and Finesilver<sup>1</sup> have shown that the absorption of many drugs is decreased by the administration of sodium sulphate solutions. Likewise, the purge may hasten the elimination of the unabsorbed anthelmintic or aid in its distribution along the intestinal tract, preventing local injury and allowing it to come in contact with worms far down in the intestine. The purgative should be given as early as is consistent with the efficacy of the anthelmintic, or sooner if safety requires it.

Purges should be given in large enough quantities to produce results, and it is inadvisable to give them in small or divided doses. In case the first purge does not act within three to four hours and the patient shows signs or symptoms of toxicity from the anthelmintic, purgation should be repeated and aided by enemas. One

must use judgment in this matter, however, for patients have been exhausted and their lives endangered by terrific purgation following anthelmintic administration. After the use of certain drugs, intestinal obstructions caused by *Ascaris* have been found at operation or autopsy, and no purge should be given to patients suspected of having intestinal obstruction. Violent purgation during pregnancy is contraindicated. The patient should not eat until the purge has acted. In persons whose bowels are constipated the intestinal tract should be opened up with a purge and enema the day before anthelmintic administration. A dose of 30 Gm (1 ounce) of magnesium sulphate is satisfactory for an adult. Children's doses can be calculated on a basis of 2 Gm of magnesium sulphate for 10 pounds (4.5 Kg) of weight, which is approximately a teaspoonful for each 20 pounds of weight. The salts should be dissolved in a glass of water, and I have found that children complain less when it is followed by a small amount of sweetened water to take the taste out of the mouth.

Some advocate the substitution of sodium sulphate for magnesium sulphate on the basis that sodium is less toxic than magnesium. Theoretically, this may be of importance in treatment with carbon tetrachloride wherein the calcium balance is important, as it is known that magnesium is antagonistic to calcium. Practically, however, many persons object to the disagreeable taste of sodium sulphate and it is difficult to persuade children to take a full dose of it.

#### HOOKWORM, *NECATOR AMERICANUS*

The adult hookworms are found throughout the small intestine, and the females pass from 5,000 to 10,000 eggs daily. These eggs passed out with the stool develop rapidly in moist, warm soil and in several days contain active larvae which force their way out of the egg shells and, after undergoing further development over a period of about a week, are capable of infecting man. Infection occurs when the bare feet or hands come in contact with the infective larvae, which penetrate the skin, effect an entrance into lymphatics or veins, and are carried to the right side of the heart. The larvae on being carried to the lungs rupture the capillaries and force their way into the alveoli. They migrate by way of the bronchi up the trachea to the pharynx, are swallowed and pass to the small intestine, where they attach themselves and grow to maturity. Adult worms are about one-half inch in length. The period necessary for the development of these parasites to the egg-laying age after infection is approximately six weeks. It has been shown that the hookworm obtains nourishment by sucking the blood of its host, and it is believed that hookworms live as long as several years.

Thymol, betanaphthol, oil of chenopodium, carbon tetrachloride and tetrachloro-ethylene have been given to hundreds of thousands of patients. Thymol in therapeutic doses often produces unpleasant symptoms, such as extreme dizziness and vomiting. Oil of chenopodium is a definitely toxic substance when given in an overdose. Given in the accepted therapeutic dose, it may cause many symptoms ranging from giddiness and dizziness to severe collapse and, in certain cases, its administration has been followed by death. Betanaphthol has been used less extensively on account of its well known toxicity. Carbon tetrachloride is very effective but may produce severe central necrosis of the liver, even in moderate doses. In spite of this, millions

<sup>1</sup> Macht D. I. and Finesilver E. M. The Effect of Saline Purgatives on the Absorption of Other Drugs. Bull. Johns Hopkins Hosp. 33: 330 (Sept.) 1922.

of persons treated with this substance have had no serious signs or symptoms, but occasional deaths are reported following its use, especially in debilitated or alcoholic persons. There seems to be no reason for using carbon tetrachloride in the treatment of hookworm disease, as tetrachloro-ethylene, which was introduced by Hall and Shillinger<sup>2</sup> and which belongs to the same series of halogenated hydrocarbons, is fully as effective and apparently nontoxic. Tetrachloro-ethylene has been given to enormous numbers of patients without any signs of intoxication. Lambert<sup>3</sup> recently reported the successful treatment in 46,000 cases, using from 28 to 40 cc of tetrachloro-ethylene in adults. In therapeutic doses, it produces no liver damage and, therefore, differs from carbon tetrachloride. The intoxications following carbon tetrachloride are secondary to guanidinemia following liver damage. Crystalline hexylresorcinol has recently been introduced into medicine as an anthelmintic, and, although it is less effective than tetrachloro-ethylene against hookworm, it has the advantage, as will be pointed out later, of removing also a high percentage of *Ascaris*. This drug will be discussed under ascariasis.

#### TREATMENT OF HOOKWORM DISEASE WITH TETRACHLORO-ETHYLENE

(a) *Preparation of the Patient*—No preliminary measures need be taken before treatment. If one wishes, one may give a light evening meal followed later in the evening by a saline purge, in the hope that the intestinal tract will be emptied and thus allow the drug to come in closer contact with the worms.

(b) *Administration of Tetrachloro-Ethylene*—Treatment should be carried out in the morning, and breakfast must be omitted. The usual adult dose of tetrachloro-ethylene is 3 cc, although some workers have given 4 cc to large numbers of persons.<sup>4</sup> Children may be given 0.2 cc for each year of age up to 15 years. The drug should be given in a single dose in either of the following ways:

1. A purgative of magnesium sulphate should be dissolved in half a glass of water and the liquid tetrachloro-ethylene added to this and the whole shaken up and swallowed at one time. Any of the drug adhering to the glass should be rinsed off with additional water and taken.

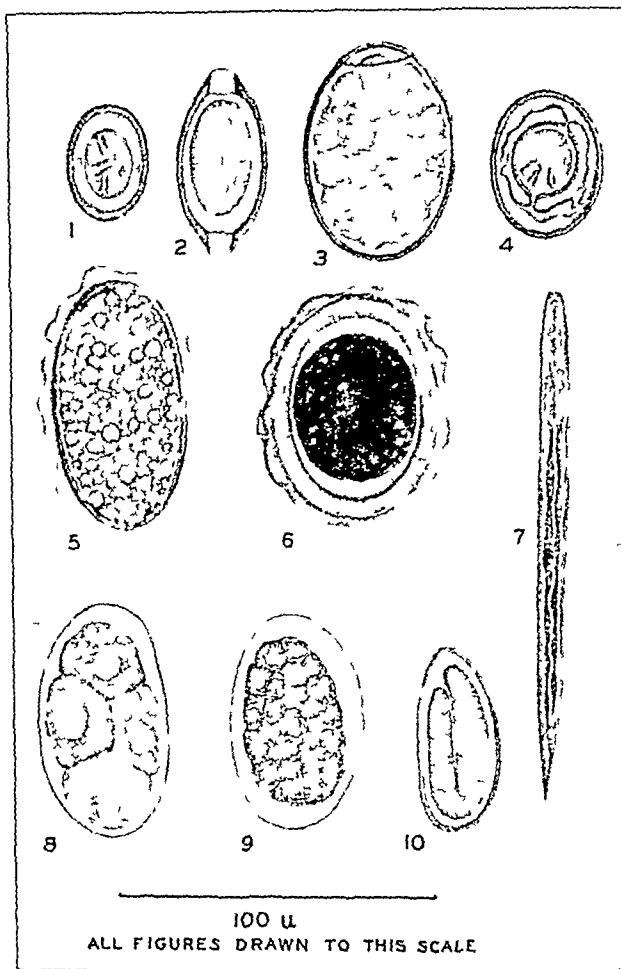
2. Tetrachloro-ethylene may be given in hard gelatin capsules followed at once by the magnesium sulphate purge. The patient should rest and wait until the purge acts before eating. In some cases a second purge may be necessary to produce a bowel movement.

(c) *Signs and Symptoms*—Pharmacologic studies<sup>5</sup> have failed to show any changes following reasonable doses of tetrachloro-ethylene that would indicate a toxic action. This substance, like chloroform, belongs to the group of anesthetics, and it is possible to anesthetize an animal completely by the inhalation of tetrachloro-ethylene vapor. It is obvious that in certain individuals absorption of tetrachloro-ethylene may take place and cause slight dizziness and feelings of giddiness such as one might feel after the absorption of any anesthetic.

This, however, should not be taken as an indication of intoxication, and the patient may be told that such slight disturbances may be expected.

(d) *Contraindications*—Although tetrachloro-ethylene is apparently nontoxic even after absorption, as shown by the absence of pathologic changes in dogs following its inhalation for several hours, it is well to avoid absorption and therefore best to refrain from taking fats or alcohol just before or just after treatment, as both of these substances are known to cause an increased absorption of similar compounds.

(e) *Efficiency*—A stool examination should be made about two weeks after treatment. This delay allows



Eggs and larvae of important American human helminths (Original by Mrs. J. T. Lipe). 1 *Taenia saginata* (*Taenia solium* is very similar). 2 *Trichuris trichiura*. 3 *Diphyllobothrium latum*. 4 *Hymenolepis nana*. 5 *Ascaris lumbricoides* (unfertilized). 6 *A. lumbricoides* (fertilized). 7 *Strongyloides stercoralis*. 8 *Necator americanus*. 9 *Necator americanus*. 10 *Enterobius vermicularis*.

time for any worms that may not be killed, but have had their egg-laying temporarily inhibited, to regain this function. If no eggs can be found in several carefully examined fecal smears or in a flotation preparation, the patient is, for all practical purposes, cured. Various workers report from 77 to 97 per cent of hookworms removed by a single treatment of tetrachloro-ethylene.<sup>6</sup>

<sup>2</sup> Hall M. C. and Shillinger J. E. Tetrachlorethylene a New Anthelmintic. *Am. J. Trop. Med.* 5: 229 (May) 1925.

<sup>3</sup> Lambert S. M. Hookworm Disease in the South Pacific. *J. A. M. A.* 100: 247 (Jan. 28) 1933.

<sup>4</sup> Lambert S., Maplestone P. A. and Mukerji A. K. Carbon Tetrachlorethylene in the Treatment of Hookworm Infection. *Indian M. Gaz.* 68: 617 (Nov.) 1933.

<sup>5</sup> Lamson P. D., Robbins B. H. and Ward C. B. The Pharmacology and Toxicology of Tetrachlorethylene. *Am. J. Hyg.* 9: 430 (March) 1929.

<sup>6</sup> (a) Kendrick J. F. The Treatment of Hookworm Disease with Tetrachlorethylene. *Am. J. Trop. Med.* 9: 483 (Nov.) 1929. (b) Schapiro Louis and Stoll N. R. Preliminary Note on the Anthelmintic Value of Tetrachlorethylene Based on Egg Counts Before and After One Treatment. *Am. J. Trop. Med.* 7: 193 (May) 1927. (c) Soper F. L. Tetrachlorethylene in the Treatment of Hookworm Disease. *Am. J. Trop. Med.* 6: 451 (Nov.) 1926.



TREATMENT OF HOOKWORM DISEASE WITH  
HEXYLRESORCINOL

Tetrachloro-ethylene is more effective than hexylresorcinol in the removal of hookworms and for mass treatment is the drug of choice. It does, however, produce a marked feeling of giddiness in many. For this reason, I feel that in the treatment of individual cases, especially children and debilitated and pregnant persons, hexylresorcinol is very useful. In therapeutic doses it usually produces no unpleasant symptoms, and those treated may go about their usual occupations. The purge is usually given twenty-four hours after the hexylresorcinol but may be entirely omitted without impairing the efficiency or safety of the treatment. If desired, a laxative such as phenolphthalein may be substituted for the more violent purge. Although one treatment will remove approximately 70 per cent of the hookworms, a number of patients will be cured by a single treatment, and, as hexylresorcinol is not unpleasant to take, it can be repeated several times until the patient is cured. The method of administration is described under hexylresorcinol treatment of ascariasis.

TREATMENT OF HOOKWORM DISEASE WHEN  
ASCARIS ALSO IS PRESENT

It has been shown that treatment with carbon tetrachloride of hookworm patients who also harbor *Ascaris* is sometimes complicated by the fact that the ascarids are vomited, passed through the nose or migrate in such large numbers that they block the respiratory passage and, in other instances, form masses of worms that cause intestinal obstructions. Since it is possible that tetrachloro-ethylene may act similarly, it is advisable to remove *Ascaris* before treating with tetrachloro-ethylene.

For the treatment of patients harboring both *Ascaris* and hookworm, hexylresorcinol is particularly effective, as it will remove practically all the ascarids and about 70 per cent of the hookworms with a single treatment. This drug has the further advantage that it kills the ascarids and prevents their migrating or forming in masses and producing intestinal obstruction. Although a single treatment with hexylresorcinol is not as effective against hookworm as one dose of tetrachloro-ethylene, it can be repeated, and two treatments will remove from 85 to 90 per cent of the hookworms and usually all the ascarids. None of the patients who have had repeated treatments with hexylresorcinol complained of any unpleasant symptoms, and I have no reason to believe that such treatments are dangerous. The method of treatment with hexylresorcinol is described in the section on the treatment of ascariasis with hexylresorcinol.

Some workers recommend the use of a mixture of oil of chenopodium with tetrachloro-ethylene, which will remove *Ascaris* and hookworm simultaneously. The usual procedure,<sup>7</sup> if oil of chenopodium is to be used with tetrachloro-ethylene in mixed infestations of hookworm and *Ascaris*, is to give in one dose a mixture of 0.05 cc of chenopodium for each year of age up to 20 years and 0.1 cc of tetrachloro-ethylene for each year of age, an adult dose being 1 cc of oil of chenopodium plus 2 cc of tetrachloro-ethylene. This should be followed in an hour by a magnesium sulphate purge and nothing should be eaten until the patient's bowels have moved. The combined oil of chenopodium and tetra-

chloro-ethylene treatment<sup>8</sup> will remove as high as 98 per cent of the hookworms and approximately 65 per cent of the ascarids. It should be remembered, however, that oil of chenopodium, owing possibly to idiosyncrasies of some patients, is at times very toxic.

LARGE ROUNDWORM, *ASCARIS LUMBRICOIDES*

The female *Ascaris lumbricoides* passes approximately 200,000 eggs a day. These eggs develop in the soil and become infective after a period of two weeks or more. The eggs are swallowed and pass to the small intestine, where the larvae emerge from the shells, penetrate into the lymphatics or venules of the intestinal wall and are carried by the blood stream to the right side of the heart and from there to the lungs, where they migrate out of the capillaries into the alveolar spaces, crawl into the bronchi, and then pass up the trachea into the esophagus and are again swallowed and carried to the small intestine, where they develop in six weeks into adult worms. Adult worms vary from 8 to 14 inches in length. They are not blood suckers but feed on the intestinal contents and probably live from six months to a year. Ascarids are not always harmless parasites and they are a source of danger because of their wandering habits. Many cases have been reported of their presence in the bile ducts, liver, pancreatic duct and pancreas. Likewise, they have been found in masses causing intestinal obstruction and have even caused a fatal peritonitis by piercing the intestinal wall.

Numerous substances have been used for the treatment of ascariasis. Santonin has been used for centuries and is moderately effective in safe doses, but it is somewhat expensive. Oil of chenopodium has been extensively used for the past twenty years and is very effective against both *Ascaris* and hookworm. It has been used in literally millions of cases,<sup>9</sup> but a number of deaths have been reported following its use, and it is considered a dangerous drug, as one never knows when death may occur from its use. The active and toxic principle of oil of chenopodium is called ascaridole, and, unfortunately, various samples of oil may vary as much as 75 per cent in ascaridole content. Because of this, one is never sure how much ascaridole a dose of oil of chenopodium contains, and collapse and death have followed therapeutic doses of this substance.

Because of the lack of a safe and effective ascaricide, my associates and I have spent several years in attempting to find a drug that could be used with less danger. In 1930,<sup>10</sup> such a drug was found in hexylresorcinol. This drug is not effective against *Ascaris* in the forms in which it is put on the market, namely, as Caprokol, an olive oil solution of the drug, or as Hexylresorcinol S T 37, a glycerin preparation. In such solutions the hexylresorcinol remains in solution and does not attack the parasite. However, it has been given in the form of pills of crystalline hexylresorcinol in several thousand cases and found to be very effective, a single dose removing between 90 and 100 per cent of *Ascaris*. It is an apparently harmless substance to take in this manner. It has been given in more than 200,000 cases in the form of the oil solution as a urinary antiseptic for

<sup>8</sup> Kendrick, Schapiro and Stoll.

<sup>9</sup> Molloy D. M. Notes on the Pharmacology and Therapeutics of Oil of Chenopodium and Investigations on the Anthelmintic Value of Its Components. *J. Pharmacol. & Exper. Therap.* 21:391 (July) 1923.  
Heiser V. G. The Administration of Chenopodium. *Mil. Surgeon* 41:253 (August) 1917.

<sup>10</sup> Lamson P. D. Ward Charlotte B. and Brown H. W. An Effective Ascaricide Hexylresorcinol. *Proc. Soc. Exper. Biol. & Med.* 27:1017 (June) 1930.

days and even months in doses much larger than the single administrations that we have suggested for the treatment of parasitic infestations. Thus far, no deaths or serious intoxications have been reported from the use of hexylresorcinol. There is, however, one serious drawback to its general use. If the pills are chewed up, they cause severe local irritation of the mucous membranes of the mouth with loss of taste and discoloration of the lips and face if the saliva containing the drug comes in contact with these tissues. This irritation is, however, entirely superficial and the patient recovers from it within a few days, but its occurrence caused so much criticism of the manufacturers when they put this substance on the market for general use that it has been withheld until some method of administration can be devised that will make it impossible for patients or physicians who do not follow instructions as to its use to obtain such annoying results.

#### TREATMENT OF ASCARIASIS WITH HEXYLRESORCINOL

(a) *Preparation of the Patient*—The one precaution that must be taken with hexylresorcinol is to be certain that the intestinal tract is empty when the drug is given, as hexylresorcinol will combine with food and have little action on the parasite. For this reason it is advisable for the patient to eat only a light supper on the evening before treatment. If the patient also harbors hookworm, a magnesium sulphate purge may be taken after the evening meal.

(b) *Administration of Hexylresorcinol*—The following morning, breakfast should be omitted and the patient treated early. The dose of hexylresorcinol is 0.1 Gm. for each year of age up to 10 years, the adult dose of 1 Gm. being given to those over 10 years of age. Hexylresorcinol should be given in the form of pills and swallowed with a little water. If children are treated, it is essential to see that the pills are actually swallowed and that none remain in the mouth to be chewed later. If the child is unable to swallow the pills, they can be easily pushed down the throat by any competent physician. In no case should the pills be entrusted to parents who may administer them carelessly, for if the pills are chewed up they will be certain to cause a superficial, annoying burn. The patient may be allowed to drink as much water as he pleases and go about his daily routine as long as he refrains from eating for five hours after treatment. A magnesium sulphate purge is given on the following morning to hasten the expulsion of the dead worms.

(c) *Signs and Symptoms of Toxicity*—In most cases there is no discomfort whatever after taking this drug, patients going about their usual daily routine and children carrying on their work at school without any complaint. A few patients may complain of slight abdominal discomfort or nausea and very rarely a patient may vomit, but these cases are often associated with the patient's having eaten against advice after the administration of hexylresorcinol. A few notice a marked cathartic action after taking the drug.

(d) *Contraindications*—Except for the local irritation, I know of no contraindications to the use of hexylresorcinol. Alcohol has been taken after the administration of this substance without apparently causing increased irritation, but I would suggest that alcohol be avoided during the period of treatment.

(e) *Efficiency*—The ascarids are not all passed immediately after treatment but may appear in the

stool over a period as long as ten days. Therefore the post-treatment stool examination should be delayed for two weeks from the date of treatment. If eggs are still present, a second treatment can be given. In our large series of cases studied by the Stoll egg-counting method, from 90 to 100 per cent of all the ascarids were removed with a single treatment and approximately 70 or 80 per cent of these patients became completely free from these parasites.<sup>11</sup> After two such treatments, from 93 to 98 per cent were completely cured.<sup>12</sup> Hexylresorcinol also removed approximately 70 per cent of the hookworms and 30 per cent of the whipworms.

#### TREATMENT OF ASCARIASIS WITH OIL OF CHENOPodium

(a) *Preparation of the Patient*—The patient eats a light evening meal and, if the bowels are constipated, a saline purge is given on the evening before treatment, and a soapsuds enema just before treatment in the morning is advised. The patient should remain in bed during the treatment.

(b) *Administration of Oil of Chenopodium*—Although 3 cc. of this oil has been given to hundreds of thousands of patients, it is agreed by those who have had the most experience with this drug that the total adult dose of 1.5 cc. is the maximum that should be given.<sup>13</sup> The doses for children are shown in the accompanying table.

As an overdose of the oil of chenopodium may be toxic and as different samples of oil of chenopodium vary greatly in viscosity, the dose should always be measured and never given by drops. (Different droppers deliver from 18 to 70 drops per cubic centimeter of this substance.) Considerably larger doses of the oil than those just shown have been given in a large number of cases,<sup>14</sup> but both the number of intoxications and their severity increase with increase in the size of the dose. The oil of chenopodium should be given in hard, gelatin capsules, divided into two equal doses, administered two hours apart. One hour after the second dose of chenopodium a magnesium sulphate purge should be administered. Small children who cannot swallow a capsule may be given the drug on sugar. The patient should be kept under observation during treatment and if symptoms arise after the first dose the second dose of oil of chenopodium should be omitted and the purge given at once. No food is allowed until after the bowels have moved. As children are especially susceptible to toxicity from oil of chenopodium, many workers prefer to mix the chenopodium with castor oil, which apparently decreases its toxicity and also its efficacy against *Ascaris*. The total dose of oil of chenopodium should be dissolved in castor oil and given as a single dose. From 1 to 2 cc. of castor oil for each year of age is adequate for this treatment. A magnesium sulphate

11 Lamson P. D., Brown H. W., Robbins B. H. and Ward C. B. Field Treatments of Ascariasis, Ancylostomiasis and Trichuriasis with Hexylresorcinol, *Am. J. Hyg.* 13: 803 (May) 1931. Molloy, D. M. The Treatment of Hookworm and Other Intestinal Helminth Infections with Hexylresorcinol Under Field Conditions in Central America. *South. M. J.* 26: 575 (July) 1933.

12 Molloy D. M., Brown, H. W. The Treatment of Ascariasis and Trichuriasis with Hexylresorcinol Pills. *Am. J. Hyg.* 16: 602 (Sept) 1932.

13 Darling S. T. and Smillie W. G. The Technic of Chenopodium Administration in Hookworm Disease. *J. A. M. A.* 76: 419 (Feb. 12) 1921. Darling S. T., Barber M. A. and Hacker H. P. Treatment of Hookworm Infection. *J. A. M. A.* 70: 499 (Feb. 23) 1918. Smillie W. G. and Pessoa S. B. A Study of the Anthelmintic Properties of the Constituents of the Oil of Chenopodium. *J. Pharmacol. & Exper. Therap.* 24: 359 (Dec.) 1924.

14 Molloy D. M., Heiser C., Caus J. F. and Mhaskar K. S. The Correlation Between the Chemical Composition of Anthelmintics and Their Therapeutic Values in Connection with the Hookworm Inquiry in the Madras Presidency. II. Oleum Chenopodii. *Indian J. M. Research* 7: 570 (Jan.) 1920.

purge should be given if the castor oil purge does not act within several hours. It is felt by some who have had considerable experience in the administration of the oil of chenopodium that free purgation following treatment is of the utmost importance in order to avoid absorption of the drug and toxic manifestations.

(c) *Signs and Symptoms of Toxicity*—A great many disturbances, even deaths, have been reported after the use of oil of chenopodium. The most striking phenomenon is general collapse, which may occur several hours after treatment. Other cases will show vomiting, dizziness, tingling of the hands and feet and muscular incoordination. Severe deafness, even permanent deafness, has followed the use of oil of chenopodium. A liberal diet of carbohydrates for several days previous to treatment is said to reduce the frequency of toxic symptoms.

(d) *Contraindications*—The use of oil of chenopodium is contraindicated in very young children, persons suffering from renal disorders or severe malnutrition, and during pregnancy. In gastro-intestinal disorders it should also be given with caution. Persons suffering from chronic constipation should have the bowels opened by a saline purge and soapsuds enema before treatment with oil of chenopodium.

(e) *Efficiency*—Different workers who have treated moderately large series of cases with oil of chenopo-

mercurous chloride are on the market. For children a dose of one-sixth grain (0.01 Gm) for each year of age is well tolerated. For adults from 3 to 5 grains (0.2 to 0.3 Gm) may be given.<sup>16</sup> Early the following morning (between 6 and 7 a. m.) a magnesium sulphate purge should be given. Treatment should not be repeated unless *Ascaris* eggs are found in the stool two weeks later.

Hall<sup>17</sup> and others believe that santonin increases its efficacy against *Ascaris* when given in small doses over a number of days. The usual adult dose is from 1 to 2 grains (0.06 to 0.12 Gm) and for children from one-fourth to one-half grain (0.015 to 0.03 Gm), depending on the age and size. This dose should be given several hours after breakfast for seven consecutive days. An equal amount of mild mercurous chloride should be added and no other purgative given. If eggs are still present in the stool two weeks after the completion of this treatment, the series of treatments may be repeated.

(c) *Signs and Symptoms of Toxicity*—Symptoms of poisoning vary from slight anomalies of perception, vomiting, abdominal pain, diarrhea and hematuria to convulsions, coma and death. The marked toxicity is usually due to large doses or long continued dosing. Some workers believe that a dose of 3 grains (0.2 Gm) should not be exceeded, while others have used doses in large series with 5 grains (0.3 Gm) without any untoward results.

(d) *Contraindications*—It is not advisable to give santonin on an empty stomach or in an oily cathartic, as these conditions favor absorption.

(e) *Efficiency*—The single dose method of treatment has been found highly effective, an average of 90 per cent of the ascarids being removed and from 60 to 80 per cent of the cases being cured by a single dose.<sup>18</sup> Pinworms also are removed by santonin.

#### WHIPWORM (TRICHURIS TRICHIURA)

The life cycle of *Trichuris* is relatively simple. The eggs pass out with the stools and develop in moist soil to the infective embryo stage in several weeks. On being swallowed by man, the larvae escape from their shells and are carried down the intestine to their habitat in the cecum. They attain adult size, from 1½ to 2 inches, in about one month. It is probable that they suck blood. *Trichuris* sews its long, slender, anterior end into the intestinal mucosa, and this habit combined with its position far down in the intestinal tract makes expulsion by drugs difficult.

#### TREATMENT OF TRICHURIASIS

Several of the common anthelmintics will remove a small percentage of whipworms. Thus tetrachloroethylene<sup>19</sup> and oil of chenopodium<sup>19</sup> each will remove about 20 per cent of these worms, and hexylresorcinol, when given as recommended for *Ascaris*, will remove from 30 to 50 per cent.<sup>20</sup> It appears at present that repeated treatments with hexylresorcinol offer the best chance of removing this parasite.

Leche de higueron, the latex of *Ficus laurifolia*, is used extensively in South America against whipworm.

*Dosage of Oil of Chenopodium for Children*

Age Years	Dose, Gm	Age Years	Dose, Gm
4	0.2	13-14	0.8
5-6	0.3	15-16	1.0
7-8	0.4	17-18	1.2
9-10	0.6	19-20	1.5
11-12	0.7		

dium report that from 70 to 99 per cent of *Ascaris* is removed by a single treatment and from 35 to 96 per cent of the cases will be found negative.<sup>15</sup> If *Ascaris* eggs are found in the stools two weeks after treatment, a second treatment may be given, but to avoid cumulative effects in no case should chenopodium be given before the lapse of at least two weeks. Approximately 60 to 70 per cent of the hookworms harbored are removed by a single treatment. Likewise, numbers of *Trichuris*, *Enterobius* and *Hymenolepis* are removed by this drug.

#### THE TREATMENT OF ASCARIASIS WITH SANTONIN

Santonin has been a favorite remedy against roundworms for many years. It is very insoluble, nonirritating and almost tasteless and is therefore quite easily administered to children. It may be mixed with sugar to facilitate administration. It should be borne in mind that santonin is a toxic drug which may produce serious poisoning.

(a) *Preparation of the Patient*—The patient should be given a light evening meal at 5 p. m., no food being allowed after that.

(b) *Administration of Santonin*—At 10 p. m. the santonin should be given with an equal amount of mild mercurous chloride. Tablets containing one-half grain (0.03 Gm) of santonin and an equal quantity of mild

15 (a) Schapiro and Stoll<sup>6</sup> (b) Caldwell F. C. and Caldwell E. L. A Study of the Anthelmintic Efficiency of Higuierolates in the Treatment of Trichuriasis with Comment as to Its Effectiveness Against *Ascaris* Infestation. *Am. J. Trop. Med.* 9: 471 (Nov.) 1929. (c) Mapleton P. A. and Mukerji A. K. The Treatment of Ascariasis. *Indian M. Gaz.* 66: 627 (Nov.) 1931.

16 Chopra R. N. and Chandler A. C. Indian Santonin. *Indian M. Gaz.* 59: 537 (Nov.) 1924. Caius J. F. and Mhaskar K. S. Relative Efficiency of Various Drugs in Expelling Roundworms. *Indian J. M. Research* 11: 377, 1924.

17 Hall M. C. Treatment for Infestations of Man with Parasitic Worms. *U. S. Nav. M. Bull.* 28: 553 (July) 1930.

18 Mapleton and Mukerji.<sup>15</sup> Chopra and Chandler.<sup>16</sup> Caius and Mhaskar.<sup>17</sup>

19 Schapiro and Stoll.<sup>6</sup> Caldwell and Caldwell.<sup>15</sup>

20 Jamson Brown Robbins and Ward.<sup>14</sup> Molloy.<sup>11</sup> Brown.<sup>1</sup>

Although this substance will remove 85 per cent of *Trichuris* with a single treatment,<sup>17b</sup> it has the disadvantage that it ferments and becomes extremely unpalatable at ordinary temperatures. As doses of from 30 to 60 cc are given, it is not practical to conceal its taste by giving it in capsules. Because of the difficulty in shipping and storing, as well as because of its unpleasant taste, it has been used in this country only in a few experimental cases. Robbins<sup>21</sup> recently isolated the active principle of *leche de higueron*. It proved to be a proteolytic enzyme, which he has prepared in dried form and which retains its potency for a long time. This material has not been tried in patients, as Robbins found that it would attack and digest the stomach and intestinal mucosae when small lesions were already present.

#### PINWORM (*ENTEROBIUS VERMICULARIS*)

The life cycle of *Enterobius* is of the simplest type. Its eggs contain a larva when passed and require an incubation period of only twenty-four to thirty-six hours. On reaching the small intestine the ingested eggs hatch and the larvae are set free. The development of the larva takes place without migration through the body of the host. The worms grow to maturity in the small intestine, mate and then proceed to the large intestine. The adult female usually does not pass eggs but stores them in her uterus. The female, when filled with eggs, migrates out about the anus, causing an unbearable pruritus. These worms are broken open by the scratching of their host or by desiccation, and the enclosed eggs set free to be carried on the hands to the mouth.

#### TREATMENT OF PINWORM (*ENTEROBIUS VERMICULARIS*) WITH HEXYLRESORCINOL

Hexylresorcinol has been found<sup>22</sup> to be very successful in the treatment of pinworm. As this worm inhabits both the small and the large intestine, oral treatments and enemas are both necessary. Pinworms migrate to the anal region, usually at night, and the worms and eggs may be deposited on night clothes and bedding. For this reason any objects, such as night clothes, underclothes and bed sheets likely to be contaminated, should be boiled several times a week to kill the eggs. Small children should be warned about scratching the anal region, and their hands should be washed carefully after each toilet. In this infestation, personal hygiene is very important because of the fact that the worm eggs may be infective when passed and usually require only a twenty-four to thirty-six hour incubation period to become infective.

(a) *Preparation of the Patient*—A light evening meal is ordered the night before treatment.

(b) *Administration of Hexylresorcinol*—Since *Enterobius* lives in both the large and the small intestine, drugs used against it must be given both by mouth and by enema. When given by mouth alone the drug is often absorbed or diluted to such an extent as not to be present in effective concentrations in the large intestine. Treatments should be given every third day. The morning of the treatment no breakfast should be eaten and the drug should be taken at this time. The dose of hexylresorcinol is 0.1 Gm for each year of age. Thus

the adult dose of 1 Gm is given to every one 10 years or older. Care should be taken that the pills are swallowed and not chewed, for chewing the pills results in a superficial burn of the mouth and, though it is of no great consequence, it is very unpleasant.

Following administration of the pills the patient should be given a large, warm soapsuds enema to clean out the large intestine. Following this, an enema composed of 1 Gm of hexylresorcinol to 1,000 cc of water should be given and retained from five to fifteen minutes. This strength of hexylresorcinol is rapidly fatal to pinworms. Following the expulsion of this enema the anal region should be well dried, for to some the hexylresorcinol may cause slight irritation. The results of both enemas should be placed in a 40 mesh screen and washed with warm water and a search made for the pinworms, which are slender, pointed worms about one-half inch in length.

Following the oral administration of the drug the patient may go about his regular occupation. No food should be eaten for five hours following treatment, as it impairs the efficiency of the drug. Water or black coffee may be taken freely, and after five hours the regular diet may be resumed.

(c) *Signs and Symptoms of Toxicity*—These are described under hexylresorcinol treatment of ascariasis.

(d) *Contraindications*—These are the same as the contraindications in hexylresorcinol treatment of ascariasis.

(e) *Efficiency*—Patients who adhere to the advised hygienic precautions have been cured with one treatment. Children usually take longer, from three to five treatments being necessary. We have, by repeated treatments, cured every case of pinworm brought to the Vanderbilt Clinic. In case the enemas of two successive treatments contain no worms, treatments may be discontinued, to be repeated if worms are discovered later. Santonin oil of chenopodium, and tetrachloroethylene, given orally also remove numbers of pinworms.

#### TAPEWORMS

Beef Tapeworm (*Taenia saginata*), Pork Tapeworm (*Taenia solium*), Fish Tapeworm (*Diphyllobothrium latum*), Dwarf Tapeworm (*Hymenolepis nana*). The tapeworms found in man with the exception of *Hymenolepis nana*, require one or more intermediate hosts for the completion of their life cycles. The adult tenias live in the small intestine of man, their small heads buried in the intestinal mucosa. They have no mouth or digestive tract but absorb food through their body walls. They may grow as long as 15 feet. Each day or two the last segments of the worm are pinched off and may pass out alive and squirm about in the stool. These segments may be digested in the intestine, freeing into the stool their eggs, and these can be detected microscopically. Thus either eggs or segments or both may be found in the stool. These eggs, when eaten by a suitable host (the pig for *T. solium* or the cow for *T. saginata*), hatch in its intestine and migrate by way of the blood stream into the muscles and develop into tapeworm cysts. The cyst-containing flesh of these animals, when eaten insufficiently cooked by man, liberates the cyst, and the tapeworm head enclosed in each cyst attaches to man's intestine and grows into an adult tapeworm in from five weeks to three months.

The fish tapeworm, *D. latum*, passes eggs quite regularly. To complete the cycle these eggs must fall in water and be eaten by small water crustaceans, in which

<sup>21</sup> Robbins B. H. A Proteolytic Enzyme in Ficin, the Anthelmintic Principle of *Leche de Higueron*. *J. Biol. Chem.* **57**: 251 (June) 1930.  
<sup>22</sup> Brown H. W. Treatment of Pinworm (*Enterobius Vermicularis*) Infestation with Hexylresorcinol. *Proc. Soc. Exper. Biol. & Med.* **30**: 271 (Nov.) 1932.

the eggs develop into a larval stage. The crustaceans are eaten in turn by certain fish, and the larval tapeworms then migrate into their muscles and complete their larval development. Man develops an infestation when such fish are eaten raw or insufficiently cooked.

*Hymenolepis nana* (the dwarf tapeworm) is only several inches in length, but this is balanced by the fact that a person may harbor hundreds of them. Man acquires this tapeworm by ingesting the eggs, as no intermediate host is necessary for the completion of its cycle.

Aspidium has been handed down over a period of several hundred years as the standard drug used against tapeworms. McGath and Brown,<sup>23</sup> after the study of a series of cases, have reported a successful technique using aspidium against tapeworm. Recently, however, Daubney and Carman<sup>24</sup> and Maplestone<sup>25</sup> have shown that carbon tetrachloride is also very effective against tapeworm (*Taenia*). No other drugs have as yet been proved to be more valuable than these two in the treatment of these infestations, although hexylresorcinol will remove tapeworms in some cases.

#### TREATMENT OF TAPEWORM CASES WITH CARBON TETRACHLORIDE

Carbon tetrachloride was introduced in 1921 by Hall<sup>26</sup> for the treatment of hookworm and, although millions have been treated with it,<sup>3</sup> it is now being replaced, as already pointed out, by the much less toxic tetrachloro-ethylene. It would seem worth while to determine whether tetrachloro-ethylene could replace it in the treatment of tapeworm infestations.

Carbon tetrachloride, as previously pointed out, is a toxic substance which causes marked central necrosis of the liver even in therapeutic doses. Under certain conditions this action of carbon tetrachloride causes a marked increase of guanidine in the blood, which condition is normally neutralized by the calcium present.<sup>27</sup> If, however, the patient is in poor physical condition with a low calcium balance, the guanidine formed is not neutralized and the patient becomes severely intoxicated from carbon tetrachloride.

(a) *Preparation of the Patient*—Since one is unable by chemical analysis to determine whether the patient's calcium is low (as the blood calcium is not always an indication of this), to avoid intoxication from carbon tetrachloride the patient should be put on a high calcium diet from ten days to two weeks before treatment, and no meat should be given for a day or so before or after the administration of carbon tetrachloride. A light evening meal should be taken, but a preliminary purge has been found unnecessary.

(b) *Administration of Carbon Tetrachloride*—In the morning, breakfast should be omitted and carbon tetrachloride given early. Thirty grams of magnesium sulphate should be dissolved in half a glass of water and

the adult dose of 3 cc of carbon tetrachloride should be shaken up in this solution and swallowed. No breakfast should be allowed until the purge has acted. Following the action of the purge a warm soapsuds enema may be given and the stool examined for the head of the worm. Children may be given 0.2 cc of the drug for each year of age.

(c) *Signs and Symptoms of Toxicity*—In well nourished individuals there may be no symptoms or merely mild and transient feelings of warmth, with possibly some slight dizziness. In others a period of from twelve to twenty-four hours may elapse before any signs of intoxication occur, then the patient usually begins to vomit and vomiting continues uninterruptedly. Jaundice may appear and the patient may vomit and pass blood. Finally collapse may occur, death following in some cases. If marked intoxication occurs, calcium gluconate may be given orally or, in case it is impossible for the patient to retain substances given, intramuscular calcium gluconate may be given. In very severe cases intravenous calcium medication may be given but on account of the great danger of such administrations, in which overdoses may be instantly fatal, it is suggested that the subcutaneous method be given preference over intravenous administration.

(d) *Contraindications*<sup>28</sup>—The contraindication of utmost importance to the use of carbon tetrachloride is alcohol. So many cases of severe intoxication or death have followed the taking of alcohol at the time of the administration of carbon tetrachloride that there is no doubt whatever regarding the danger of this. As carbon tetrachloride injures the liver, one should avoid the giving of this substance in cases presenting liver disease. Patients with definite calcium lack should not be given carbon tetrachloride, but there has as yet been no definite method of ascertaining whether or not one is dealing with such a case. Therefore, the precautionary measures outlined should be followed before treatment is administered. If the routine treatment described is adhered to, the patient will not take fat immediately before or after treatment. It has been found in laboratory experiments and in the clinic that, when large amounts of fatty substances are taken immediately before or after treatment with carbon tetrachloride, absorption of this substance occurs probably through a different route than normally, carbon tetrachloride being carried around the liver through the lymphatics and reaching the brain in high concentrations, causing marked nervous symptoms not ordinarily seen.

Toxic symptoms seem to occur more frequently in persons treated with carbon tetrachloride when heavy *Ascaris* infestations are present and may be avoided by first treating the patient for *Ascaris*.

(e) *Efficiency*—Several workers<sup>29</sup> who have treated many persons harboring *Taenia saginata* report from 70 to 97 per cent success from this relatively simple treatment. *Taenia solium* is also removed by carbon tetrachloride. If the head of the tapeworm is recovered, it is fairly certain that the patient is cured, although multiple infestations of *Taenia* are not unknown. Even if large portions of the worm are recovered and the head is not, the stool must be found free from eggs or segments for several months before

<sup>23</sup> Magath T. B. and Brown P. W. Standardized Method of Treating Tapeworm Infestations in Man to Recover the Head. *J. A. M. A.* 88: 1548 (May 14) 1927.

<sup>24</sup> Carman J. A. Observations on the Incidence of Helminthic Infestations in Natives of Kenya with Special Reference to *Taeniasis*. Its Effect on Nutrition and Its Treatment with Carbon Tetrachloride. *J. Trop. Med. & Hyg.* 32: 321 (Nov. 15) 1929. Daubney R. and Carman J. A. Helminthic Infestations of Natives in the Kenya High Lands. *Parasitology* 20: 185 (July) 1928.

<sup>25</sup> Maplestone P. A. and Mukerji A. K. Carbon Tetrachloride in the Treatment of *Taenia* Infestations. *Indian M. Gaz.* 66: 667, 1931.

<sup>26</sup> Hall M. C. The Use of Carbon Tetrachloride for the Removal of Hookworms. *J. A. M. A.* 77: 1641 (Nov. 19) 1921.

<sup>27</sup> Minot A. S. and Cutler J. T. Guanidine Retention and Calcium Reserve as Antagonistic Factors in Carbon Tetrachloride and Chloroform Poisoning. *J. Clin. Investigation* 6: 369 (Dec.) 1928. Minot A. S. The Mechanism of the Hypoglycemia Produced by Guanidine and Carbon Tetrachloride Poisoning and Its Relief by Calcium Medication. *J. Pharmacol. & Exper. Therap.* 43: 295 (Oct.) 1931.

<sup>28</sup> Minot and Cutler. <sup>27</sup> Lamson P. D., Gardner G. H., Gustafson R. K., Maire E. D., McLean A. J. and Wells H. S. The Pharmacology and Toxicology of Carbon Tetrachloride. *J. Pharmacol. & Exper. Therap.* 22: 215 (Nov.) 1923. Lamson P. D., Minot A. S. and Robbins B. H. The Prevention and Treatment of Carbon Tetrachloride Intoxication. *J. A. M. A.* 90: 345 (Feb. 4) 1928.

<sup>29</sup> Daubney and Carman.<sup>24</sup> Maplestone and Mukerji.<sup>25</sup>

one can be sure that the treatment has been successful. Obviously, the head may have been digested or lost and the failure to recover the head does not necessarily mean that the patient has not been cured. Daubney and Carman, using this carbon tetrachloride treatment, found heads in only two of the thirty patients treated, yet seven weeks later only one of the patients began to pass segments again. The efficiency of this treatment for *Diphyllobothrium* and *Hymenolepis* has not been worked out.

#### TREATMENT OF TAPEWORM CASES WITH ASPIDIUM (MALE FERN)

*Aspidium* (male fern) has been the classic drug against tapeworm for years. Recently, McGath and Brown<sup>23</sup> instituted a technic at the Mayo Clinic with which they have been very successful in removing not only the common beef and pork tapeworms (*Taenia saginata* and *solum*) but also the fish tapeworm (*Diphyllobothrium latum*). Other workers report *aspidium* to be effective against *Hymenolepis nana*. *Aspidium* is not as nontoxic as it was formerly believed, and when given in large doses it is decidedly toxic and may be fatal.

(a) *Preparation of the Patient*—No luncheon or supper is permitted the day preceding the treatment. Black coffee, tea and water may be taken freely. At 6 p. m., from 15 to 30 Gm of magnesium sulphate should be given. The next morning at 6 a. m. an additional 15 to 30 Gm of magnesium sulphate should be given.

(b) *Administration of Aspidium*—The patient should be put to bed and allowed no breakfast. As soon as the purge given at 6 a. m. has resulted in a bowel movement (the stool should be examined for tapeworm) 30 cc of the following emulsion is administered: oleoresin of *aspidium*, 6 cc or Gm, powdered acacia, 8 Gm, water sufficient to make 60 cc.

One hour later the second 30 cc of the emulsion of *aspidium* should be given. (The amount given must be reduced when children are treated, a total dose of 4 cc of the emulsion for each 10 pounds (4.5 Kg) of body weight may be given. This dose corresponds to the 60 cc total amount for an adult of 150 pounds, or 68 Kg.) Two hours after this, 30 Gm of magnesium sulphate should be given in several glasses of water, to be followed in two hours by a large soap-suds enema. The stool resulting from the purge and enema should be passed into a container and examined for the worms.

(c) *Examination of Stool for Tapeworm*—The enema and all stools passed on the day of treatment should be poured into a 20 mesh sieve and warm water played on it and the fecal material washed away. The contents of the sieve can then be emptied into a flat pan (about 1 by 2 feet), the bottom of which has been painted black, and a careful search made for the tapeworm head. Brown and McGath, who recommend the *aspidium* treatment, report finding the head in the majority of cases.

(d) *Signs and Symptoms of Toxicity*—When moderate doses are used, mild poisoning may occur, as evidenced by a slight jaundice and complaint of vertigo and headache. In moderately severe cases, nausea, vomiting, abdominal pain and even bloody diarrhea are complained of. Yellow vision and sometimes temporary blindness may occur. In severe poisoning the patient becomes drowsy and often delirious. There may be

severe muscle cramps and convulsions, and respiration becomes shallow and the pulse weak. Because of the possibility of toxicity, the 6 Gm, as recommended, must not be exceeded.

(e) *Contraindications*—*Aspidium* should never be given to persons in poor physical condition. Because of its irritant properties, it should be avoided in cases of gastro-intestinal disease. It should be given with caution to pregnant women and in cases in which the kidneys are diseased. Oil purges should never be given, as they increase its absorption.

(f) *Efficiency*—McGath and Brown state that, by carefully following their technic, all their patients have been cured.

#### TREATMENT OF STRONGYLOIDES STER- CORALIS CASES

The life cycle of *Strongyloides* is similar to that of hookworm in that the larvae of both infect through the skin and migrate through the lungs before settling down in the intestine. The adult female *Strongyloides* is only one-eighth inch in length and buries itself in the mucosa of the intestinal wall. This protected position makes its expulsion by drugs very difficult.

Of numerous substances that have been tried, gentian violet has proved the most effective against this parasite. DeLangen<sup>30</sup> and Faust<sup>31</sup> have reported successful treatments of *Strongyloides* with this substance. Faust, who has treated 200 persons with this substance, recommends the oral administration of a one-half gram (0.03 Gm) enteric coated tablet three times a day to children of up to 10 years of age and a 1 gram (0.06 Gm) tablet three times a day for adults. The gentian violet is taken before meals for a period of from one week to ten days. A rest period of one or two weeks should be allowed between courses, during which time daily stool examinations should be made to ascertain the effectiveness of the treatment. Faust reports cures with one course of treatment in all but four cases, in which two courses were taken before a cure was obtained. Likewise, DeLangen noted marked relief in extremely severe cases of *Strongyloides* infestations in which from one-sixth to one-half grain (0.01 to 0.03 Gm) of gentian violet was given from three to five times a day. The dye stains the mucosa of the intestine a brilliant violet, and the adult parasitic worms living in the mucosa absorb the dye, which is very toxic to them.

Gentian violet has not been used extensively as an anthelmintic and relatively little information on its toxicity has been obtained. Faust<sup>32</sup> has shown that man and dogs tolerate daily oral doses of from 30 to 35 mg per kilogram of body weight. Young and Hill,<sup>33</sup> when treating septicemia and local infections, have given 500 mg of gentian violet intravenously to man. In view of the limited experience with gentian violet, patients to whom it is given should be observed carefully for any signs of toxicity, such as loss of appetite, nausea, vomiting or weight loss, and the drug temporarily discontinued if they occur.

30 DeLangen C D. Anguillulosis and the Syndrome of the Idiopathic Hypereosinophilia. Mededeel v d dienst d volksgezondh in Nederl Indie 17 515 1928.

31 Faust E C. The Symptomatology, Diagnosis and Treatment of Strongyloides Infection. J A M A 98 2276 (June 25) 1932. Gentian Violet Therapy for Strongyloides Infection. editorial Internat M Digest 17 57 (July) 1930.

32 Faust E C and Ke Fang Yao. Specific Therapeutics in Clostridial Infections. Arch f Schiffs u Tropen Hyg 30 383 (Sept) 1926. Faust E C and Khaw O K. Studies on Clonorchis Sinensis (Cobbold). Am J Hyg monogr ser 8 1927 p 151. Faust E C. Human Helminthology. Philadelphia Lea & Febiger 1929, p 214.

33 Young H H and Hill Justina H. The Treatment of Septicemia and Local Infections. J A M A 82 669 (March) 1924.



Oil of chenopodium has also been recommended against *Strongyloides*

#### TREATMENT OF TRICHINELLA SPIRALIS CASES

The treatment of trichiniasis is made difficult by the fact that diagnosis in man is not usually made until several weeks after infestation, at a time when the invasion of the muscles by the young larvae has already begun. The treatment, therefore, must be directed against the young larvae circulating in the blood stream, those which have already entered the muscles, and the adult females buried in the intestinal mucosa. Miller, McCoy and Bradford<sup>34</sup> have shown that therapy directed against the larval stages is ineffective. They used neoarsphenamine, antimony and potassium tartrate, acriflavine, an acriflavine dye, gentian violet and metaphen intravenously without success. Likewise, treatment directed against the adult female buried in the intestinal mucosa is very unsatisfactory. If, however, a diagnosis is made while gastro-intestinal symptoms are still prominent, which indicates that the female worms are burrowing into the intestinal mucosa, the patient should be thoroughly purged with either castor oil or magnesium sulphate. This procedure will aid in the expulsion of the worms that are still free in the intestinal lumen and consequently reduce the number of larvae produced. One might even give a treatment of tetrachloro-ethylene or hexylresorcinol in the hope of killing the trichinellae only partially embedded in the mucosa.

### NONALCOHOLIC CIRRHOSIS OF THE LIVER IN THE LEBANON AND SYRIA

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Hepatic disorders are common in Syria and the Lebanon. In addition to the enlarged livers due to congestive heart failure and disease of the biliary tract, hydatid cysts and amebic abscesses of the liver are frequently seen. More frequently encountered is a third group of patients with hepatic enlargement associated with splenomegaly. The clinical features of this group are epigastric distention, irregular bowel action and drowsiness after meals. Many of the patients have had repeated febrile attacks associated with jaundice, often accompanied by transient hepatic enlargement, epigastric tenderness, nausea and vomiting, lasting from a few days to a few weeks. Many live a reasonably long life without marked evidence of liver insufficiency. Rowntree<sup>1</sup> says that their cirrhosis is probably compensated. A number sooner or later develop evidences of advanced portal cirrhosis with ascites.

Cirrhosis of the liver is seen more commonly at the American University of Beirut among clinic patients than among private patients. It is more frequent among the farmers than among city dwellers, and it is most frequently seen in the farmers from villages in the neighborhood of Sidon and Tyre.

#### CONDITIONS IN WHICH CIRRHOSIS IS MOST COMMON

The diet of the people consists largely of cereals, olives, citrus fruits, grapes and figs. Milk is never abundant and is never properly handled. Most of it is sold or else used only for the sick. The diet of the peasants is fairly adequate but is often poor in protein and vitamin A.

The principal article of food is bread made of whole wheat or a mixture of wheat, barley and corn flour. The farmers use also lentils, peas and beans. Olives and olive oil supply most of the fat. Butter is used after being boiled and stored for some time. Mutton is the principal meat. Chicken, beef and fish are eaten occasionally, but no pork is used. Green vegetables are consumed only during certain seasons, while oranges during the winter and grapes during the summer are rather abundant.

The average farmer smokes tobacco whenever he can afford it, but he rarely touches alcohol. The majority of the farmers belong to a sect of Islam that is strict on this point. The women never touch alcohol. These people do not use curry, their only condiments are red and green peppers, which are not used excessively.

Bacterial and protozoal infections and helminthic infestations are very common. Malaria, mostly of the tertian and estivo-autumnal types, and dysenteries are the prominent diseases and occur much more frequently among the farmers than among the urban population. Syphilis is not common, goiter is rare. Typhoid is endemic. Follicular tonsillitis and rheumatic fever occur fairly frequently. Diphtheria is seen occasionally but there is no scarlet fever. Dermal leishmaniasis is frequent in certain sections, but only a few cases of infantile kala-azar have been detected. Helminthic infestations are very common, often two or more intestinal parasites are found in the same host. *Trichocephalus dispar* is almost always present, then, in order of frequency, occur *Taenia saginata*, *Ascaris lumbricoides* and *Oxyuris vermicularis*. *Ancylostomiasis* and filariasis are rare and there is no schistosomiasis.

The incidence of amebic dysentery is about equal to that of all types of bacillary dysentery, and double infections are not uncommon. Intestinal flagellates, such as *Giardia intestinalis* and *Trichomonas intestinalis*, are common. We have not been able to find *Balanitidium coli*. The cause of the diarrhea cannot be found in about one third of the cases.

#### CLINICAL CIRRHOSIS IN SYRIA AND THE LEBANON

During the six years from 1926 to 1931 inclusive I have studied in the medical wards seventy cases of portal cirrhosis with ascites.<sup>2</sup> Sixty-three per cent of the patients were less than 40 years, and 20 per cent were less than 20 years of age. Seventy per cent of the patients were male and 30 per cent were female. Only 8.8 per cent admitted the use, to a certain extent, of alcoholic drinks. Twelve per cent gave a history suggestive of syphilis or had positive Wassermann or Kahn reactions.

I have reviewed, for the purpose of comparison, the autopsy records of the cases of cirrhosis of the liver for the years 1925-1932 inclusive, at the Presbyterian Medical Center in New York.<sup>3</sup> There were forty cases

<sup>34</sup> Miller J. J. Jr., McCoy O. R. and Bradford W. L. Intra-venous Treatment in Experimental Trichiniasis. J. A. M. A. 98: 1242 (April 9) 1932.

Read before the New York Society of Tropical Medicine, March 9, 1934.

<sup>1</sup> Chapman C. B., Snell A. M. and Rowntree L. G. Compensated Cirrhosis of the Liver. J. A. M. A. 100: 1735-1741 (June 3) 1933.

<sup>2</sup> I am indebted to Dr. E. L. Turner, professor of medicine, Dr. G. B. Khayat, associate professor of medicine, and Dr. S. E. Harris, formerly associate professor of medicine, American University of Beirut for permission to include their cases in this group.

<sup>3</sup> I am indebted for this privilege to Dr. W. W. Palmer, professor of medicine, and Dr. J. W. Jobling, professor of pathology, Presbyterian Hospital, New York.

Only 13 per cent were younger than 40 years, and only 5 per cent were younger than 20 years. Eighty per cent were male. Fifteen per cent had syphilis, and 35 per cent had rheumatic or arteriosclerotic heart diseases. In 45 per cent, alcoholic drinks had been used over long periods. Apparently, cirrhosis of the liver occurs earlier in life and affects the female sex somewhat more frequently in Syria.

In Syria most of the patients with cirrhosis of the liver, except those with a chronic circulatory deficiency, show splenomegaly long before ascites appears. A history of malaria or dysentery or of both is especially common among the patients from the region of Sidon and Tyre. In 30 per cent, malarial parasites are found in the blood or in material obtained by splenic puncture, or a history of chronic malaria is obtained. Often by the time the cirrhosis is well established, the malaria has disappeared.

The duration of life varies from six months to five years after the first abdominal paracentesis. I know of patients who have been tapped twenty, forty and even seventy times. Frequently, palpation shows that the liver is hard and irregular and it remains enlarged to the end. Analysis of the gastric juice frequently shows low acidity, the icterus index is but slightly elevated, the levulose tolerance is lowered in some cases and the blood calcium is somewhat low, varying from 8 to 10 mg per hundred cubic centimeters.

Often marked jaundice and anuria develop a few days before death, but the blood urea does not rise markedly. The patients become extremely emaciated before death. A large hard spleen and a distorted coarsely hobnailed liver, usually enlarged but occasionally atrophic, are found at autopsy. Unfortunately, permission for an autopsy cannot always be obtained.

#### COMMENT

Notwithstanding the many obscure points regarding the etiology and pathogenesis of portal cirrhosis, it appears certain that there must be repeated injury to and degeneration and necrosis of liver cells, not extensive enough to produce the immediate death of the subject. The injury is followed by inflammation, regeneration and fibrosis, the end results being determined by the interplay of these processes. Furthermore, although single injuries may suffice to produce cirrhosis in experimental animals, a combination of toxic and infectious agents acting simultaneously or in sequence is more potent and is perhaps the usual sequence of events occurring in the production of human cirrhosis.

A prolonged study of the cases has convinced me that chronic malaria and dysentery, and especially the combination of the two, are the important factors in the causation of the type of cirrhosis seen in Syria. An enlargement of the liver accompanied by jaundice, epigastric tenderness and vomiting occurs frequently during the course of malaria. In fact, most patients with the large spleen of chronic malaria have also a large liver. Knowledge of the pathologic anatomy of human malaria is based on autopsies of patients dying from pernicious attacks of estivo-autumnal malaria. Deposition of pigment in the Kupffer cells, thrombosis of hepatic capillaries, degenerative changes in the liver cells and occasional areas of necrosis are the changes most commonly found. Most pathologists emphasize the fact that fibrosis is absent in these livers.

The change that occurs in the damaged livers of the many patients who recover is a matter for speculation. It is known that the malarial pigment remains in the Kupffer cells for a certain length of time after the patient recovers from the attack. Unless the patient is properly treated, and protected against further infection, the malaria becomes chronic, and with each recrudescence there must occur a new insult to the liver and new areas of degeneration. Perhaps the end result of these oft repeated injuries to the liver will be determined some day from studies of experimentally produced malaria.

Diffuse hepatitis without demonstrable abscess formation is not an infrequent manifestation of amebiasis. Patients with slight jaundice associated with an enlarged and tender liver, nausea and vomiting, slight fever and leukocytosis are assumed too frequently to have catarrhal jaundice. I have seen such cases in which, in spite of the absence of a history of dysentery, examination of the stools revealed cysts of *Endamoeba histolytica* and suitable treatment brought prompt relief. I believe that these attacks of hepatitis entail repeated periods of degeneration and necrosis in the liver, alternating with periods of regeneration and repair. The end result of such processes, continuing unchecked, can only be imagined. The possibility that cirrhotic changes will appear in a liver is probably enhanced in the cases in which malarial infection and amebic infection occur alternately or together. Ewing<sup>4</sup> has reported advanced degenerative changes in the liver cells in a case of double infection with malarial plasmodia and *Endamoeba histolytica*.

Ascariasis *lumbricoides* is much more prevalent among the inhabitants of the city of Aleppo, in whom cirrhosis is not seen so frequently as it is among the farmers.<sup>5</sup> Professor Bonne of Java tells me that in that country cirrhosis of the liver is not more frequent among the people who harbor *Taenia saginata*.

The poor farm laborer of the district of Sidon and Tyre receives treatment of his malaria and dysentery which is inadequate in comparison with that received by the town dwellers. This may be another reason why cirrhosis is more common in these rural communities.

#### SUMMARY

Cirrhosis of the liver is of frequent occurrence in Syria and the Lebanon. It is more common in the rural population than in the dwellers in cities. It is particularly frequent in the farm laborers in one district near Sidon and Tyre.

Alcohol is not used by these people and they do not use condiments excessively, syphilis is uncommon, but malaria, dysentery, and infestation with intestinal parasites are prevalent.

The cirrhosis is seen in comparatively young people, 63 per cent of the patients being younger than 40 years. The proportion of female patients with the condition is larger in Syria than in America. Enlargement of the spleen is marked and often precedes signs of liver insufficiency. The liver often remains enlarged and coarsely hobnailed.

Malaria and amebic dysentery (and especially the combination of the two) seem to be the primary causes of cirrhosis of the liver in Syria and the Lebanon.

<sup>4</sup> Ewing, James. Contributions to Pathological Anatomy of Malarial Fevers. *J. Exper. Med.* 6: 146, 1902.  
<sup>5</sup> Yenikomshian, H. A. and Berberian, D. A. The Occurrence and Distribution of Human Helminthiasis in Syria and the Lebanon, *Fr. Roy. Soc. Trop. Med. & Hyg.* 27: 425 (Jan.) 1934.

## SPASTIC PARAPLEGIA

CASES ILLUSTRATING THE COMMON ETIOLOGIC  
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Spastic paraplegia is a descriptive term and not a diagnosis. Its causes are many. In the classic form it is characterized by a progressive spasticity in the lower limbs, with all the signs and symptoms of a pyramidal tract disease below the level of the lesion. The onset is described by the patient in terms of fatigability of the lower limbs. This fatigue of the muscles is the result of a beginning "muscular ankylosis of the joints," as Strumpell<sup>1</sup> designated it, in its later stages.

While the symptomatic recognition of a spastic paraplegia is relatively simple, the etiologic factor is usually difficult to discover. The older writers frequently limited the term spastic paraplegia to a rare group of cases first described by Erb<sup>2</sup> and Charcot,<sup>3</sup> which is now designated as primary lateral sclerosis. This condition occurs mainly in children and young adults and a progressive spastic paralysis beginning in the lower limbs is the only symptom of the disease. In the great majority of cases of this kind, however, the progress of the symptom complex discloses the fact that some other condition is basically responsible for the spastic weakness in the lower limbs, and, further, the signs and symptoms are usually not limited to the pyramidal tracts.

Given a patient with a beginning spasticity in the lower limbs, with pyramidal tract signs, including mild bladder involvement, with or without sensory changes, careful study is necessary to determine the basic pathologic process. Many of the European writers<sup>4</sup> have placed multiple sclerosis as the most common condition showing spasticity in the lower limbs as its earliest manifestation. Most of the cases diagnosed as primary lateral sclerosis which have come to autopsy have shown the plaque formation which is characteristic of multiple sclerosis. In fact, a spastic paraplegia may be for years the only evidence of a multiple sclerosis, even with apparent level signs. The following case illustrates this condition.

A physician, aged 40, with bronchiectasis, began to show progressive spasticity in the lower limbs, without bladder symptoms. A careful study revealed a sensory level at the sixth thoracic segment with a complete block as shown by the Queckenstedt test and injection of iodized oil. Laminectomy revealed no cause for the symptoms. The patient, however, became completely paraplegic immediately after the operation and remained so for a period of six years. Treatment for the bronchiectasis was carried on during all this time. With improvement in the lung condition the neurologic picture became markedly improved, although recently the lung condition has been worse. The patient is now able to walk, but

there is still mild spasticity, hyperreflexia, clonus and a positive Babinski sign. The sensory disturbances are now in the background.

This case had originally suggested spinal cord tumor and the operation was done because of this diagnosis. Nothing was found to explain the condition and nothing was done to account for the immediate complete paralysis or the improvement six years later. The serologic examinations have always been negative and no antisyphilitic treatment was given. At the present time multiple sclerosis is the most plausible diagnosis even in the absence of signs and symptoms above the sixth thoracic segment, because of an almost complete remission that has now lasted nearly two years. It is usual to have disturbance in deep sensibility in multiple sclerosis in addition to the spasticity. This our patient had, but it has completely disappeared.

Syphilis must always be considered as an etiologic factor in progressive spasticity of the lower limbs. As a rule it originates from the meninges and involves the spinal cord substance secondarily, with the formation of what is histologically a syphilitic meningomyelitis. Intramedullary syphilitic lesions of the spinal cord occur in the nature of a vascular disease<sup>5</sup> and gummas are rarely seen. This syndrome is well illustrated by the following case.

A physician, aged 53, complained chiefly of increasing weakness and spasticity of both lower limbs. There were no symptoms or signs referable to the upper half of the body. Examination showed a sensory level at the eighth thoracic segment with a spastic paraplegia. A gross cord lesion was suspected. The Queckenstedt test confirmed our suspicion, an almost complete block being found. Despite positive serologic results in both blood and spinal fluid, the patient demanded an exploration. A focal meningomyelitis was discovered at the diagnosed level. Surgery could do nothing for him because of the firm adherence of all the membranes to the spinal cord with invasion of the cord substance. Therapeutic measures have produced only a mild improvement. This is usually the case when destruction of the fiber tracts has already occurred.

Cases of this sort are not rare, but the classic picture produced by a focal syphilitic process is the so-called Brown-Sequard symptom complex. This is characterized in brief by motor paralysis on the side of the cord lesion, with sensory disturbances of pain and temperature on the contralateral side below the level of the lesion. This syndrome can also be caused by any unilateral lesion involving the spinal cord.

Pernicious anemia is notorious for its effect on the spinal cord. The condition, when typical, is so characteristic that it can frequently be diagnosed before the blood changes occur. A combined degeneration is the rule. Clinically this is shown by motor weakness, with spasticity, at times, and with posterior column disturbance mainly involving vibration and muscle position. This condition is illustrated by the following case.

A woman, aged 59, showed spasticity in the lower limbs as the predominant symptom. Because of the presence of ataxia with loss of vibration in the affected limbs, pernicious anemia was suspected. Gastric analysis showed complete absence of free hydrochloric acid. The results of the examination of the blood confirmed the clinical diagnosis. Treatment with liver and hydrochloric acid produced only a very mild improvement because of the degree of involvement of the cord substance.

As a rule the onset of spinal cord changes is shown clinically by paresthesias in the fingers and toes, with clumsiness in finer movements and with weakness in the lower limbs with or without spasticity. A combination of paresthesias and pyramidal tract signs with posterior column symptoms is extremely suggestive of pernicious anemia.

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<sup>1</sup> Strumpell A. Ueber eine bestimmte Form der primären kombinierten Systemerkrankung der Rückenmarks. *Arch f Psychiat* 17: 227, 1886.

<sup>2</sup> Erb Wilhelm. Ueber die spastische Spinalparalyse. *Virchows Arch f path Anat* 70: 241, 1877.

<sup>3</sup> Charcot Jean Martin. Du tabes dorsal spasmodique. *Progres med* 1876 Nos 45 and 47.

<sup>4</sup> Oppenheim H. *Lehrbuch der Nervenkrankheiten* ed 7. Berlin, S. Karger 1: 230, 1923.

<sup>5</sup> Henneberg H. *Reine vasculare Spinale Lues*. Berl klin Wchnschr 57: 1026, 1920.

Trauma can produce changes in the spinal cord, as it does in the brain, the result of concussion, hemorrhage or incision from compression. The clinical picture usually begins shortly after the trauma, with flaccidity in the beginning which rapidly changes to spasticity if the lesion is not a complete transverse myelomalacia. This is illustrated by a patient who was "jack-knifed" in an attempt to "jack up" an automobile. The paralysis in the lower limbs was complete and flaccid in the beginning. Gradually spasticity developed, with the permanent residuals showing an incomplete transverse lesion of the spinal cord.

Vascular lesions of the spinal cord occur with sufficient frequency to receive attention. They are seen in both young and old. They often come on abruptly and produce symptoms in direct relation to the size of the vessel involved and its location. A recent case will illustrate the symptomatology in young people.

A boy, aged 13 years, after recovery from a grippal infection carried a heavy weight for a short distance. A few hours later he experienced pain in the lower chest, anteriorly, which caused him to rest for a few hours. On awakening he found that he was paralyzed from the waist downward. A sensory level could be established, more marked for pain and temperature than for deep sensitivity. A gradual improvement is occurring but the patient will probably not make a complete recovery. The vessel involved in this patient was probably the anterior spinal artery.

In older people, arteriosclerosis and syphilis play the dominant roles. We have discussed this subject in detail in previous publications.<sup>6</sup>

Intramedullary or extramedullary tumors of the spinal cord are capable of producing a spastic paralysis in the lower limbs if they are situated below the cervical enlargement. Frequently the first complaint is tiredness, the result of spasticity and weakness in the lower limbs, which may progress to a complete paraplegia. Symptoms of a level lesion are frequent with root irritation including the so-called girdle sensation and a sensory level. The extramedullary tumors are theoretically capable of producing root symptoms more frequently than the intramedullary ones. From the practical standpoint, however, it may be impossible to differentiate them clinically. A word of caution might be interpolated at this point in regard to the Queckenstedt test. We saw a marked increase in the spinal cord symptomatology, including the onset of a complete paralysis, develop in a patient as the result of the performance of this test. According to Elsberg,<sup>7</sup> the sudden onset of paraplegia following a Queckenstedt test is in favor of an extramedullary and frequently an extradural lesion. In one patient in whom this occurred, the autopsy disclosed an intramedullary tumor of the spinal cord.

Tuberculosis of the spine is a well recognized etiologic factor in the production of spastic paraplegia. The vertebrae may or may not show gross deformity. The roentgenogram will frequently show the bone disease. At times an extradural granuloma without Pott's disease is seen. Intramedullary tuberculoma is extremely rare. We have seen it in only three cases. The symptomatology does not differ from that of other intramedullary gross lesions.

In nontuberculous lesions of the spine, the spinal cord can be eventually compressed with the production of a spastic paralysis in the lower limbs.<sup>8</sup> Such conditions have been described by Viets and Clifford<sup>9</sup> in a kyphoscoliosis. In this group might be placed extradural abscesses and metastatic lesions of the dura.<sup>10</sup> In the abscess cases the history is usually characteristic. There is frequently a preceding boil or carbuncle on the back of the neck with the sudden onset of spinal cord symptoms, including root pains and paraplegia, either flaccid or spastic. Abscesses within the cord itself are rare, only a few cases having been reported.<sup>11</sup>

Unfortunately, metastatic lesions to the spinal cord membranes from the breast and the prostate are comparatively common. Transverse spinal cord symptoms are the rule. Frequently the site of preference is outside the dura. They have been known to produce sudden paraplegias. Spiller<sup>12</sup> was the first to call attention to this fact. We<sup>6</sup> have also reported similar cases.

No discussion of spastic paraplegia is complete without a mention of hysteria, which may so mimic an organic cord disturbance that it may be difficult at first to make a differentiation. The presence of organic signs should serve to make the correct diagnosis.

The infectious diseases play an important role in the production of spinal cord involvement, particularly in children. We have recently seen spastic weakness and incoordination in the lower limbs following measles. Most of these cases clear up completely. Other childhood diseases can produce similar pictures. As a rule the spinal cord involvement is not complete and in the later stages the patients show only weakness and incoordination. In the adult a spastic weakness can occur from infections and from serums and vaccines.<sup>13</sup>

Lesions of the paracentral lobules of the brain can give a spastic weakness confined to the lower limbs that simulates spinal cord disease. Such a case is portrayed by a patient, aged 52, who began to show weakness of both lower limbs, associated with rigidity and poor control of the sphincters. Sensory disturbances were not prominent. On admission, marked spasticity and hyperreflexia of the lower limbs were noted. The serology was negative. There were no signs of intracranial pressure. The patient lived only two months after the onset of the condition, death being due to cardiovascular disease. At autopsy the brain showed a large fibroblastic tumor springing from the falx cerebri and compressing and destroying both paracentral lobules.

A less common condition giving a symptom complex that can be described by the term "spastic paraplegia" is arachnoiditis, described particularly by Stookey.<sup>14</sup> Recently cases have appeared in the literature which give evidences of a gross focal lesion with spastic-ataxic paraplegia in which at operation only an adhesive process in the meninges is found. Stookey has found this syndrome in a series of well studied cases. Their differentiation from spinal cord tumor is difficult and at times impossible.

8 Thomas Andre Sorrel E and Sorrel Dejerine (Mme). Paraplegia in Nontuberculous Kyphosis. *Presse med* 41, 1542 (Oct 7) 1933.

9 Viets, H R and Clifford M H. Paraplegia Associated with Nontuberculous Kyphoscoliosis. *New England J Med* 206 55 (Jan 14) 1932.

10 Goodhart S P and Savitsky Nathan. Spinal Epidural Abscess. *Arch Neurol & Psychiat* 30 222 (July) 1933.

11 Adson A W and Woltman H W. Abscess of the Spinal Cord. Report of a Case with Functional Recovery After Operation. *Brain* 49 193 (June) 1926.

12 Spiller W G. Rapidly Developing Paraplegia Associated with Carcinoma. *Arch Neurol & Psychiat* 13 471 (April) 1925.

13 Kennedy Foster. Certain Nervous Complications Following the Use of Therapeutic and Prophylactic Sera. *Am J M Sc* 177 555 (April) 1929.

14 Stookey Byron. Adhesive Spinal Arachnoiditis Simulating Spinal Cord Tumor. *Arch Neurol & Psychiat* 17 151 (Feb) 1927.

6 Winkelman N W and Eckel J I. Metastatic Carcinoma of the Central Nervous System. *J Nerv & Ment Dis* 66 114 and 133 148 1927. Focal Lesions of the Spinal Cord Due to Vascular Disease. *J A N A* 90 1919 (Dec 3) 1932. Unusual Cases of Syphilis of the Central Nervous System. *Arch Neurol & Psychiat* 27 881 (April) 1932.

7 Elsberg C A. Tumors of the Spinal Cord. The Symptoms of Irritation and Compression of the Spinal Cord and Nerve Roots. New York, Paul B Hoeber 1925.

## COMMENT

We have enumerated a group of conditions in which spastic paralysis of the lower limbs is the predominant picture. We have, however, by no means exhausted the list. While the recognition of the symptomatology is easy, the determination of the etiologic factor is usually difficult. Certain conditions occur particularly in certain age groups, yet no age is exempt. Even in children metastatic cord lesions occur, such as sarcoma, hypernephroma and Hodgkin's granuloma. Arteriosclerosis is not common in the young, yet thrombosis of the anterior spinal artery is more common in the young than in the old.

Syphilis plays a dominant role in spinal cord disease. Even when gross lesions are suspected, one must keep this etiologic factor in mind. Unfortunately when many cases of syphilis of the spinal cord are recognized the condition has advanced so far that therapy can only prevent progression of the disease and cannot effect a cure.

We have seen severe cord symptoms of the spastic-ataxic type as an allergic reaction. We have seen a spastic paralysis after the use of antirabic vaccine and after the use of serums and vaccines of all sorts. While some of these cases tend to recover, many show severe residuals.

While the term spastic paraplegia refers most frequently to involvement of the pyramidal tracts, it is extremely uncommon to see pure cases of this sort. There is usually involvement of the sensory pathways with resulting ataxia and disturbance of sensation up to the level of the lesion. The sphincters are involved in direct relation to the motor and sensory disturbances. The diagnosis of a primary lateral sclerosis is usually incorrect. The cases which have come to autopsy with this diagnosis have been multiple sclerosis, tumors, vascular lesions or other pathologic conditions. We have seen, however, a case in a young patient whose brother and father also had the type that is recognized as the familial form of primary lateral sclerosis.

Because of the peculiarities in the circulation, sclerosis of the vessels in and around the cord is not as frequent or as early as is atheromatous change in the vessels of the brain. Yet the cord is not immune to sclerosis of its vessels. The peculiarity of the circulation is due to the fact that all the vessels destined for the spinal cord come off at right angles to the parent branches. The rarity of metastatic lesions of all sorts to the spinal cord itself is testimony to the fact that the vessels are not in the direct line of blood flow. Metastasis to the membranes of the cord, however, is common.<sup>6</sup>

As indicated before, the list given is by no means complete. Rare conditions can occur, such as diabetes mellitus, early amyotrophic lateral sclerosis, leukemic infiltrations,<sup>15</sup> myelomas,<sup>16</sup> Caisson's disease<sup>4</sup> (Oppenheim<sup>4</sup>) and paraplegia of the aged.<sup>4</sup> Sudden and severe generalized hemorrhages rarely if ever produce spinal cord involvement, in contrast to pernicious anemia. Spinal cord involvement has also occurred after severe systemic infection. It has been seen in hemangioma of the spinal cord.<sup>17</sup>

Given a case of beginning spastic weakness in the lower limbs, what is the method of examination and what are the possibilities in order to determine the underlying basis? A complete history is essential. A thorough neurologic study must be done. Serologic and cytologic studies of blood and spinal fluid are important. The Queckenstedt test should be done as a routine procedure in every case of involvement of the spinal cord that even suggests a gross lesion. Roentgenographic studies of the spinal column may give diagnostic information. Search for primary malignant lesions should be carried out on the least suspicion that the spinal cord symptoms are the results of metastasis.

While it is impossible to list the various conditions that may produce spastic paraplegia, a good working list has already been given.

## SUMMARY AND CONCLUSIONS

1 Spastic paraplegia is a descriptive term and not a diagnosis.

2 The term primary lateral sclerosis is now given to the group originally described by Erb and Charcot, in which only the pyramidal tracts are involved. These cases are extremely rare. Many occur in children and are familial.

3 Most of the cases beginning with spastic weakness in the lower limbs prove to be either multiple sclerosis, syphilis, pernicious anemia, neoplasm, trauma or other conditions.

4 Thorough study is needed in all cases presenting a beginning spastic paraplegia to make an etiologic diagnosis.

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## ABSTRACT OF DISCUSSION

DR I S WECHSLER, New York. I can subscribe to every word Drs Winkelman and Eckel said and yet take exception to the whole paper. By this I mean that they have given a title that tries to cover everything and therefore, I fear, covers nothing. Spastic paraplegia is a designation that has come down from writers of fifty years ago, who did not have the knowledge of pathology or of clinical neurology that exists today. The term used to cover a multitude of conditions now recognized as specific syndromes. If by spastic paraplegia is meant only involvement of the pyramidal tracts, of course many of the conditions that the authors enumerated are either not described sufficiently or are described too extensively. It seems to me that they tried to cover the symptomatology of the spinal cord. As a nosologic entity the term "spastic paraplegia" no longer has any place in neurology. With injury of any sort to the spinal cord not necessarily that of trauma but of infection, tumor, tuberculoma, vascular diseases or what not, the important question is: What happened to the cord and where has the lesion taken place? An injury at a given level involves various pathways, depending on the extent of the lesion and on the rapidity of its development. It doesn't matter so much what happens to the cord, much more important is where and how severely it has been affected and what the etiologic or pathologic process is. If, for instance, there is a tumor, all the symptoms point to a level and below it. Similarly with a crush of the cord. If there are disseminated lesions, such as occur in infections, multiple sclerosis or syphilis, one is not dealing with a spastic paraplegia or with a cord condition alone. Therefore it seems to me that it is much better to know the lesion, know its location, estimate its extent, and then find out whether there are sensory changes, pyramidal tract signs, vasomotor disturbances, vesical and rectal disturbances, and so on. While I agree in the main with what Drs Winkelman and Eckel have said I think it would be much better to throw out the whole concept of spastic paraplegia and speak of the clinical syndromes in anatomic, physiologic, pathologic and etiologic terms.

15 Olmer J and Alliez J. Epidural Leukemic Infiltration as Cause of Paraplegia. *Presse med* 40 1986 (Dec 31) 1932.

16 Jacob H W and Kahn E A. Myeloma of Vertebra. *Am J Roentgenol* 30 201 (Aug) 1933. Klemme R M. Plasma Cell Myelomas Causing Cord Compression. Report of Five Cases. *South M J* 26 692 (Aug) 1933.

17 Sargent Percy. Hemangioma of the Pia Mater Causing Compression Paraplegia. *Brain* 48 259 (June) 1925. Globus J H and Doshay L J. Venous Dilatations and Other Intraspinal Vessel Alterations Including True Angiomata with Signs and Symptoms of Cord Compression. *Surg Gynec & Obst* 48 345 (March) 1929.

Dr N W WINKELMAN, Philadelphia Dr Wechsler's point of view is exactly the point of view we have tried to give, that spastic paraplegia is a descriptive term. It is, however, a term that is used even by neurologists and is not an accurate histopathologic diagnosis by any means. That is the whole point of the paper, as we have stated. We have given a short outline for the general physician, which he may use whenever a patient with a spastic weakness in the lower limbs presents himself for diagnosis.

## CHRONIC BRUCELLOSIS

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Brucellosis is the most recent, and it appears to be the most satisfactory, name applied to *Brucella* infections. "What's in a name?" As it will be pointed out later, names have been very important in shaping the history of this disease.

Hughes,<sup>1</sup> who in 1896 gave the name "undulant fever," understood the importance of the name. He published in the *Lancet* an entire article on the subject of an appropriate name for this disease. He covered almost half a column with the enumeration of the many names which down to that time had been applied to the disease in various languages. Since he wrote that article still more names have been applied. Mediterranean fever, Malta fever and undulant fever have been the most commonly used.

The only amusing incidents that I know to have been associated with the dreary disease have been connected with the name. According to a story related by Hughes, the British military reports used to designate the disease as "simple continued fever." The Tommy, who apparently liked the alphabet as well as do Washington officials, reduced the name to "S C fever." Then, forgetting what the S stood for, he evolved "slow continued fever," which had the advantage of expressing his feelings somewhat. Hughes conceded that "slow continued fever" was as good a name as any, with the exception of the new one of "undulant fever," which he then proposed—"undulant" referring to the wavelike appearance of the temperature curve. Later it will be pointed out that undulant fever is not an appropriate name for the disease as it is now known.

It is somewhat amusing to look back on the exasperation of the native Maltese over the use of the name of his island to designate this disease. To stigmatize his native land in that way was too much for him. The *Lancet* is responsible for this little pun. To the question "How would you make a Maltese cross?" the answer is "Associate the name of the island with a disabling fever."

Sympathetic with the Maltese, the International Congress of Medicine and Hygiene meeting in London in 1913 adopted a resolution to abolish the name Malta fever and substitute "undulant fever," as proposed by Hughes. But still the name stuck. Again in 1927 official action was taken. The Malta branch of the British Medical Association reprimanded American and continental writers for their persistence in the use of the odious name. It is now gradually passing into

disuse, probably not so much as the result of official remonstrance as because of a realization that a local name is not appropriate for a disease of world-wide distribution.

The name brucellosis is preferable to all others because it simply expresses infection with *Brucella*, regardless of the nature of the disease response, and because it is applicable to the disease in man or in any of the lower animals.

There was also a significant confusion of names in regard to the causal organism. In 1886 Bruce, a medical officer in the British army stationed on the island of Malta, discovered the causal organism of the fever that disabled many of the soldiers of the garrison on that island. He called the organism *Micrococcus melitensis*.

About a decade later the Danish veterinarian Bang discovered the causal organism of contagious abortion of cattle, a disease that ranks with tuberculosis in causing tremendous financial losses to dairymen in every country of the world where cattle are raised. Bang named his organism *Bacillus abortus*.

These two generic names, *Micrococcus* and *Bacillus*, served for two decades to guide bacteriologic investigations of the human disease and the disease in cattle into separate channels. Then in 1917 I happened to be studying the bacterial flora of milk as it comes from the cow's udder and found that Bang's bacillus is very closely related to Bruce's micrococcus. Later the generic name *Brucella*, derived from Bruce, the name of the discoverer, was given to the entire group, including the organisms of Bruce and of Bang. The causal organisms of the human and bovine diseases were found to be so closely related that it was a mystery why a disease similar to the so-called Mediterranean fever was not known in this country.

The war, with its special problems, diverted interest from *Brucella* investigations until 1922, when the first case of human infection with the abortus variety of the organism was diagnosed in the Johns Hopkins Hospital. It was reported by Keefer in 1924.<sup>2</sup> Subsequently, as physicians have gradually learned that brucellosis is a disease that should be considered in every case of fever not attributable to other causes, the number of reported cases has greatly increased. Last year there were 1,787 cases reported in the United States, some from every state of the union. It is not known what percentage of the total number of cases the reported cases represent. It is certain that a great number of cases of *Brucella* infection are not recognized as such.

Brucellosis is a very deceptive disease. The symptoms are manifold, sometimes resembling one disease and sometimes another. Even in Mediterranean countries, where the disease is of a severe type and where it has been known for many decades to occur commonly, the diagnosis is often incorrect. In 1922, before human infection with the bovine type of the organism was known to occur, Bassett-Smith<sup>3</sup> made the statement that in its early stages nearly every case of brucellosis had been treated for some other disease before the correct diagnosis was made. Every treatise on brucellosis emphasizes the extreme difficulty of diagnosis, owing to lack of characteristic symptoms. Typhoid, malaria, rheumatic fever, endocarditis, tuber-

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<sup>1</sup> Hughes M L. Undulant (Malta) Fever. *Lancet* 2: 238-239 (July 25) 1896.

<sup>2</sup> Keefer C S. Report of a Case of Malta Fever Originating in Baltimore Md. *Bull Johns Hopkins Hosp* 35: 614 (Jan) 1924.

<sup>3</sup> Bassett-Smith P W. Undulant Fever in Byam and Archibald Practice of Medicine in the Tropics 2: 1016 1922.



culosis, bronchial pneumonia, bronchitis and influenza are some of the diagnoses erroneously given to acute cases of brucellosis.

During the last few years the physicians of this country have become alert to the prevalence of brucellosis, and it seems probable that now most of the acute cases that come into the hands of competent physicians receive the proper diagnosis. But there is convincing evidence that cases of the milder forms of the disease rarely receive a correct diagnosis.

The writers who described brucellosis in Mediterranean countries recognized mild types of the infection as well as the severe types. Shaw,<sup>4</sup> who was a member of the British Mediterranean Fever Commission of 1905-1907, was the first to recognize the so-called ambulant form of the disease, in which symptoms may be entirely absent or limited to a few days of slight fever. Shaw discovered the ambulant type of cases by examining the blood of 525 Maltese dockyard employees for specific agglutinins in the blood serum. Fifteen per cent gave a distinct reaction and twenty-two of those giving the highest agglutinin titer were examined carefully. Cultures were obtained from ten, all of whom were working full time. Examination revealed, however, that there was a slight rise of temperature in some of them.

Shaw's observations on the ambulant form of the disease have been confirmed by other investigators in other parts of the world. Hardy<sup>5</sup> and his collaborators reported that an average of 25 per cent of the cases they studied in Iowa were ambulant. The one constant symptom, and occasionally the only one, was weakness. Physical examination usually revealed no abnormality.

Of special interest are the recent reports of investigations on packing house employees in this county.<sup>6</sup> The porcine type of *Brucella* is more virulent for man than is the bovine type, and the handling of infected material leads to infection more readily than does the ingestion of contaminated food. Hence, packing house employees who handle hog products work under conditions peculiarly hazardous for contracting brucellosis, and a study of such groups has been a fruitful field for investigation. The results of the several investigations have agreed in showing that individuals who come into contact with infective material may develop immunity reactions without suffering any notable illness. Further, the results of the studies have revealed that even among packing house employees—a group whose illnesses should promptly suggest brucellosis—a large percentage of cases do not receive a correct diagnosis. Among the packing house employees examined by Martin and Myer, fifteen cases were found with histories of illness suggestive of brucellosis during the preceding eighteen months and with agglutinins specific for *Brucella* in the serums. Only three, or 20 per cent, of the fifteen cases had received a diagnosis of brucellosis.

If only 20 per cent of cases of brucellosis receive a correct diagnosis in a group in which occupational hazards should suggest infection with *Brucella*, it seems

probable that sporadic cases with less obvious histories of contact with the organism may receive a correct diagnosis in an even smaller percentage of cases.

The name "undulant fever" is an obstacle to the recognition of some of the chronic cases, for it implies a fever temperature, whereas that does not always obtain. There is to be found in the literature little information about the disabling chronic form of the disease in which, during long periods of many months of illness, there may never be a significant rise in temperature.

In his classic monograph of 1897 on undulant fever, Hughes<sup>7</sup> describes what he calls an intermittent type of the fever in which the temperature may be normal or subnormal in the morning, 99 F or higher in the afternoon, and normal again at night. He mentions that this condition, with mild symptoms of disease, may continue for months. Hardy and his associates in their paper of 1930 on the disease in Iowa state that in their ambulant cases the temperature was normal in the forenoon and rarely reached 101 in the evening. But neither Hughes nor Hardy emphasizes the fact that in a given case the slight afternoon rises in temperature may continue to be insignificant for months. In my own case, on more than one occasion there were many months of complete disability with never a rise of temperature above 99.5 F.

The recent investigations of Feldman and Olson<sup>8</sup> are a valuable contribution to the knowledge of chronic brucellosis. These authors availed themselves of slaughter house material for the study of the chronic disease in swine. They selected for study apparently healthy animals that gave positive agglutinin reactions. From one of these animals, in which postmortem examination revealed no lesions, the causal organism was obtained from the spleen. From another hog carcass *Brucella* was cultivated from an abscess of the spermatic cord and also from the lymph nodes of the head, although the lymph nodes did not reveal morbid changes. These investigators studied a number of cases of spondylitis in apparently normal slaughter house hogs. They demonstrated *Brucella* in some of them. It was usually the lumbar or sacral vertebrae that were affected. The result of this study of spondylitis in swine is of particular interest from the point of view of the human disease, because lumbar pain without objective signs of the disease is a common symptom in cases of human *Brucella* infection. Spondylitis in man, proved to be due to an abscess caused by *Brucella* infection, has been reported.<sup>9</sup>

Results similar to those of Feldman and Olson have been obtained by many other investigators of the disease in various domestic and experimental animals. There have been repeated demonstrations of infection in cattle and goats without clinical evidence of disease. In fact, the great difficulty in avoiding the use of milk contaminated with *Brucella* is that these organisms are excreted in the milk of apparently healthy animals.

Since the infection occurs commonly in animals that show no sign of disease, and since it is even known to occur when lesions are not to be found on postmortem

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6 Hardy Jordan Borts and Hardy Martin J W and Myers J T. *Brucella* Antibodies in Human Serum J Prev Med 5 243 248 (July) 1931 Huddleson I F Johnson H W and Hamann E E. A Study of *Brucella* Infection in Swine and Employees of Packing Houses J A V M A 83 16 30 1933

7 Hughes M L. Mediterranean Malta or Undulant Fever New York Macmillan Company 1897

8 Feldman W H and Olson Carl Jr. Spondylitis of Swine Associated with Bacteria of the *Brucella* Group Arch Path 16 195 210 (Aug) 1933 Isolation of Bacteria of the *Brucella* Group from Apparently Healthy Swine J Infect Dis 54 45 50 (Jan Feb) 1934 Isolation of Bacteria of the *Brucella* Group in Cases of Spondylitis of Swine An Additional Study J Am Vet M A 84 628 634 1934

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examination, an explanation for the difficulty in diagnosis of the human disease is at hand

I shall draw from my own experience certain conclusions as to the diagnosis that the patient with the chronic form of the disease generally receives. I have been consulted by a number of patients with the chronic form of the disease who have been fortunate enough to receive, finally, the correct diagnosis. Usually there was a long delay before the correct diagnosis was given, and in the meantime the diagnosis was almost invariably neurasthenia. Indeed, the textbook definition of neurasthenia describes chronic brucellosis: exhaustion, insomnia, irritability, and complaints of aches and pains for which no objective signs can be found.

It is a severe trial for the brucellosis patient, which contributes largely to the mental depression characteristic of the disease, that when he appeals for medical aid he is told that his illness is only imaginary and that all that is necessary for his recovery is that he should acquire the proper mental attitude.

There is no doubt that chronic brucellosis is often diagnosed as neurasthenia. Hence, an important problem presents itself: What percentage of the great number of cases of so-called neurasthenia is due to *Brucella* infection?

A study of a large group of cases which have been diagnosed as neurasthenia should yield information on that point. It cannot be expected, however, that clinical study will give the desired information, for the diagnosis of neurasthenia in any given case was made because the physicians who examined the patient were unable to find a demonstrable cause of the disease. Further, the fact that characteristic symptoms are lacking in acute cases and the knowledge of the disease in apparently healthy animals discourage the idea that clinical examination of chronic cases may lead to a correct diagnosis. It is necessary to resort to special laboratory tests.

The one infallible proof of *Brucella* infection is the cultivation of the organism from the blood or excretions. Cultures are frequently negative in acute cases, however, and there is a poor chance to obtain a culture from chronic cases.

A positive agglutinin reaction is suggestive of *Brucella* infection in a patient with undiagnosed disease. Consideration must always be given, however, to the fact that sometimes normal individuals respond to *Brucella* infection by the development of agglutinins in the blood without accompanying illness. On the other hand, negative agglutinin reactions are of little significance. Even in severe cases, in which *Brucella* infection is proved by cultivation of the organism, agglutinins may be lacking in the serum. That was true in my case, and Carpenter, Boak and Chapman<sup>10</sup> have recognized severe cases presenting a weak titer of agglutinins or none in the serum. Burnet<sup>11</sup> reported that 16.6 per cent of his cases failed to show agglutinins in the serum, and Simpson<sup>12</sup> reported a number of such cases. Infection without the occurrence of agglutinins would be even more likely to occur in mild

than in severe cases. Hence, a negative agglutinin reaction cannot be regarded as significant in chronic cases.

Because of the limitations of the agglutinin test a number of investigators have studied the possibility of detecting *Brucella* infection by means of cutaneous reactions following injection of various preparations derived from *Brucella* cultures.<sup>13</sup> They all concluded that the intradermal tests are useful in detecting *Brucella* infection. In interpreting the results of cutaneous tests, however, consideration must be given to the fact that normal persons may develop cutaneous hypersensitiveness without symptoms of illness as a result of *Brucella* infection and that cutaneous sensitiveness remains after recovery from brucellosis.

Since none of the three mentioned tests for the detection of brucellosis give results that may be interpreted as definitely positive or negative evidence of brucellosis, a consideration of the combined results of all three tests is the best procedure now available for the diagnosis of this disease. Huddleson, Johnson and Hamann<sup>14</sup> suggest that a fourth test, the opsonic power of the blood, be included. The practicability of their suggestion has not as yet been confirmed.

In considering the incidence of chronic brucellosis in this country it is pertinent to consider the distribution of the causal organism. It exists in every country where cattle are raised and is excreted in the milk of infected animals. The disease also affects other domestic animals, including swine, sheep, goats and horses. The human disease may be derived from any infected animal. It is impossible to compile accurate statistics of the distribution of the disease in domestic animals, but estimates have been made following tests on cattle in various parts of the United States. According to these estimates, from 6 to 10 per cent of the cattle of this country are excreting *Brucella* in their milk. A considerably larger percentage of cattle are infected, for not all infected cattle excrete the organism in their milk.

#### SUMMARY

The main facts relative to the incidence of chronic brucellosis may be summarized as follows: 1. Contact with the causal organism is of common occurrence. 2. The severity of infection is known to vary from the acute disease to a form so mild that the subject is unaware of the illness. 3. Clinical diagnosis is extremely difficult, even in severe cases. 4. *Brucella* infection is known to occur in animals that appear to be healthy. 5. There exists in this country a common malady—the so-called neurasthenia—which in its clinical manifestations cannot always be distinguished from chronic brucellosis.

These facts challenge the right of a physician to make a diagnosis of neurasthenia—a diagnosis regarded as dishonorable by the patient, and also by his family, his employer and his friends—without considering, among other possibilities, the possibility of chronic brucellosis.

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13 Burnet<sup>11</sup>, Giordano A S. *Brucella* Abortus Infection in Man. The Intradermal Reaction as an Aid in Diagnosis. *J A M A* 93: 1957-1958 (Dec 21) 1929. Simpson<sup>12</sup>, Levin William. The Intradermal Test as an Aid in the Diagnosis of Undulant Fever. *J Lab & Clin Med* 16: 275-281 (Dec) 1930. Leavell H R and Amoss H L. The Endermic Reactions in *Brucella* Infections. *Arch Int Med* 48: 1192-1197 (Dec) 1931. Huddleson Johnson and Hamann<sup>14</sup>. Goldstein, J D. Cutaneous Reactions in the Diagnosis of Undulant Fever. *J Clin Investigation* 13: 209-218 (March) 1934.

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## CHORIONEPITHELIOMA

EARLY DIAGNOSIS BY THE QUANTITATIVE DETERMINATION OF ANTERIOR PITUITARY-LIKE PRINCIPLE FROM THE URINE OF PREGNANCY

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While the mechanism and the underlying nature of the increased excretion of the gonadotropic substances during pregnancy are still unsettled problems, the clinical value of the Aschheim-Zondek reaction for the diagnosis of both normal and pathologic pregnancy is well established.<sup>1</sup> Before this biologic test for living chorionic villi was discovered, the diagnosis of early chorionepithelioma was difficult or impossible. Bleeding following labor or molar pregnancy is the usual clinical sign pointing to the possibility of chorionepithelioma, however, the bleeding in early cases may not be associated with tumor formation or diagnostic curettings. Most cases of chorionepithelioma prior to the utilization of the Aschheim-Zondek test were not diagnosed until a uterine mass was palpable, until a curettage brought forth characteristic tissue, or until metastases in the lungs or vagina appeared. Often a mass was not palpated until metastases had already occurred. Curettage as a diagnostic method not only is uncertain because of the possible location of the tumor at a distance from the endometrium but is dangerous, because the site of a friable growth may be perforated. The use of the Aschheim-Zondek test following mole obviates the necessity of curettage and its attendant dangers and is a diagnostic method by which very early chorionepithelioma may be revealed—before a tumor is palpable or before hemorrhage occurs.

The value of such an accurate test is obvious. The cure of any malignant growth depends greatly on its recognition in an early stage of proliferation, this would hold true especially for chorionepithelioma, in which the degree of malignancy is great and metastases occur early. The detection of metastasis after operation for chorionepithelioma is possible with the Aschheim-Zondek test before clinical signs manifest themselves. If the Aschheim-Zondek test is negative after operation, one may be certain that recurrence or metastasis has not occurred, and therefore follow-up radiation therapy is unnecessary.

Whereas the occurrence of malignant chorionepithelioma is a rarity, hydatidiform mole, which in perhaps 10 per cent of the cases becomes chorionepithelioma, is not an uncommon condition. However, in most patients with hydatidiform mole the diagnosis is not made until the characteristic "grapelike" tumor is expelled. Cases have repeatedly been seen of prolonged bleeding in early pregnancy treated as threatened abortion for weeks before a mole was finally passed, the patient in the meantime developing a marked secondary anemia. In the quantitative hormone test to be described, an additional method becomes available in the diagnostic armamentarium for the recognition of hydatid mole in an early stage. In normal pregnancy the concentration of anterior pituitary-like substance in the urine begins to diminish after the sixth or eighth

week. In hydatidiform mole the concentration increases progressively and rapidly. The high concentration of anterior pituitary-like substance in the urine of patients with hydatidiform mole was demonstrated by Fels,<sup>2</sup> Roessler,<sup>3</sup> Aschheim,<sup>4</sup> Zondek,<sup>1</sup> Philipp, Robert Meyer, Mazer and Edeiken,<sup>5</sup> and Ehrhardt,<sup>6</sup> and these authors have diagnosed mole in doubtful cases by this means. In most instances the quantitative method was a fractional one and involved the provocation of a typical reaction by minute quantities of urine rather than an estimate of the minimum number of mouse units per liter. For example, Ehrhardt in one case obtained a positive reaction with  $\frac{1}{520}$  cc of urine, and in another with  $\frac{1}{260}$  cc.

The quantitative estimations of gonadotropic factor in the urine in chorionepithelioma have been reported by Fels, Robert Meyer and Ehrhardt. Fels, in a case of testicular chorionepithelioma, demonstrated the presence of 33,000 mouse units per liter of urine, Robert Meyer 70,000 mouse units per liter in a case of renal chorionepithelioma, and Ehrhardt 100,000 mouse units per liter in a case of primary uterine chorionepithelioma.

It is our purpose in this paper to describe a simple method for the quantitative determination of anterior pituitary-like factor in the urine, to stress the value of this test in the early recognition and differential diagnosis of chorionepithelioma (and hydatidiform mole), and to record an unusually early chorionepithelioma.

## TECHNIC

While the Friedman rabbit test seems now to be the method of choice in the diagnosis of pregnancy, the original mouse or rat test is distinctly preferable for the exact quantitative determination of anterior pituitary-like substance in the urine. The original Aschheim-Zondek method was therefore used, with slight modification, as follows. The patient's morning urine specimen is diluted with physiologic solution of sodium chloride in fractional concentrations such as 1:10, 1:50, 1:100 and 1:1,000. From three to five infantile white female mice, weighing from 6 to 8 Gm, are injected with a total of 3 cc of each of the dilutions within 100 hours. The animals are thereafter examined for the presence of vaginal cornification and ovarian stimulation, such as folliculation, hemorrhage and luteinization as stated in a previous communication.<sup>7</sup> On the assumption that a positive reaction would not be obtained with any of the dilutions but only with the undiluted native urine specimen, this would indicate that 3 cc of urine contains at least 1 mouse unit, or 1 liter of urine a minimum of 333 mouse units. Accordingly, a positive reaction obtained with a 1:10 dilution would indicate a minimum excretion of 3,330 mouse units per liter, a positive reaction with 1:100 dilution, an excretion of 33,300 mouse units, and so on. It has been established that, in terms of mouse units, the excretion of the gonadotropic substance amounts to from 5 to 10 mouse units per liter of urine in both normal man and woman. This amount rises sharply to from 5,000 to 20,000 mouse units in normal pregnancy, and any amount above 20,000 mouse units is indicative of the presence of a pathologic pregnancy such as hydatid mole or chorionepithelioma.

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- 6 Ehrhardt K. *Surg. Gynec. & Obst.* 53: 486 (Oct.) 1931.
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From the Departments of Gynecology, Pathology and Metabolism of the Michael Reese Hospital.

1 Aschheim Selmar and Zondek Bernhard. *Klin. Wchnschr.* 7: 8 (Jan. 1) 1928. Zondek Bernhard. *Die Hormone des Ovariums und des Hypophysenvorderlappens*. Berlin: Julius Springer, 1931.

## REPORT OF CASE

Mrs. S. S., aged 36, had her last regular menstrual period, July 10, 1933. On August 25, she began to bleed profusely with the passage of clots. The uterus was enlarged, soft and globular, and a tentative diagnosis of pregnancy with threatened abortion was made. The bleeding stopped in eight days and the patient was well until October 30, when, following a profuse hemorrhage, a large hydatidiform mole was passed. Under ethylene anesthesia the cervix was found to be completely dilated, and digital exploration of the uterine cavity revealed some loose hydatid tissue, however, no masses or evidence of muscular invasion were discovered. The endometrium was sharply curetted. The patient left the hospital in five days feeling well but began to bleed again, December 9, the bleeding lasting three days and simulating a menstrual flow. December 22, bleeding again occurred and this time was associated with severe pain in the left lower quadrant.

Bimanual examination at this time revealed an enlarged soft uterus, and the left ovary was cystic and approximately the size of a lemon. An Aschheim-Zondek test, December 20, gave a very strongly positive reaction (reaction III). Because of recurrent bleeding and because of the extremely positive Aschheim-Zondek reaction it was decided to curet again and look for evidence of recurrent mole or chorionepithelioma. December 23 a diagnostic curettage was performed and only tissue resembling normal endometrium was obtained. There was no evidence of hydatid mole or chorionepithelioma. The uterus was only slightly enlarged and the left cystic ovary was accidentally ruptured during the bimanual examination.

The microscopic report of the tissue removed was as follows: "Degenerated placental tissue with moderate acute and chronic inflammatory changes. Indistinct outlines of hydatidiform mole. No evidence of malignancy." Jan. 6, 1934, the pelvic status was normal. An Aschheim-Zondek test, January 8, was strongly positive with 10 cc of urine. January 26 there began a normal menstrual period. Bleeding occurred again on February 13 but the uterus and adnexa showed no abnormalities on bimanual examination. February 22 the Aschheim-Zondek test was strongly positive with 10 cc of urine. March 1, four months after the passage of the mole, 3 cc of urine gave a strongly positive Aschheim-Zondek test with, quantitatively, 333,000 mouse units per liter of urine. The pelvic status on bimanual examination was entirely normal at this time. With this concentration of gonadotropic substance we strongly advised panhysterectomy. A roentgenogram of the chest showed no pulmonary lesions.

March 8, under ethylene anesthesia the abdomen was opened through a midline incision from the umbilicus to the symphysis. The uterus and tubes appeared normal in all respects, and the ovaries were only slightly enlarged and somewhat cystic. In spite of the normal appearance of the pelvic viscera, the high quantitative gonadotropic contents of the urine impelled us to continue with our original plan and a panhysterectomy and bilateral salpingo-oophorectomy were performed. The patient made an uneventful recovery and was discharged from the hospital twenty days after operation. March 17, nine days after operation, the Aschheim-Zondek test was positive with 10 cc of urine. March 27, 10 cc of urine gave a questionably positive test (reaction I) and 5 cc of urine gave a negative test. Quantitative estimation of anterior pituitary-like substance in this specimen revealed 15,000 mouse units per liter, a very marked diminution in amount under the previous 333,000 mouse units and indicating a disappearance of the effect of the pathologic lesion. April 20 the Aschheim-Zondek test was completely negative indicating no viable chorionic tissue (no metastases).

## PATHOLOGIC REPORT (DR OTTO SAPHIR)

The specimen consisted of a cervix, uterus, both tubes and both ovaries. The cervix and uterus together measured 8.5 cm in length. The cervix was slightly dilated, the mucosa was in some portions distinctly granular in appearance but otherwise showed no gross changes. The uterine cavity appeared normal in size and the lower third portion showed a normal mucosa. The mucosa in the upper two thirds was distinctly elevated, grayish white and very soft and friable in consistency. There were distinct minute areas of hemorrhage present in

this region. Occasionally, minute cystic structures were seen which were not well outlined and which might have signified an edema in this region. Minute cysts were also seen within the right upper horn of the uterus and within the myometrium. The left lateral wall of the uterus showed a small tumor measuring about 5 mm in diameter which had the characteristics of a myofibroma. The myometrium in general was yellowish pink but showed no changes. Within the wall of the uterus, at a distance of about 6 mm from the endometrium and situated in the posterior wall close to the left horn, there was a tumor which measured about 1 cm in diameter, was roughly round, well defined and of a reddish yellow color (fig. 1). Its center was necrotic and contained much clotted blood. The peripheral portions of the tumor were very soft and contained much necrotic material and many hemorrhagic zones. The appearance of the tumor might well have been compared with that of a hemorrhagic corpus luteum. There was no extension of the tumor into the endometrium. As a matter of fact, evidence of it was not seen when the uterus was opened but was revealed only after multiple sections were made through the myometrium. The tubes showed no gross abnormalities. The right ovary was slightly larger than normal. There was a hemorrhagic cyst, 10 by 15 mm in diameter, the wall of which was smooth and gray. One hemorrhagic corpus luteum cyst was seen which measured about



Fig. 1—Early chorionepithelioma. Note tumor in the myometrium.

7 mm in diameter. The left ovary also revealed one corpus luteum cyst measuring about 6 mm in diameter, but no other changes could be recognized.

Microscopically, section of the endometrium revealed a diffuse infiltration of lymphocytes, endothelial cells and a few polymorphonuclear leukocytes. Occasionally, accumulations of plasma cells were seen throughout. There was a distinct increase of the connective tissue. The glandular structures were clearly recognizable. Some of the tubuli contained red cells and a few polymorphonuclear leukocytes. The myometrium throughout showed foci of lymphocytes surrounding small blood vessels. There was no evidence of decidua or villi.

Sections of the tumor, described grossly, showed the following changes. The bulk of the tumor showed only large areas of necrosis with many red cells and much fibrin throughout, but no clearly outlined nuclei could be noted (fig. 2). Only occasionally in the midst of the necrotic material, outlines of pink-stained structures were present which resembled chorionic villi. In the vicinity of the villi a few cells showed a light stained cytoplasm and an eccentrically situated vesicular nucleus. The more peripheral portions of the tumor showed a variety of changes. There were many villi which varied in size; some of them were replaced by a hyaline-like material while others were necrotic. Between the villi there were many large cells with a light pink-stained, clear or foamy cytoplasm. In some fields these cells were filled with a golden brown pigment (apparently blood pigment). Often the foamy cells

surrounded the villi. Also, typical syncytial giant cell masses were seen, and giant cells showing three or four hyperchromatic nuclei, which were distributed diffusely throughout the cytoplasm (fig 3). In addition, there were many lymphocytes throughout the sections, with foci of a reddish brown (blood) pigment. Typical Langhan's cells were not found.

#### PATHOLOGIC CHANGES AND CLASSIFICATION OF TUMOR

Within the myometrium, a tumor was found which consisted largely of villi, syncytial giant cells, much necrosis, fibrin and evidence of considerable hemor-



Fig 2—Section of tumor under low power, showing necrotic villi

rhage. The question arose as to whether these anatomic changes indicated a chorionepithelioma, a syncytioma, or a so-called syncytial hyperplasia (Ewing). Whereas elements of placenta were surely present in the myometrium in relatively large masses, where under normal conditions they should not be present, morphologically the individual structures showed no evidence of a malignant condition, there were no mitotic figures, there was no invasion of blood vessels, the variation in size, shape and staining quality of the individual cells was not conspicuous. Evidence of regressive changes predominated. There was much necrosis, hemorrhage, and an abundance of phagocytic cells, some of which were laden with hemosiderin. There are instances of chorionepithelioma described, however, which were characterized by such regressive changes (supposedly due to a lytic toxin).

The presence of lutein cysts in the ovaries in our case may speak for chorionepithelioma. From the morphologic point of view, because of the absence of histologic evidence of a malignant condition, this tumor could not be called "typical chorionepithelioma." To differentiate the typical chorionepithelioma (choriocarcinoma) with its well known morphologic picture from other forms of tumor somewhat resembling the former, Marchand ascribed the term "atypical chorionepithelioma" to the latter. These are the cases he believed, in which recovery was reported after curettage.

Syncytial hyperplasia (syncytial endometritis) is a type of lesion that has evoked discussion as to whether it is a new growth or an exaggeration of a normal reaction to pregnancy. If one regards this as a new growth it also belongs to the group classified as "atypical chorionepithelioma" by Marchand.<sup>8</sup> Geist<sup>9</sup> however,

concluded that this is really not a neoplasm in the true sense of the word and created the term "syncytial hyperplasia." In this condition, syncytial invasion of the muscularis of the uterus constitutes the chief pathologic change in the entire process. In our case, while the anatomic description might well correspond to "syncytial hyperplasia," the fact that the lesion was found at a distance from the endometrium and grossly appeared as a tumor makes it unlikely that it should be designated as syncytial hyperplasia.

Syncytioma is a definite tumor made up of groups or islets of syncytial cells, and often giant cells, which form the smaller part of the tumor. The greater part is made up of blood clot, degenerating and necrotic tissue, fibrin and leukocytes, the function of the latter being phagocytic. This process, regressive in character, represents a transition from the syncytial hyperplasia on the one hand to advanced chorionepithelioma on the other. It is the first real step in the nature of a true neoplasm (Geist). Langhan's cells are absent in this tumor. Marchand includes this type of tumor under the broad term "atypical chorionepithelioma." Our case fits very well the description of Geist, and, with his classification, this tumor should be designated as syncytioma. However, if one should follow Marchand's classification, this would be an atypical chorionepithelioma.

#### COMMENT

This case illustrates the importance of determining quantitatively the amount of anterior pituitary-like substance in the urine following the expulsion of a hydatidiform mole. Although histologically our tumor was not the most malignant type of chorionepithelioma (choriocarcinoma), still the high gonadotropic concentration as a biologic indicator points to the potentiality of profound malignant change. This is important because the histologic picture is not always a true prog-



Fig 3—Section of tumor under high power showing degenerated villi and syncytial giant cells

nostic index in chorionepithelioma. This fact was well demonstrated in the unusual case recently reported by Lackner and Leventhal,<sup>10</sup> in which, microscopically, a typical choriocarcinoma was found, and, in spite of both pulmonary and vaginal metastases, cure (the patient is now well after eight years) followed hysterectomy and high voltage roentgen irradiation. It will be interesting, in the future, to note whether the amount

<sup>8</sup> Marchand F. Ztschr f Geburtsh u Gynäk **39** 173 1898  
<sup>9</sup> Geist S H. Surg Gynec & Obst **32** 427 (May) 1921

<sup>10</sup> Lackner J E and Leventhal M L. Chorionepithelioma of the Uterus J A M A **98** 1136 (April 2) 1932

of anterior pituitary-like principle bears any relation to the histologic classification of the chorionomas (as set forth by Ewing)

The performance of a very radical operation entirely on the basis of a laboratory finding, and in the absence of any palpable or visible pathologic change was justified by the discovery of a potentially malignant tumor in a very early stage of its proliferation. The disappearance of a positive Aschheim-Zondek test following operation is a true indication of the absence of live chorionic villi (recurrence or metastasis). Therefore the use of postoperative radiation therapy is unnecessary in the presence of a negative test. This would obviate the deleterious effects of irradiation in cases in which it is not needed.

#### SUMMARY AND CONCLUSIONS

1 The quantitative determination of the gonadotropic substance in the urine is an important biologic test in the early diagnosis of chorionepithelioma.

2 Following the expulsion of a hydatidiform mole, this quantitative test forms a prognostic index for chorionepithelioma formation.

3 In the absence of clinical manifestations, an amount of gonadotropic substance in the urine in excess of 20,000 mouse units per liter indicates an early chorionepithelioma.

4 A case of early chorionepithelioma was diagnosed and an operation was performed solely on the basis of the laboratory finding of 333,000 mouse units of gonadotropic substance per liter of urine in a patient who had expelled a hydatid mole four and one-half months previously.

5 Recurrence of chorionepithelioma or metastases may be discovered by the Aschheim-Zondek reaction, and this should determine the use of radiation therapy.

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## Clinical Notes, Suggestions and New Instruments

### ABDOMINOSCROTAL HYDROCELE

A BRIEF DISCUSSION AND REPORT OF A CASE

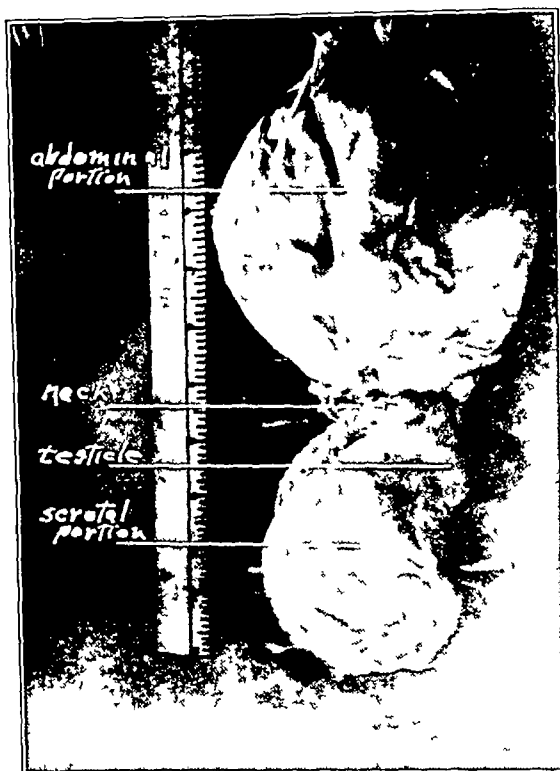
CHARLES S. ROLLER, MD CALUSA, CALIF

There probably have been a good many abdominoscrotal hydroceles operated on, but very few cases are recorded in the literature. The condition is sufficiently uncommon to be reported, if for no other reason than in an effort to avoid errors in opening the abdomen for removal of these tumors, which are always extraperitoneal. Hydrocele of the cord and of the tunica vaginalis combined seems to me to be without much question, the etiology. A hydrocele of the inguinal cord with a competent external inguinal ring could develop in no other location than within the inguinal canal until its size made it imperative that it expand elsewhere. The normal inguinal canal, to an expansive force within the canal itself is weakest posteriorly. A developing tumor within the canal could most easily extend posteriorly by separating the peritoneum and preperitoneal tissues from the internal surface of the transversalis muscle. Anteriorly the very tough fascia of the external oblique muscle offers resistance, and medially laterally and superiorly the conjoined tendon the inguinal ligament and the arching or shelving fibers of the internal oblique and transversalis muscles are all firm barriers. Hence the developing hydrocele must go posterior to these structures, to spread out unhampered in all directions between them and the peritoneum. This is exactly the position that the abdominal portion of the tumor is found to occupy. When large the hydrocele displaces and may be adherent to the bladder, may partially fill the

pelvis and may intimately approach the great pelvic vessels, it may also displace the sigmoid colon well medially if the lesion is on the left side. The hydrocele may reach a great size and cause a huge visible tumor in the lower part of the abdomen. Hydroceles probably are all congenital. Perhaps a more exact name would be inguinoscrotal hydrocele.

The only symptoms are usually an abdominal and scrotal painless swelling. Catheterization to rule out residual urine, a cystogram, barium enemas with fluoroscopy and films of the large bowel should easily make the diagnosis and exclude an intra-abdominal tumor. The abdominal portion is usually not movable, is rather tense and distinctly cystic, and is painless.

Curtis<sup>1</sup> reported a case in a youth, aged 19 years, with a history of trauma as the etiology. The tumor was the size of a grapefruit and seemed to be part of a cystic swelling of the scrotum on the same side. Operation revealed an abdominoscrotal hydrocele, which was removed together with the testicle and a portion of the cord. Recovery followed. Herrmann<sup>2</sup> reported a similar case in a man aged 26, with a much larger abdominoscrotal hydrocele (containing 3 liters of fluid) and



Abdominoscrotal hydrocele sac. Appearance after removal and withdrawal of fluid for measurement. (It contained 3,400 cc.) The larger sac is the abdominal portion. The neck connecting the two tumors is well shown. The combined length is a little over 30 cm (12 inches).

with a fluid connection between the scrotal and abdominal portions demonstrable by fluid wave before operation. The tumor and testicle were removed, followed by recovery of the patient. Lakhota<sup>3</sup> reports a case of an Indian, aged 40, who was cured by operation without removal of the testicle. The tumor was rather small. Richards<sup>4</sup> in 1908 reported a case in an Egyptian and cited thirty-one other cases. Bickle<sup>5</sup> reported a case in 1919 and possibly was the first to state that abdominoscrotal hydrocele was a better term than bilocular hydrocele, with which I agree. Coleman<sup>6</sup> reported a case in an Egyptian with a huge tumor, the sac containing 27 pints (15 liters) of fluid.

1 Curtis C. S. Abdominoscrotal Hydrocele. J. A. M. A. 99:467 (Aug. 6) 1932.

2 Herrmann S. F. Abdominoscrotal Hydrocele. J. A. M. A. 98:399-400 (Jan. 30) 1932.

3 Lakhota B. Bilocular Hydrocele Simulating Hernia and Hydrocele. Indian M. Gaz. 67:199 (April) 1932.

4 Richards Owen. A Case of Double Abdominal Hydrocele. Lancet. 2:533-534 (Aug. 22) 1908.

5 Bickle L. W. Abdominal or Bilocular Hydrocele. Brit. M. J. 2:13 (July 5) 1919.

6 Coleman R. B. Abdominal or Bilocular Hydrocele. Brit. M. J. 2:629-630 (Dec. 7) 1918.



## REPORT OF CASE

**History**—G R., a white man, aged 26, an American, who was referred to me, complained of swelling in the left scrotum, swelling in the abdomen and loss of 15 pounds (68 Kg) in the last two months.

Eighteen months before, the patient noted a swelling in the left scrotum, which gradually enlarged to the size of a grapefruit and was aspirated six months later. The swelling soon returned and became larger than before aspiration. About seven months before admission he noted, for the first time, that the lower left portion of the abdomen was swollen and hard. Both tumors had greatly increased in size since then. The patient had never had any pain but came for relief of the huge scrotal and abdominal swelling, which gave him a constant sense of weight in the scrotum and bothered him when working. He believed that his weight loss was due to a severe cold, which he had contracted two months previously and from which he had just recovered.

The past and family history are not important.

**Physical Examination**—Inspection revealed a huge bulging tumor occupying the entire left lower part of the abdomen, extending to the left wall beyond the midline and upward to 3 inches above the umbilicus. This tumor was continuous by a neck of tissue, about 1 inch in diameter and 1½ inches long with a swelling in the left scrotum of about 4 by 5½ inches. Both tumors were tense, cystic and painless, and contained fluid. The scrotal hydrocele sac was thick walled and transmitted light poorly. The testicle was felt with difficulty, posterior to the scrotal swelling, and seemed hard and enlarged and flattened. There was a moderate adenopathy of the left inguinal region. A definite tubular patent connection of fluid existed between the scrotal and abdominal tumors, as demonstrated by a very positive fluid wave transmitted between them. The neck connecting the two was cystic and was compressible between the fingers. There were no other abdominal changes. On rectal examination one could just detect the cystic tumor anteriorly and to the left.

The blood and urine were essentially normal. The Wassermann reaction was negative, the catheter revealed no residual urine. A cystogram revealed a normal bladder displaced about 3 cm to the right. Fluoroscopy during a barium enema revealed the mass to be displacing the sigmoid markedly to the right, but the bowel was movable and otherwise normal. Fluoroscopy and films demonstrated the mass to lie anterior to the sigmoid. A film of the chest shows evidence of what probably had been a mild pulmonary tuberculosis some time in the past but with no evidence of activity at present.

The preoperative diagnosis was (1) huge hydrocele of the cord and tunica vaginalis, (2) possibly a malignant tumor of the testicle?

**Operation**—Under low spinal anesthesia (120 mg of procaine hydrochloride) an incision was made from the left external inguinal ring to 7 cm above and 4 cm internal to the left anterior superior spine of the ileum. When the fascia of the external oblique was opened and the incision was continued up for several centimeters into the belly of the muscle, it was seen that the huge cystic tumor was beneath the internal oblique and transversalis muscles, pushing the peritoneum aside. The abdominal mass was connected by a patent neck to the hydrocele of the scrotum. The scrotal portion of the tumor was at once shelled out along with the contained testicle. By using this as a very convenient method of traction, the abdominal mass was slowly separated, by blunt dissection, from the lateral pelvic wall, transversalis muscle, peritoneum, bladder and pelvic vessels. It was removed intact. Some care was necessary to prevent injury to these structures. Very little bleeding occurred. The spermatic artery and a few small vessels required ligation. The peritoneal cavity was not opened. The huge defect was obliterated easily by approximation sutures of a plain catgut. The transversalis and internal oblique muscles were approximated with interrupted sutures of no. 2 chromic catgut, and the repair was carried on down to the pubic spine in the same manner, the conjoint tendon and the shelving edge of the transversalis and internal oblique being sutured to the inguinal ligament and the inguinal canal being thus completely obliterated. The incision in the external oblique muscle and fascia was repaired in the same manner down to

the pubic spine, thus making a very firm repair of the huge potential hernia. A small drain had previously been inserted down lateral to the bladder and in the scrotum. The wound was then closed.

The patient made an excellent recovery aside from a mild attack of bronchial pneumonia suffered the first few days after operation. It will be remembered that only spinal anesthesia was given. The drains were removed on the third day and the skin sutures on the tenth day, and the wound healed by first intention. The patient was seen five weeks later in the outpatient department. He had gained 5 pounds (23 Kg), the wound was firm, the left scrotum had shrunk to less than normal size and the abdomen was flat and soft. Six months later he had gained 26 pounds (118 Kg) and was in excellent health.

The combined content of the abdominal and scrotal hydroceles measured about 3,400 cc of clear light yellow fluid. Cultures remained sterile. A centrifugated specimen revealed detritus and a few degenerated epithelial cells. The testicle was small, colorless and flattened and surrounded by a thick mass of fibrous tissue, which appeared to have grown from the wall of the sac and capsule of the hydrocele. No malignant tissue was found.

942 Clay Street

AN UNUSUAL CARPAL FRACTURE DISLOCATION  
REPORT OF CASE

GEORGE L. APFELBACH, M.D.

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AND

CARLO S. SCUDERI, M.D.

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CHICAGO

In reviewing the literature of the past ten years on carpal injuries we have been unable to find a reference to any case in which a fragment of the navicular bone and the entire lunate

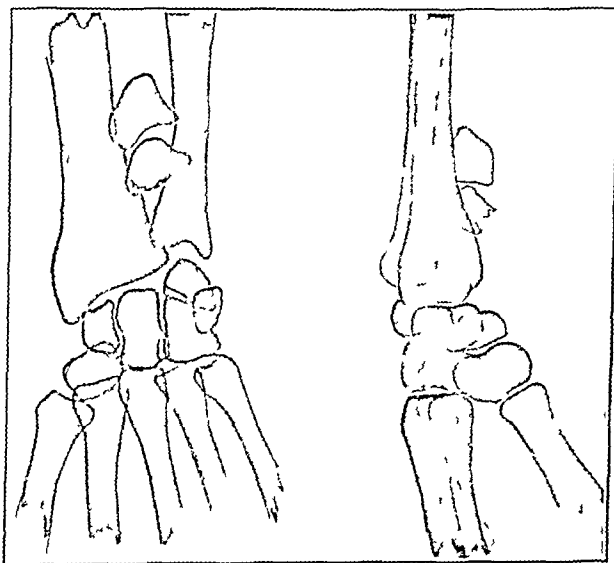


Fig. 1—The distal fragment of the navicular bone and the multiangular major are seen articulating with the radial facet. The dislocated bones are seen rotated and pushed well into the forearm.

were dislocated into the volar surface of the lower third of the forearm.

In order to permit such a displacement between the flexor tendons, the annular ligament of the wrist must have been torn.

This case is being reported because the bones were dislocated so far from their normal position and because the end result of carpallectomy was excellent.

From the Fracture Service of the Cook County Hospital

W L, a Negro girl, aged 17 years, admitted to the Cook County Hospital, March 12, 1933, was in a condition of serious shock. While washing windows, she fell out of a fourth story window, landing in a cement courtyard.

The injuries are enumerated as follows:

- 1 Basal skull fracture with bilateral ecchymosis of the orbits and bleeding from the nose, associated with deep coma
- 2 Depressed fracture of the right maxilla
- 3 Comminuted fracture of the left mandibular angle
- 4 Fractured superior and inferior rami of the left pubic bone, in good position



Fig 2—Sectional decalcified bones. The articular surfaces of the bone are practically intact. The medullary portions of the bones show moderate fibrosis in a few areas. The bony trabeculations are all intact. This section shows the bone after having been dislocated into the forearm for approximately three months.

- 5 Fracture of the internal malleolus of the right ankle, in good position
- 6 Fracture dislocation of the proximal two thirds of the carpal navicular bone and lunate into the volar surface of the forearm

After two months of hospitalization the patient was able to be up and about. May 3, she was discharged from the hospital, temporarily, with a low grade osteomyelitis of the jaw and the dislocated carpal bones. She was instructed to return biweekly for observation. A posterior molded splint was used for one month only, in the treatment of the carpal injury.

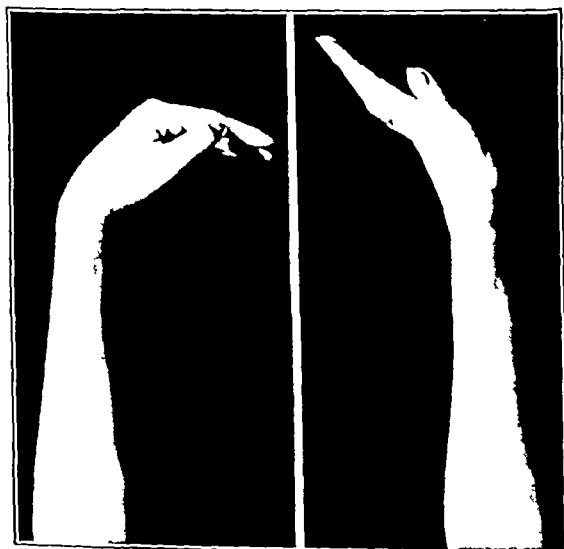


Fig 3—The amount of flexion and extension of the wrist nine months after the injury and six months after the carpalectomy. All motion of the wrist was painless at this time.

June 8 the carpal bones were removed under local anesthesia, because of progressive causalgia over the distribution of the median nerve and increasing paresis over the median distribution of the intrinsic muscles of the hand.

At operation the bones were found between the tendons of the flexor digitorum sublimis and the flexor digitorum profundus with much scar tissue firmly fixing the bones to the epineurium of the median nerve. By sharp dissection the bones

were liberated. The hand made an excellent recovery. When last seen, in January 1934, photographs were taken showing the limit of function, which was painless. The end result was very gratifying to both the patient and ourselves.

2947 Fulton Street

## Special Article

### THE DIONNE QUINTUPLETS

ALLAN ROY DAFOE, M.D. (UNIVERSITY OF TORONTO)  
CALLANDER, ONTARIO

The arrival into the world of one baby is generally a matter of some local interest, but the arrival of five babies is so unusual that the interest spreads far afield and the event becomes worthy of recording in medical history.

During the last five hundred years there have been thirty-two authentic cases of quintuplets recorded. Of these, only one group of all five lived about an hour, and of another group, only one of the five lived for



Front view of the Dionne home. The nursery window is to the left of the door.

fifty days. To these records I wish to add a short history of the birth and early care of the Dionne quintuplets. At the time of writing (July 28, 1934) the five babies are thriving and healthy at the age of 2 months and are gaining steadily in weight.

My practice is situated in a French-Canadian settlement, with my home in Callander, a small village on the East shore of Lake Nipissing, two hundred miles north of Lake Ontario. In this area there are about 3,500 people. My practice covers about four hundred square miles. The French-Canadians first came here about half a century ago, following lumbering activities of that time. Their families followed. They took up land and cleared their farms. This country is studded with lakes with many beautiful camping spots but the land is rocky, with fertile patches. There is lots of hard work necessary to live and actual money is noted for its scarcity. In the winter time the men get some extra work in lumber camps, but in the summer they make their living on their farms, by road work or in the sawmills. For the last two years a large percentage of the people have been on relief.

The first incubator was brought from Chicago on the third day, and the three smallest babies were placed in it, the other two remaining in the basket. Within a week, another incubator arrived and then finally there was one for each baby. The temperature was kept between 87 and 90 at first. As time went on the temperature was gradually lowered and maintained at 84. The moisture was kept up by sponges within the incubators soaked in hot water. As the humidity of incubators is so important, I was able to procure humidity recording instru-



Marie Dionne aged 2 months weight 3 pounds 5 ounces

ments, which were hooked on the inside of each incubator. These were kept between 50 and 55 degrees. The incubator that arrived first was made with a hollow frame, a glass-hinged top fitted with a thermometer and a sponge holder. It was heated by hot water in a copper tank. The other incubators were similar in construction but heated by "little pigs" placed in several small compartments with movable doors.

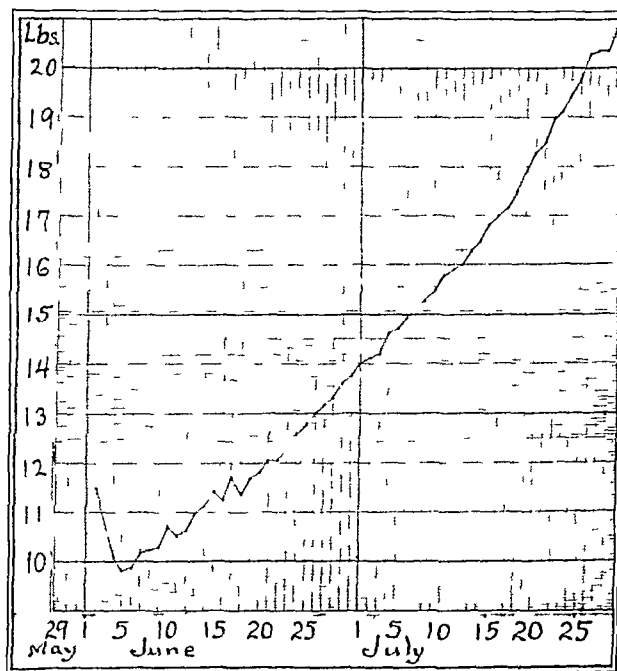
The first week was a nightmare with the frequent alarms, and innumerable trips sandwiched between my other calls. The babies needed constant supervision and frequent stimulation to arouse them out of their attacks of cyanosis. On the fifth day the three smaller ones were markedly distended and looked worse than usual. There had been no bowel movement for two days. I gave them all a saline enema with a fine catheter and a hypodermic syringe and obtained quite a few yellowish black pellets. They seemed to pick up after this and took their food better. Within a week, cylinders of 95 per cent oxygen and 5 per cent carbon dioxide were obtained, with a reducing valve and an ordinary inhalator. This gas then replaced all other methods of stimulation and the rum rations were seldom issued (Yandell Henderson of Yale was largely responsible for the introduction of this method of treatment for asphyxia of the new-born.) It certainly was most valuable with these babies. Inhalations were given for a few minutes before each feeding in the early stages and with every attack of dyspnea and cyanosis. There was a decided maintained improvement following the use of the gas mixture. All the babies began to show a slight but perceptible gain in weight. Even yet the smaller babies frequently become cyanotic, and we are still using the same gas mixture daily.

**Second Week**—Supplies and equipment were pouring in and we now had an opportunity to organize our forces and lay out a campaign. The doors and windows were all screened to shut

out flies and mosquitoes. The babies' room was carefully gone over and all possible measure of aseptic technic introduced, including gowns and masks. The nurses through a women's organization of North Bay made special little Red Riding Hood dresses without sleeves, absorbent cotton gauze jackets, rectal pads, and fashioned the diapers to suit their small bodies. Each baby even had its own pile of mouth wipes. The rest of the children of the family were moved to other quarters, as two or three of them had developed bronchitis. The nurses have been intelligent, vigilant and most faithful, and a great deal of credit should go to them for the survival of the babies. Every physician knows the value of good nursing in the care of premature infants, and in this case the results are the reflection of the painstaking service carried out by the nurses.

I wish to acknowledge the valuable advice concerning modern methods and treatment given me by my brother, Dr. W. A. Dafoe of the Department of Obstetrics and Gynaecology, University of Toronto. From the first week I have been in touch with him personally and by telephone. On request he has visited the mother and children twice and, in addition to giving me medical help, he has aided me in dealing with promoters, reporters and the general public.

**Subsequent History**—The babies have had their "ups and downs" since, but they are progressing favorably in health and gaining steadily in weight. They were at first fed every two hours. This was advanced to two and a half hours and then to three hours. The feedings are given to them in their incubators. They are moved out as little as possible. Once a day they are given olive oil baths. The babies appear to resemble one another considerably, and their eyes are beginning to follow movements near them. Little Marie has a hemangioma over the right thigh, which is growing. It will be treated with radium. The mother developed a phlebitis of the long saphenous vein in the right leg on the eleventh day. She had been



Composite weights of the Dionne quintuplets

sitting up for two days. The patient was put back to bed until her temperature was normal for two weeks. She is quite well now.

#### COMMENT

The publicity in connection with this case has been a serious problem and has caused me considerable trouble and worry. There has been no let-up from the moment of the uncle's naive enquiry to the North Bay paper as to how much it would cost to insert a birth notice for five babies born at one time. At first I

resented what I felt was an intrusion into my private and professional affairs. Then I came to realize that I had no right to object to what had become a matter of continent-wide interest. I have been increasingly grateful to the newspapers for the invaluable supplies and equipment which from the beginning came as a result of this publicity. As for myself, I have had an opportunity which I could never otherwise have enjoyed of meeting by letter, or in person, some of the outstanding men of our profession in Canada and the United States.

It would be impossible to thank the many people "in" and "out" of the profession whose help has enabled us to keep the children alive. We have indeed appreciated all that has been done. I should like to mention particularly the work of the Canadian Red Cross Association, which from the first has given cordial cooperation and has taken over a good share of responsibility for the welfare of the babies. Above all, we are grateful to the Ontario government, which has supplied the whole family with food and clothing, has repaired the road, and has definitely supported our efforts against public display. With such cooperation we hope the babies will continue to thrive and will be a credit to their family and to their country.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
H. A. CARTER

### FOREGGER INFANT RESUSCITATION OUTFIT ACCEPTABLE

The Foregger Infant Resuscitation Outfit is manufactured by the Foregger Company, Inc. New York City. It is an apparatus which permits the use of two standard mixtures of carbon dioxide and oxygen alternately, viz. 30/70 and 5/95. One unit was examined in a clinic acceptable to the Council. The report is as follows:

Observations were made on twelve newly born infants showing varying degrees of asphyxia. Treatment for asphyxia was instituted immediately following delivery. The menstrual age was estimated at 40 weeks in ten cases, 38 weeks in one case and 28 weeks in another.

The methods of delivery varied. Three babies were delivered spontaneously, two by laparotrachelotomy, three by breech extraction, two by difficult high forceps operations, and the remaining two by low forceps operations.

Fetal distress was observed in four cases prior to delivery, which was evidenced by alteration of fetal heart tones and the presence of meconium in the amniotic fluid.

#### DESCRIPTION OF FOREGGER OUTFIT

The apparatus consists of a sturdy machine which permits the administration alternately of two standard mixtures of oxygen and carbon dioxide. There is an accurate metric gage on the apparatus which permits the control of the amount of gas used, thereby making the operation of this apparatus more economical. The inhalation mask with its attached rubber breathing bag, makes the operation of tracheal insufflation more simple. The safety valve eliminates the danger of too great gas pressure in carrying out the foregoing procedure.

#### CRITERIA OF ASPHYXIA

The degree of asphyxia varied. The criteria used in our observations included apnea, cyanosis or pallor, flaccidity and the absence of or a diminished pharyngeal reflex.

#### TECHNIC OF RESUSCITATION

The asphyxiated infants were handled as little as possible, the nasopharynx being cleansed of mucus by either postural drainage, the use of the gloved finger or, when necessary, the

use of the tracheal catheter. The body heat was conserved as much as possible by the covering of the infant and by the use of hot water bottles. If the period of apnea was long, a mixture of carbon dioxide and oxygen was used. By our previous work, the amounts of carbon dioxide and oxygen found to be the most useful were those of 30/70 and 5/95 ratios. The asphyxiated infants were given the 30 per cent carbon dioxide mixture first and gentle rhythmic compression of the chest was used until spontaneous respiration was established. This mixture was then discontinued and the 5 per cent carbon dioxide and 95 per cent oxygen mixture administered.

It is to be understood that tanks containing any percentage of carbon dioxide and oxygen can be attached to this apparatus. One could attach a tank containing the desired percentage of carbon dioxide and oxygen and another containing pure oxygen should the user so desire.

#### ETIOLOGY OF ASPHYXIA

The etiology of asphyxia was obscure in three cases. Trauma was cited in five cases and aspiration in eight cases. A combination of the latter two contributory etiologic factors were blamed in four cases. Seven of the mothers had received narcotics during the first stage of labor. One mother had received only pentobarbital for analgesia. Narcotization was ascribed as the etiologic factor in four cases. A diagnosis of fetal narcosis was made from the history, pupillary reflexes, and the response to ventilation of the lungs with oxygen and carbon dioxide. In fact, the latter sign has proved to be almost pathognomonic.

#### ASPIRATION

Aspiration of mucus in varying amounts was listed as the contributory factor in eight cases. The measures already mentioned were taken to remove this obstruction.

#### TRAUMA

Trauma occurred to a mild degree in four cases. In one case, severe trauma was present. A difficult breech extraction of an 8 pound 5 ounce (3,770 Gm.) male infant was done through a contracted pelvis. The infant suffered from a depressed skull fracture and a complete fracture of the right clavicle. Nevertheless, the oligo-apnea was relieved promptly, following the removal of aspirated mucus from the trachea and the administration of oxygen and carbon dioxide. Our observations lead us to believe that trauma has a definite relationship in the association of narcotization with asphyxia.

#### CIRCULATION

No definite observation was made of the fetal circulation following delivery in four cases, but heart action was described as normal in eight cases.

#### NATURE OF RESPIRATION BEFORE TREATMENT

The nature of fetal respirations at birth were noted as follows: none, three; gasps, eight; poor, one.

#### PHARYNGEAL REFLEX

The character of the pharyngeal or gluteal reflex was found to be our best index as to the degree of asphyxia present. There was no notation of this observation in one case. It was described as absent in three cases, fair in one case, and good in seven cases.

#### TIME RELATION TO TREATMENT

Treatment was given immediately following delivery in all cases of apnea or oligo-apnea. Gasps had occurred before treatment in eight cases, but in several of these respiratory efforts ceased until further stimulation by gaseous resuscitation was used. The average interval between delivery and beginning treatment was from three to five minutes.

#### RESULTS

Treatment was usually continued from two to ten minutes. In one case intermittent treatment was given until postnatal death occurred several hours later. The condition of the infants



Foregger Infant Resuscitation Apparatus

was described as good on leaving the delivery room in nine cases, fair in two cases and poor in one case. There were two postnatal deaths. One was a previable fetus, which was included in the series only to demonstrate how respiratory efforts could be repeatedly stimulated over a period of time by the use of gaseous resuscitation procedures. The second postnatal death was that of a 2,765 Gm male infant delivered by cesarean section from a mother suffering from severe pre-eclamptic toxemia.

It should be remembered that the stronger percentages of carbon dioxide and oxygen or mixture with oxygen should be utilized for only a very brief period of time, following which the infant should be given a mixture containing either a very low percentage of carbon dioxide or pure oxygen. This should be discontinued promptly as soon as circulation is well established and the infant's oxygenation is good.

The Foregger Infant Resuscitation Outfit is included in the Council's list of accepted devices for physical therapy.

## Council on Pharmacy and Chemistry

### REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING SPECIAL REPORT WHICH HAS BEEN SUBMITTED TO THE FOOD AND DRUG ADMINISTRATION OF THE U. S. DEPARTMENT OF AGRICULTURE, THE NATIONAL INSTITUTE OF HEALTH, THE NATIONAL FORMULARY COMMITTEE AND THE COMBINED CONTACT COMMITTEE OF THE AMERICAN DRUG MANUFACTURERS' ASSOCIATION AND THE AMERICAN PHARMACEUTICAL MANUFACTURERS' ASSOCIATION. THESE ORGANIZATIONS HAVE GIVEN PERMISSION TO QUOTE FROM CERTAIN OF THEIR PUBLICATIONS.

PAUL NICHOLAS LEECH, Secretary

### REPORT ON STERILITY OF AMPULE PREPARATIONS

An article by Gershenfeld in the *American Journal of Pharmacy* (105:155, 1933) raised anew the question of the sterility of ampule preparations of medicinal products used for parenteral injection. In the discussion of this question before the Council it became apparent that neither the Council nor the National Institute of Health was in a position to take up a bacteriologic survey of these products or to establish an extensive system of control. It was agreed that, although a bacteriologic survey could not be undertaken now, it would be advantageous for the Council and other interested organizations to have a report on the procedures and tests used by manufacturers to determine whether or not the contents of their ampule preparations are sterile.

The chief of the Food and Drug Administration of the U. S. Department of Agriculture, under date of Aug. 2, 1933, informed the Council that an investigation of the sterility of ampule preparations carried out by the administration in 1925 and 1926 showed that these preparations were sterile. This official stated that following Gershenfeld's article a resurvey was started of these ampule preparations. He anticipated that this survey would take some time because of the large number of ampule products offered for sale on the American market. Since the need for control has been recognized, the Council noted with satisfaction this significant statement in the letter from the Chief of the Food and Drug Administration.

The article in your report raises the question as to whether or not some agency of the United States Government should maintain a check over these articles. Their label claims bring them under the control of this Administration and it is our purpose to keep as complete a check as possible on such preparations.

After the action of the Council it was discovered that at least two other organizations are interested in the question of the sterility of ampule preparations. These are (1) the National Formulary Committee, whose Bulletin for Sept. 14, 1933, pp. 1163-1165, contains a discussion of the question with proposed regulations, (2) the Subcommittee on Standard Methods for Testing Ampule Solutions for Sterility of the Combined Pharmaceutical Contact Committee of the American Drug Manufacturers' Association and the American Pharmaceutical Manufacturers' Association. These organizations have

generously responded to the requests by the secretary of the Council on Pharmacy and Chemistry for their reports and for information. The "Eleventh Report of the Combined Contact Committee of the American Drug Manufacturers' Association and the American Pharmaceutical Manufacturers' Association," and two more recent reports of this Committee (received Nov. 23, 1933, and April 23, 1934) have been used as sources of material in the preparation of the present article. In the last report of the subcommittee of the Combined Contact Committee of the A. D. M. A. and the A. P. M. A. definite recommendations as to the testing of ampules were made, and these changes were to be incorporated in the National Formulary Bulletin. Details of these recommendations will be given in a later section of this article.

The secretary of the Council sent a questionnaire to the manufacturers of ampule preparations whose products are listed in New and Nonofficial Remedies. The replies to the questionnaire were placed in the hands of a referee of the Council on Pharmacy and Chemistry charged with the preparation of a report. The purpose of this report was chiefly to place on record information of interest to members of the Council, manufacturers of ampule preparations, the Food and Drug Administration and the organizations concerned with the question of the sterility of the contents of ampules of injectable materials. Neither the referee nor any one else as far as he knows has any reliable information on the incidence of bacterial contamination of these products and, of more significance, the incidence of infection due directly to the injection of ampuled material contaminated with pathogenic bacteria. Without this information it is not wise to attempt to recommend special regulatory rules.

It is obvious, however, that these injectable preparations should be sterile and the advisability of the adoption of standard methods of testing for sterility is clearly indicated. In view of the fact that this question is under discussion by other bodies as directly concerned as the Council, no specific action was taken by the Council, but its information and the opinions expressed in the reports were placed at the disposal of all interested groups, in the expectation that by a joint action a uniform and effective system of testing for sterility will be instituted.

In correlating the statements obtained in the replies from various manufacturers, some means of classification that would indicate the type of ampule preparations concerned was deemed necessary. For this purpose there was made a systematic grouping of the various injectable ampule, vial and syringe preparations that are described in N. N. R. In many cases it was found that manufacturers marketed preparations belonging to only one or two of these groups.

Injectable ampule and other preparations have been classified as follows:

**GROUP I Biologic**—This class includes serums, vaccines, bacterial toxins and modified toxins, allergenic and pollen extracts, gland preparations, and other products made by extraction of plant or animal tissue. All products of this class may be considered very susceptible to bacterial contamination.

**GROUP II Chemical**—Chemical substances which are actively bactericidal, such as soluble mercury salts, salts of other heavy metals, and other antiseptics.

**GROUP III Chemical**—Chemical substances in which bacteria and molds may grow, such as dextrose, glucosides, and preparations containing sugars or nonantiseptic carbon compounds.

**GROUP IV Chemical**—Products in which the growth of bacteria is not likely but which are not bactericidal and therefore may contain viable bacteria or spores. Most organic and inorganic substances belong in this class. Vegetable oil suspensions of insoluble mercury, bismuth and arsenic compounds are also included in this class because it is believed that the compounds may not be sufficiently soluble to have a bactericidal action. Some chemical compounds containing preservatives are also included because the preservatives are not present in high enough concentration to kill spores or resistant bacteria, although they may inhibit their growth.

Although the names of manufacturers and specific quotations from their replies to the questionnaire were included in the report presented to the Council on Pharmacy and Chemistry by the referee, it was considered advisable to omit from the

present article the names of the manufacturers who furnished the information here presented. For the sake of brevity only a summary is given of the data obtained.

Reports were received from twenty-six manufacturers out of the total of approximately thirty who have injectable ampule preparations listed in N N R. Of these twenty-six manufacturers, eight produce only ampule preparations belonging to biologic group I, four produce only ampule preparations in group IV, three produce ampule preparations in groups I, II, III, and IV, and five produce ampule preparations in groups III and IV. Ampule preparations of five other manufacturers are grouped as follows: I and III, I and IV, II and IV, II, III and IV, and III only. One manufacturer produces only ampule preparations in the form of dry powders to be dissolved and injected. Recently this manufacturer has presented for consideration by the Council an ampule solution of a chemical substance which would be classed in group IV.

The accompanying table summarizes the methods used for testing the sterility of ampules. Column one of the table shows the number of manufacturers having ampule products in each of the four groups. The second column shows the number of manufacturers producing products of the group indicated who use the National Institute of Health method, the third column shows the number using other methods of testing sterility, and the fourth column shows the number not testing for sterility.

Methods Used for Testing Sterility of Ampules

Group	Total Firms Producing Ampule Preparations in Group	Number Using National Institute of Health Method	Number Using Other Methods	Number Not Testing for Sterility
I Biologic	13	11	2	0
II Chemical	5	3	1	1
III Chemical	11	5	0	1
IV Chemical	15	6	7	2

From a consideration of this summary it may be seen that all of the reporting manufacturers who market products belonging to the biologic group I, with two exceptions, use a standard method of testing identical with or closely similar to the National Institute of Health method. One of the two manufacturers who use different methods reported a method of sterilizing and gave details as to the method of testing sterility that appear adequate. The other firm uses the official British method, the details of which are not at hand. From this survey it seems probable that practically all injectable preparations belonging to the biologic group I are adequately tested for sterility, in most cases by the National Institute of Health method, which up to very recently has been the only standard method for testing ampule sterility.

With regard to the chemical groups II, III and IV, the situation is somewhat different. It may be seen from the accompanying table that methods of testing these products are about equally divided between that of the National Institute of Health and other methods, which vary considerably in their degree of effectiveness.

Replies from some of the firms indicate that manufacturers who have reported that they use the National Institute of Health method actually use this method as a whole only for biologic preparations and apply it in a modified form to other classes of ampule preparations.

Eleven firms offer ampule preparations belonging to group III, preparations that will support the growth of bacteria, molds or yeasts. Five of these manufacturers use the National Institute of Health method for determining sterility. Four others reported methods that were not standard. For the most part these methods seemed to be at least partially effective in detecting contamination but in a few cases left something to be desired in regard to their adequacy. One firm, although stating that it tested for sterility, gave no details of the tests used. The eleventh firm of this group markets its ampule preparations without testing for sterility and the methods of sterilization used by this manufacturer do not seem certain enough to justify selling their product without sterility tests. Of the eleven firms manufacturing products in group III, only two definitely stated

in their reports that their preparations in this group were tested by special methods for molds.

Of the fifteen firms manufacturing ampule products in group IV, six use the National Institute of Health method of testing and one firm uses a method closely similar to this. Three firms offering products in this class have their products manufactured in Europe. Of these three, two gave no details of testing but indicated that their ampules were tested bacteriologically. The third gave enough details to indicate that the methods of testing as used were probably adequate. Of the remaining five firms in this group, two do no sterility tests on their products and the other three use methods of testing that are open to question as to their efficiency.

With regard to the ampule products of group II, substances that are self sterilizing, the opinion of manufacturers seems divided. Some firms have stated in letters that they test products of this class for sterility, whereas one or two others state that they do not test these products. The data from five firms presented in the table may not be an accurate statement of the status of testing of products of this class, since no definite statement on this point was made in most of the replies received.

One manufacturer offers several dry preparations sealed in ampules. Apparently no effort is made to keep these preparations sterile. Unless sterilization is carried out on the solutions of such products before use, it seems probable that both bacteria and spores may be carried over in the injected solution prepared from these dry powders.

Since several of the manufacturers in statements to the Council described in detail the recommendations of the National Institute of Health, a quotation of certain parts of this memorandum is given.\* Most of the details of preparing culture mediums and sterilizing apparatus are omitted.

Memorandum of Details Under Section 36, Regulations of Biologic Products U. S. Public Health Service, Miscellaneous Publication No. 10, Aug. 1, 1923.

Bacterial tests are required to show sterility as regards organisms which will grow at ordinary temperatures for all products except vaccine virus.

Though preliminary tests on various media such as glycerin agar, ascorbic or blood agar, etc., are to be used when the organism used in the manufacture of the product will not grow readily on ordinary media, the routine medium for testing sterility of all products is made as follows:

To 8 kilograms of ground fresh meat freed from fat there is added 16 liters of distilled water and the mixture is infused in the ice chest 24 hours. Sixteen liters of juice are squeezed out, heated in steam for one hour, filtered through moistened paper, brought up to the original weight and sufficient sodium hydroxide added to make the reaction of the final broth in the fermentation tubes 0.5 per cent acid to phenolphthalein or 7.5 on the scale of hydrogen ion concentration. 5 grams of sodium chloride per liter are mixed in and 10 grams of dry peptone per liter are placed on top of the infusion which is then heated in steam for one-half hour.

Dextrose is added to a concentration of 0.03 per cent if there is not sufficient muscle sugar present in the broth.

The broth is filtered through moist paper and placed in glass capped Smith fermentation tubes containing at least 25 cc.—each with a seal of at least 1.0 cm. in the open arm—and autoclaved at 15 lbs. for 20 minutes. The Smith fermentation tubes should be in racks which facilitate tipping oxygen bubbles out of the long arm when hot or which allow such bubbles to flow out of the tubes while the heating is going on and which permit ready inspection of all parts of the tube for growth.

Planting is done within 5 hours after the broth has cooled. In general five drops of the fluid to be examined are planted in one tube and 20 drops in another tube. These are incubated at 37° C. for 7 days. The tubes should be examined on the 2nd, 4th and 7th days after planting and agitated only after 48 hours incubation to insure initial anaerobiosis, the lowest part of the bend should be examined for slight growths as well as both arms. In case the material is turbid (antitoxic virus, etc.) transplants to fresh fermentation tubes as well as smears should be made on the seventh day.

The referee suggested several changes in this description of the preparation of this medium.

1. Omit the statement 0.5 per cent acid to phenolphthalein, as that method of titration and adjustment of reaction is now almost obsolete.

\* While these matters were under consideration by the Council and other interested organizations the United States Public Health Service issued a series of new Regulations for the Sale of Viruses, Serums, Toxins and Analogous Products in the District of Columbia and in Interstate Traffic approved March 13, 1934 and published as Miscellaneous Publication No. 10, U. S. Treasury Department Public Health Service. A revised Memorandum of Details has not yet been issued by the Public Health Service. It is anticipated that within the next six months the National Institute of Health will issue a new Memorandum of Details containing statements of its requirements and methods for testing the sterility of the contents of ampules.



2 Use the expression  $pH\ 7.5$  in place of the words 75 on the scale of hydrogen ion concentration, as  $pH$  and hydrogen ion concentration are expressions with very different meanings

3 Change the directions to provide for titration and adjustment of the reaction after the addition of the peptone. Most peptone preparations are acid. Hence titration before the solution of the peptone in the meat infusion may be unreliable as an index of the amount of alkali needed to make the reaction of the final mixture  $pH\ 7.5$

4 Use the word anaerobiosis in place of 'anaerobiasis'

Following the directions for the preparation and tubing of the medium, the memorandum gives directions for sterility tests on bulk products and on final containers, stating the amount to be planted, the number of final containers to be tested, and the procedure to be followed if contaminations are found

The Eleventh Report of the Combined Contact Committee of the American Drug Manufacturers' Association and the American Pharmaceutical Manufacturers' Association, published Oct 27, 1932, makes the following recommendations in regard to ampule preparations

It is recommended that

*First*—All ampuls of glandular products which are essentially preparations of biologic origin shall be tested for sterility according to the prevailing National Institute of Health method for testing biologic products for sterility

*Second*—All ampul solutions containing germicidal substances in sufficient concentration to render them self sterilizing may be marketed without sterility testing

*Third*—The following provisional test is to be applied to all other ampul solutions until such time as more definite tests may be elaborated

The report then recommends a method of testing ampules for sterility which is essentially the same as the National Institute of Health method

More recently the Subcommittee on Standard Methods for Testing Ampoule Solutions for Sterility, American Drug Manufacturers, has made a report in which it is recommended that all manufacturers adopt standard methods of testing sterility. The report indicates that various modifications in the National Institute of Health method will have to be made in order to be applicable to the various types of existing ampule solutions, the diverse nature of ampule solutions being such that no one method is applicable to all of them

The classification of ampule solutions suggested by the committee is as follows

*Group I* All ampoule solutions prepared from gland products which are essentially protein preparations of broad biologic origin. Such ampoules may contain nutritive material which would make for ease in discovering contamination. This group could well be tested for sterility by application of the present National Institute of Health method which is applicable to this type of preparation and which would reveal possible harmful contamination

*Group II* Products containing germicidal substances in sufficient concentration to render the ampoule solutions adequately self sterilizing. This group would also include preparations containing chemicals which because of the reaction of the solutions in which they are offered become effective sterilizing agents

*Group III* Ampoule solutions containing sugars or other substances favorable to the growth of molds and/or yeasts

*Group IV* Ampoule solutions containing chemical substances not included in groups I, II and III

This grouping of products corresponds fairly closely to the grouping used by the referee in the report to the Council. The categories and numbering are the same. The referee believed that the grouping used in his report has the advantage of being more specific and inclusive and more adapted to the bacteriologic requirements. The definition of group IV of the subcommittee "Ampoule solutions containing chemical substances not included in groups I, II and III" seems to the referee to be too indefinite to be serviceable. Further study may indicate the need for a miscellaneous group, but the establishment of such an ill defined class should be avoided if possible

The recommendations of the Subcommittee on Standard Methods for Testing Ampoule Solutions for Sterility of the American Drug Manufacturers are as follows

We recommend that this committee be empowered to undertake the testing that will enable the classification of ampoule solutions in accordance with the above outline and to elaborate suitable standard methods for testing the members of groups III and IV and

Inasmuch as the National Formulary Committee has issued a proposed outline covering the sterility testing of ampoule solutions and action at this time is necessary

It is the recommendation of this committee that the following be submitted to the National Formulary Revision Committee for inclusion in the forthcoming revision of the National Formulary

There is then given a series of recommendations identical with those already quoted from the Eleventh Report of the Contact Committees of the American Drug Manufacturers' Association and the American Pharmaceutical Manufacturers' Association

An examination of the section of the National Formulary Bulletin of Sept 14, 1933, pp 1163-1165, dealing with sterility tests on ampules shows that the recommendations contained therein are based on those which have been quoted. The paragraph on the number of ampules taken for sterility test is copied directly from the Eleventh Annual Report of the Combined Contact Committees of the American Drug Manufacturers' Association and the American Pharmaceutical Manufacturers' Association. The details on preparation of culture mediums and tests on bulk and final containers are a synopsis of the recommendations given in the National Institute of Health Memorandum of Details under section 36, Regulations of Biologic Products, except that in the National Formulary directions for preparing the medium, 0.03 per cent of dextrose is added as a routine. In this instance the directions fail to state that the addition of the dextrose, in the form of a sterile 10 per cent solution, should be done with sterile precautions

At a meeting of the Combined Contact Committee of the American Drug Manufacturers' Association and the American Pharmaceutical Manufacturers' Association held in Washington beginning Feb 5, 1934, several recommended revisions in the section on ampules of the National Formulary Bulletin were adopted. These are summarized as follows

1 It was decided to omit the requirement for sterility tests on ampules of bismuth subsalicylate, mercury salicylate, mercury succinimide and methenamine

2 The committee adopted a new method of testing ampule solutions in oil. This is quoted as follows

*Sterility Test for Ampoule Solutions in Oil* Media used Standard N I H broth containing 0.03% dextrose

Quantities of 250 cc each are filled into 500 cc flasks and sterilized in the autoclave at 15 pounds pressure for 15 minutes

Plant the contents of each ampoule (but not more than 5 cc) into a 500 cc flask containing 250 cc of medium. Incubate the flasks for 4 days at 37 C shaking the flasks thoroughly twice each day. At the end of the incubation period inoculate 6 fermentation tubes from each flask three with 5 drops and three with 20 drops transferred by means of a sterile pipette. The fermentation tubes are then incubated for 7 days at 37 C and are examined for evidence of growth on the second fourth and seventh day after planting

3 Recommended besides the standard test for bacteria an additional test for molds in ampules of dextrose and ampules of dextrose and sodium chloride as follows

*Ampoules of Dextrose* Add additional test as follows

With the additional test being made for the determination of yeasts and/or molds

Medium	
Agar	20 Gm
Peptone	10 Gm
Maltose	40 Gm
N/10 Hydrochloric acid	
Tap water sufficient quantity to make 1000 cc	

Dissolve the agar, peptone and maltose in the water by means of heat add a sufficient amount of the N/10 hydrochloric acid to bring the  $pH$  to approximately 5.5 when tested colorimetrically with methyl red. Fill 10 cc quantities into test tubes approximately 18 X 144 mm in size and sterilize by Process D. Incubate the tubes for one day at 37 C and for 3 days at room temperature as a check on the sterilization methods

From each sample plant 4 tubes of medium two with 5 drops and two with 10 drops. Spread the liquid over the entire surface of the slant by gently tilting the tube after planting. Incubate the tubes for 4 days at room temperature (20 to 25) and 3 days at 37 C. Examine the tubes at 24 hour intervals for growth spreading the film of liquid over the surface each day by tilting the tubes. If evidences of growth appear on any of the tubes they should be left undisturbed in order that colony growth may proceed

Both of the newly recommended tests represent a significant step in advance. The test for sterility of ampule solutions in oil is apparently designed to separate spores and bacteria from the insoluble oily layer and bring them in contact with the nutritive medium. A special test for the detection of molds in ampule solutions of group III seems particularly desirable. Many of these organisms do not grow well at 37 C in liquid mediums, therefore the use of some such medium as Sabouraud's agar and incubation at 22 C is advisable. Although most organisms that grow only under these conditions are nonpathogenic their detection serves as an index of nonsterility

The Contact Committee has made no very definite recommendations with regard to testing ampule preparations containing various chemical substances such as those we have classified in groups II and IV. Obviously the question of whether or not a given ampule preparation is self sterilizing can be settled only by a test in which the bactericidal power of the solution against several species of bacteria, and bacterial spores, is determined. It does not seem safe to call an ampule preparation self sterilizing merely on presumptive evidence. But if an ampule solution can be shown by satisfactory tests to be self sterilizing, the omission of sterility tests on the product might be justified by the saving of trouble and expense.

The question remains open as to whether or not the ampule preparations of diverse nature included in the three groups of chemical preparations can all be adequately tested for sterility by a single standard method such as that of the National Institute of Health. In a recent letter one firm has stated that it does not consider the latter method adequate for the testing of its ampule product, which is of a biologic nature. It has supplemented it by special tests for anaerobes.

The Memorandum of Details under section 36 Regulations of Biological Products, contains in addition to the routine test already quoted, directions for the testing of vaccine virus for anaerobes, but there is no information as to how widely this special method has been applied to other products.

The present status of the National Institute of Health method of testing sterility is probably best summarized by a recent letter from P. B. Dunbar, assistant chief of the Food and Drug Administration:

The investigation of sterility of ampule preparations by the Administration mentioned on the second page of the report has been under way for some time and is still continuing. Since this investigation is not yet complete it is perhaps somewhat premature to draw any definite conclusions concerning the incidence of bacterial contamination of such products. However in a large number of examinations of ampule solutions made since the recent survey was begun in 1933 bacteriologists of the Administration have encountered no instability. In making the examination the Administration bacteriologists have followed the method recommended by the National Institute of Health. The procedures recommended by the National Institute of Health have been found readily applicable to the various types of ampule preparations included in the survey. Nevertheless it is possible that some modifications of the recommended method might be made to permit the development of a simple standard method that will have a universal application in all laboratories for all types of ampule solutions. The Food and Drug Administration has not been able to conduct any research work to test possible changes to improve or simplify the method recommended by the National Institute of Health. Consequently, we cannot offer any constructive criticism of the method at this time.

Most of the recommendations for standard tests so far drawn up by the American Drug Manufacturers Association, American Pharmaceutical Manufacturers' Association, the National Formulary Committee, and the Committee of Revision of the Pharmacopoeia of the United States and those submitted by several of the manufacturers are based directly on the Memorandum of Details under section 36 Regulations of Biologic Products, U. S. Public Health Service. This memorandum gives the most detailed and thorough description of testing sterility of any of the recommendations so far submitted, but, as has been indicated, revision of the directions given may be necessary before an effective standard method can be established. The further recommendations from the Contact Committee of additional tests for possible contamination in ampule solutions in oil, and the tests for molds and/or yeasts are indications of constructive work on the part of the manufacturers.

In addition to the methods already described, the U. S. Pharmacopoeia proposes to have a method of procedure for determining the sterility of distilled water and physiologic solution of sodium chloride. The preparation of the medium and the details of testing are very similar to those of the National Institute of Health except that the medium contains 1 cc of 10 per cent sterile dextrose solution added to each tube of 25 cc and the directions call for the adjustment of the reaction to pH 7.6 after the addition of the peptone.

#### MULTIPLE DOSE AMPULES

The referee has seen infections following the injection of material from multiple dose ampules. These have been due to contamination of the material by physicians when they withdrew portions of fluid from a large ampule and later used the remaining material for other injections. In practice large

ampules, once opened, may be exposed to contamination repeatedly during several hours. The referee knows of one instance in which severe cellulitis of the arms of recipients of injections were caused by injection of material (originally sterile), from a large ampule, which had been opened and partially used one week previously. To prevent accidents of this sort, the referee believes that multiple dose ampules should contain a bactericidal agent in sufficient concentration to prevent the multiplication of bacteria and ultimately to kill bacteria in the material.

## Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING  
GENERAL DECISION  
RAYMOND HERTWIG Secretary

### SPECIAL PURPOSE FOODS FOR DIETS RESTRICTED IN DEXTROSE FORMERS

Special Purpose Foods, such as special bread, cake and flour for diets restricted in dextrose formers, to be eligible for acceptance, excepting in cases of special adaptability, shall contain dextrose formers in an amount not greater than 33 Gm of dextrose per hundred cubic centimeters (computing the dextrose equivalence as the carbohydrate, plus 58 per cent of the protein, plus 10 per cent of the fat content of the food). The labels and advertising shall comply with the Committee Rule "Special Purpose Foods."

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG Secretary

### FISHER'S BISCUIT MIX

*Manufacturer*—Fisher Flouring Mills Company, Seattle

*Description*—Biscuit mix requiring only addition of liquid for baking contains bleached short patent flour, hydrogenated vegetable oil, salt, skim milk, sodium bicarbonate, sucrose, dextrose, calcium acid phosphate, calcium lactate and sodium acid pyrophosphate.

*Manufacture*—The nonfat ingredients are thoroughly mixed, the shortening is "cut" into the flour by special mixing equipment. The product is packed in cartons.

*Analysis* (submitted by manufacturer) —

	per cent
Moisture	10.7
Ash	4.1
Fat (ether extraction method)	14.0
Protein (N X 5.7)	7.6
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	63.3

*Calories*—41 per gram 116 per ounce

### VELVO PASTEURIZED HOMOGENIZED MILK

*Distributor*—Oakland Dairy, Pontiac, Mich

*Description*—Bottled, pasteurized homogenized milk

*Preparation*—Milk obtained from producers under supervision of the Michigan State Department of Health and the City of Pontiac Department of Health is tested for milk fat, sediment and its reaction to methylene blue. Milk passing these tests is pasteurized by the holding method (63 C for thirty minutes), cooled to 54 C, homogenized under 3,000 pounds pressure cooled to 7 C and automatically filled in bottles.

*Analysis* (submitted by distributor)—Standardized to contain not less than 3.6 per cent milk fat

*Calories*—0.7 per gram, 20 per ounce

*Claims of Distributor*—The cream does not separate

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SATURDAY, SEPTEMBER 1, 1934

## THE TREND OF INFECTIOUS DISEASES OF CHILDHOOD

The constant change in the frequency of disorders of the human body is well illustrated by the decreasing incidence of infectious diseases in civilized countries. Probably the most striking example, especially for those whose medical memories extend thirty years or more, is typhoid. At present the trends of other infectious diseases, such as diphtheria,<sup>1</sup> are of particular interest.

Useful recording and statistical interpretations of disease trends are those appearing in the Epidemiological Reports of the Health Section of the Secretariat of the League of Nations. In a recent issue<sup>2</sup> it was proposed to show that a decline has occurred in the deaths caused by whooping cough and measles similar if not equivalent to that in diphtheria and scarlet fever. Attention was also drawn to the relative social importance of these four infectious diseases of childhood, since "the traditional fear inspired by scarlet fever and diphtheria is no more justifiable than the indifference shown by public opinion and even perhaps by some health authorities as regards measles and whooping cough." In order to estimate the relative social significance of these diseases it is necessary to consider not only the death rates but also their morbidity, as shown both by the statistics of reported cases and by the results of inquiries to children and adolescents concerning the infectious diseases they have had.

Only in England and Wales are the statistics previous to 1900 sufficiently reliable to permit a study of mortality from these four diseases since 1856. These statistics bring out clearly the absolute and relative preponderance of scarlet fever until 1880. Up to that year scarlet fever caused nearly 40 per cent of the deaths attributed to the four diseases. Since 1916 scarlet fever has been responsible for less than 6 per cent, on the average, of the deaths from these diseases. The death rate fell gradually from 264.6 per hundred

thousand in 1861-1865 to 5.5 in 1926-1930, a decline of nearly 98 per cent. Diphtheria also declined but began from a lower level and did not fall quite so low. Hence the proportion of the deaths due to diphtheria, which averaged about a fifth until 1890, has now risen to about a fourth of all the deaths from these four diseases. Whooping cough and measles, which also caused about a fifth each of the total deaths from these diseases at the middle of the last century, have slowly increased their respective proportions and are now each responsible for more than a third, in spite of the diminution in actual number of deaths they cause (68 and 82 per cent, respectively). Until 1880 the deaths from whooping cough had barely begun to decrease, but since then the decline has continued uninterruptedly. As regards measles, however, the mortality fluctuated unevenly until 1915 and it is only since that year that the decline has taken place. The courses followed by these four contagious diseases of childhood do not exactly synchronize, so that the decline in their mortality cannot be attributed to a single cause. The drop in the proportion of children in the general population cannot be put forward as a cause, since the rates are calculated on the infantile population (0-15 years).

In comparing the death rates from these four diseases in different countries, the essential common trait is a decrease for every disease in every country. In some countries, however, the initial death rate was higher than others at the beginning of the century and the decrease since that time still leaves them with a higher death rate than others. It seems, therefore, that the various countries are passing through different stages of an identical evolution.

As far as its mortality is concerned and in spite of the falling off during the last few decades, diphtheria remains one of the most serious of children's diseases. Whooping cough and measles also remain serious, and this would be more obvious were it not for the fact that a number of secondary cases of bronchopneumonia following these diseases are still classified under the heading "bronchopneumonia." These two diseases, and particularly measles, deserve more attention than the careless indifference too often shown them by the public.

When these studies are removed from the realm of pure statistics, certain facts are seen to take on an important significance. The decline in the mortality from scarlet fever and diphtheria is in general well recognized, that from the other two diseases not so well. The relatively large mortality from whooping cough and measles is certainly not grasped by the public and probably not by a considerable element of the medical profession. This situation should receive notice by health authorities and medical schools especially. In the latter a lag in teaching emphasis is to be expected, but such emphasis should not remain completely static. By way of example, many medical

<sup>1</sup> Diphtheria Mortality in Large Cities of the United States in 1933. Eleventh Annual Report J A M A 102:1758 (May 26) 1934.

<sup>2</sup> Relative Importance of the Principal Infectious Diseases of Childhood. Epidemiological Report of the Health Section of the Secretariat League of Nations R E 173:109 (Nos 5-6) 1931.

graduates, even recent ones, are conscious of a time and effort spent on typhoid entirely incommensurate with the present medical importance of that disease in most districts. Similarly it should now be obvious that greater efforts should be made in instruction on measles and whooping cough than is generally allowed.

### CLIMATE AND HEALTH

The relation of "climate" to human health and disease has intrigued both physicians and the public, at least since the writing of the chapter "Of Airs, Waters and Places" in the works of Hippocrates. Until the microbic theory began to be seriously studied, in fact, almost every discussion of disease opened with the observed relationship of the condition to season, locality, temperature or other "climatic" factors. Thus, Sydenham<sup>1</sup> introduces one chapter by "The foregoing Winter being extremely cold, and the Frost continuing without any intermission till Spring, it thaw'd suddenly at the end of March, in the year 1665, and Inflammations of the Lungs, Pleurisies, Quinsies, and such like inflammatory Diseases, made great slaughter on a sudden, and at the same time a continual Epidemick Fever appear'd."

One of the difficulties in scientifically relating disease to climate is the somewhat vague definition of the term. Smith<sup>2</sup> in his recent presidential address before the British Medical Association defines "climate" as "indicating all the solar and terrestrial factors and influences which affect animal and vegetable life, including sunlight, atmospheric temperature, humidity and pressure, movement of air, and prevailing winds and whilst including airs, also embracing waters and places." With a definition as broad as this it is entirely impossible to relate "climate" in any scientific sense with any bodily or mental modification.

The hours and intensity of sunlight can certainly be included as one of the important factors in "climate." Few could be found to disagree with Smith when he says that "whilst the sun is our greatest natural friend, he can, if regarded with disrespect or insolence, become an equally potent foe." It is the duty of the profession to counsel that moderation is essential to the successful practice of any theory. In tuberculosis, at least, this thesis seems to be amply proved. Here again, however, it is virtually axiomatic that anything in excess of certain physiologic limits is harmful. Such redundancy is of doubtful value.

It would seem time that the veil surrounding the somatic effects of climatic factors be lifted further. The most confusing feature of the problem has been the inclusion of essentially unrelated elements. Thus Smith states that "often a climate with frequent but moderate variations will prove beneficial, the more so

if combined with a regular rhythm of rest, sleep, open-air exercise, and a properly supervised and dispensed diet, beautiful surroundings, changes of scene and of manner of life, all helping to encourage the invalid." If all these things help, what is the exact beneficial effect, might one well ask, of increased direct sunlight, higher temperature, lower humidity or increased wind velocity?

The outlook for improving the indications for a "change of climate" is not hopeless, however. Such change is not thought necessary for hookworm disease, not always for malaria, and there is a considerable body of opinion that thinks it is not necessary for the adequate treatment of pulmonary tuberculosis. Complete nihilism in this respect is also probably not justified. Any belief that has existed as long and persistently as the value or harm of a specific climate in all probability has some foundation in fact. Coburn's<sup>3</sup> work on the effect of Puerto Rican conditions on rheumatic fever is a good example of what may be done. It is not wholly immaterial that it is the infrequency of hemolytic streptococci rather than the temperature that has the favorable effect. The enthusiastic prospectus of this or that resort or spa should give way to a more exact knowledge of the benefits that should accrue to those who change their locality. The medical profession needs some foundation other than the financial status of the patient for advising for or against a change of climate. This amounts to a challenge.

### THE STERILITY OF DRUGS IN AMPULES

About a year ago Gershenfeld,<sup>1</sup> of the Philadelphia College of Pharmacy and Science, called attention to the fact that solutions marketed in ampules, generally considered to be sterile, may occasionally be contaminated with pathogenic organisms. He reported two cases of suppuration that developed in patients following the injection of the contents of ampules, both from the same batch, although in each case the usual aseptic precautions were taken by the physician. Two ampules from this batch were then examined and each revealed the presence, in pure culture, of *Staphylococcus aureus*. From a brief survey then made by Gershenfeld, it appeared that many firms fail to indicate on the labels of ampule preparations whether or not these are sterile. The physician ordinarily makes the tacit assumption, when he administers to a patient the contents of a sealed container of this type, that adequate precautions have been taken by the manufacturer to assure the absence of viable micro-organisms. While in the majority of instances this belief is no doubt warranted, it appears that this is not universally the case. When an infection has occurred from a parenteral injection, it is usually impossible to determine whether this was

<sup>1</sup> Sydenham Thomas. *Practice of Physick* ed 8. London: J. Darby 1722.

<sup>2</sup> Smith S. W. *Climate and Health*. *Brit. M. J.* 2: 153 (July 28) 1934.

<sup>3</sup> Coburn A. F. *The Factor of Infection in the Rheumatic State*. Baltimore: Williams & Wilkins Company 1931.

<sup>1</sup> Gershenfeld Louis. *Control of the Traffic in and Labeling of Ampules and Medicaments for Parenteral Administration*. *Am. J. Pharmacy* 105: 155 (April) 1933.

due to the solution employed or to a slip in technic. For this reason evidence is not available either as to the approximate incidence of contamination or as to the occurrence of infections from the use of nonsterile products. The Food and Drugs Administration endeavors to keep as complete a check as possible on such of these preparations as come under its jurisdiction by reason of claims made on the labels, but an extensive survey undertaken by this agency after the appearance of Gershenfeld's article has not yet been completed.

The Council on Pharmacy and Chemistry recently undertook to study this problem, and its detailed report appears elsewhere in this issue (p 677). A questionnaire was sent to all manufacturers having products of this type accepted for New and Nonofficial Remedies, requesting information as to methods employed for sterilizing and for testing for sterility. It appeared from the replies received that wide divergence exists among various firms in the methods used for sterilization of the contents of ampules and in subsequent testing for absence of contamination in the finished products. Practically all the biologic products that come under the supervision of the National Institute of Health appear to be adequately tested for sterility. In the case of chemical substances and solutions of the various types listed in the Council's report, the methods employed by most of the firms appear also in large part to be adequate. However, in a significant number of instances these do not appear to be such as to assure absence of bacterial contamination.

No standard method is employed by all firms, and the procedures variously used differ greatly in their effectiveness. In a few cases the final product is not tested at all and, in the case of some dry preparations to be dissolved before use, the substance may not even be sterilized. In the latter case, of course, contamination would not ordinarily be serious, yet it is conceivable that severe infection might result from the use of a solution made under otherwise aseptic precautions from such a powder. Multiple dose ampules sealed with rubber stoppers involve a special problem, as the solution even if originally sterile, may become contaminated during withdrawal of a dose. It is the Council's opinion that such preparations should contain a potent bactericide in proper concentration.

The Council found in its investigation that a number of other agencies were interested in assuring the sterility of ampule preparations and were taking steps to establish standard methods to be employed by commercial organizations. These were the Committee on Revision of the Pharmacopeia of the United States, the National Formulary Committee, the American Drug Manufacturers' Association and the American Pharmaceutical Manufacturers' Association. Most of the recommendations made have been based on the regulations issued by the United States Public Health Service. It is anticipated that the problems involved will reach

an early solution and that such procedures as are necessary to assure with reasonable certainty the sterility of preparations marketed for parenteral use will soon be extensively practiced.

## Current Comment

### THE DIONNE QUINTUPLETS

Elsewhere (p 673) appears the account by Dr A R Dafoe of the birth and successful rearing to two months' growth of quintuplets. The incident is notable—apparently the first of its kind to occur in the history of medicine. True, there have been previous records of quintuplets, perhaps as many as from thirty-two to thirty-five instances, but, as Dr Dafoe points out, in no previous instance have quintuplets ever reached the age of two months. The incident, while extraordinary, is useful as well in pointing a moral. Callander, Ontario, as every one now knows, is far from being a metropolitan community. Its population is around 600 people and Dr Dafoe is the only doctor there. Nevertheless, to him there came an extraordinary opportunity. With the traditions of medicine and an excellent sense of the ethical requirements of the situation, he met the occasion. As evidence, one needs only to read his account of the incident in the phraseology with which it was sent to *THE JOURNAL*. His conduct of the case and his relations to the public in connection with it have been exemplary. As one gazes on the picture of the midwife and reads the record of the conditions under which these children were born and developed, one realizes to some extent also how futile is much of the superscientific and pseudoscientific discussion that has been published in recent years on the problems of maternal mortality and infant care. There are many lessons for scientific medicine in this incident.

### HANDWRITING OF CRIMINALS

In a recent report, Quinan<sup>1</sup> has described the results of efforts to differentiate the handwriting movements of convicted murderers from those of convicted forgers. One hundred each of murderers, forgers and unselected noncriminals were examined. In addition, six abattoir "killers" were studied. The same model sentence was written by all the subjects, and the time required, the angular inclination of the letters, the total running length along the base line and the configuration of the letters were recorded. It appears that bradygraphia is characteristic of murderers, for this group required 101 seconds to complete the model sentence, whereas the times for forgers and noncriminals were 68 and 49 seconds respectively. The running length was somewhat greater for the forgers than for the other groups. The total angularity of the letters was noted. The coarse, sprawling letters instead of smooth and rounded loops were evidently made by jerky movements of the pen. The numbers of angles were 469, 286 and 283 for the murderers, forgers and noncriminal groups.

<sup>1</sup> Quinan, Clarence. Handwriting of Criminals. *Arch Neurol & Psychiat* 32:30 (Aug) 1934.

respectively. The "spastic-ataxic" writing of the murderers was also characteristic of the six abattoir "killers." The writing of the forgers, in addition to being full and rounded in configuration, frequently showed eccentricities in the manner of crossing the t's as well as certain flourishes on terminal letters. Although without doubt many factors influence the character of a person's handwriting, it is of considerable interest that in these antisocial groups a correlation can be established between handwriting and the particular misdemeanor involved.

## Association News

### MEDICAL BROADCASTS Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Central daylight saving time. The next three broadcasts will be as follows:

September 6 Football Hazards Morris Fishbein, M.D.  
September 13 Common Eye Troubles William C. Benedict, M.D.  
representing the meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago  
September 20 Infantile Paralysis W. W. Bauer, M.D.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ARKANSAS

**Society News**—At a meeting of the Tri-County Medical Society in Prescott, June 28, the speakers were Drs. George V. Lewis on "Infections of the Hand," Grady W. Reagan "Treatment of Acute Complications of Gonorrhea," and Clyde D. Rodgers, "Care During Pregnancy." The speakers were from Little Rock. Dr. Walter G. Eberle, Fort Smith, addressed the Crawford County Medical Society, June 26, on "Fertilization of the Human Female." The Washington and Benton county medical societies held their annual picnic session at Cave Springs, July 12; speakers were Drs. Sidney J. Wolfermann, Fort Smith, on "Significance of Jaundice," and Jesse D. Riley, State Sanatorium, "Pulmonary Tuberculosis." Dr. Harvey D. Wood, Fayetteville, the only living charter member of the Washington County society, spoke in recognition of that society's sixty-second anniversary.

### CALIFORNIA

**Personal**—The following promotions at the University of California School of Medicine, San Francisco, among others have been announced: Dr. Edward L. Munson, to professor of preventive medicine; Dr. Edward B. Shaw, to associate clinical professor of pediatrics; and Dr. Keene O. Haldeman, to assistant clinical professor of orthopedic surgery.

**More of the Eyesight Swindlers**—Warrants for the arrest of three persons posing as eye specialists have been taken out in California. The swindlers recently appeared in Long Beach, where they approached a Mr. J. O. Miller with practically the same story that has been frequently detailed in THE JOURNAL. A representative called on Mr. Miller, whose name had been obtained from the local optometrist. He examined his eyes, located what he called a cancerous growth, and called in a famous surgeon, who "happened" to be with the representative and who for \$200 performed an operation. Later the representative returned with the story that the surgeon had been killed in an accident, but before his death had turned all his patients over to another physician who was ready to make

the examination and prescribe the necessary treatment. Following the examination, it was decided that twenty-one treatments in a clinic in San Francisco were necessary, the cost to be \$500. When the victim said he could not make the trip and admitted having only \$300, the surgeon stated that a cure could be effected by using a belt for which Miller must put up a bond of \$500. Credit for the \$200 paid for the first operation was allowed, and the \$300 was accepted for the remainder of the bond. A few days later a man posing as an express agent told Miller that there was a delay in the delivery of the belt but that the money would be returned as soon as he returned the belt. Miller heard no more of the swindlers. The names used in this instance are Miles, Howard and Evans. The name Miles is used also in the Kentucky news item, March 17, page 849, and Oregon, August 11, page 419.

### COLORADO

**Tuberculosis Conference**—Announcement is made of the tentative program of the Rocky Mountain Tuberculosis Conference at the Antlers Hotel in Colorado Springs, September 17-19. The following physicians will participate, among others:

Charles W. Mills, Tucson, Ariz., "A Simple Method of Procedure in the Diagnosis of Pulmonary Tuberculosis";  
Robert B. Homan, El Paso, "X Rays in the Diagnosis of Pulmonary Tuberculosis";  
Clinton E. Harris, Woodmen, "Differential Diagnosis of Intrathoracic Tumors and Pulmonary Tuberculosis";  
Lewis J. Moorman, Oklahoma City, "Congenital Cystic Diseases of the Lung";  
Philipp Schonwald, Seattle, "A Modification of the Blood Sedimentation Test in Pulmonary Tuberculosis";  
Carl H. Gellenthien, Valmora, N. M., "Temperature and Pulse Rate in Pulmonary Tuberculosis";  
Earle G. Brown, Topeka, Kan., "Progress in Tuberculosis Control in Kansas";  
Robert O. Brown, Santa Fe, "The New Mexico State Wide Health Survey";  
Henry Sewall, Denver, "Artificial Pneumothorax in Pulmonary Tuberculosis";  
Jay Arthur Myers, Minneapolis, "General Considerations in the Diagnosis of Childhood Tuberculosis";  
Leon G. Woodford, Everett, Wash., "Artificial Pneumothorax and Phrenicectomy";  
James H. Forsee, Denver, "Closed Intrapleural Pneumolysis";  
Stanley C. Davis and Charles A. Thomas, Tucson, "Thoracoplasty."

At the banquet Tuesday evening, Dr. Kendall Emerson, New York, managing director, National Tuberculosis Association, will discuss "The Future in Tuberculosis Control," and Dr. James J. Waring, Denver, "The Murphy-Forlanini Controversy."

### FLORIDA

**Campaign Against Mosquitoes**—The state health department is directing special campaign measures throughout Florida to prevent the spread of dengue fever, 800 cases of which were reported in a recent outbreak in Miami. In West Palm Beach, a feature of the campaign was a house to house canvass by FERA workers to detect mosquito breeding places.

**Society News**—At a meeting of the Dade County Medical Society in Miami, August 3, speakers were Drs. Charles D. Cleghorn and John W. Snyder, both of Miami, on "Skin Tumors" and "Gritti-Stokes Amputation for Gangrene of the Leg," respectively. Speakers before the Leon-Gadsden-Liberty-Wakulla-Jefferson Counties Medical Society in Tallahassee July 19, included Drs. Robert F. Godard, Quincy, on "Causalgia," and Laurie L. Dozier, Tallahassee, "Prevention of Puerperal Infection."

### GEORGIA

**University News**—Dr. Newdigate M. Owensby, Atlanta, has been appointed professor of psychiatry at the University of Georgia Medical Department, Augusta, and Dr. James R. Garner, Atlanta, has been designated visiting professor of forensic medicine.

**Society News**—Speakers before the First District Medical Society, July 25, in Savannah, included Drs. Joseph Sumter Rhame, Charleston, S. C., on "Gastric Cancer," James E. Paullin, Atlanta, "Diagnosis and Treatment of Rheumatoid Arthritis," John W. Daniel, Savannah, "Treatment of Peptic Ulcers with High Protein Diet," Clinton R. Riner, Savannah, "Acute Osteomyelitis of the Pelvic Bone," and Dr. Clarence L. Ayers, Toccoa, "The Unusual Necessity for Medical Organization of the Present Time."—At a meeting of the Fulton County Medical Society, August 16, Dr. Edwin S. Byrd gave a clinical talk on pernicious anemia and Drs. Calvin B. Stewart and John F. Denton presented a paper on carcinoma of the cervix uteri.



## ILLINOIS

**Health Program for the Colored Population**—A canvass of prevailing health conditions among preschool children is the first step in a health program among the colored population of the state to be conducted by the state department of health. During the first week in September a series of conferences will be held to conduct physical examinations of preschool children, the records of which will be used to draw up a practicable program to improve health conditions among the colored population, which is concentrated principally in St. Clair County.

**Epidemic Encephalitis Increases**—With sixty-five cases of epidemic encephalitis reported since August 1, the state health department announces a pronounced upward trend in the prevalence of the disease. Thirty-seven new cases were reported during the week ended August 25. Six cases occurred in Danville while Canton, Fulton County, and Bartonville, Peoria County, each reported three cases. There were five cases in Paris in Edgar County, where an epidemic occurred in 1932. The department reports that the majority of new cases are among elderly people.

## KANSAS

**Personal**—Dr. Clarence R. Hepler, Wichita, has resigned as health officer of Sedgwick County, effective July 1, to accept a position at the state hospital at Larned, it is reported. Dr. J. Carroll Montgomery, Topeka, has been appointed to succeed him—Dr. Herschel L. Hendricks, Iola, has been appointed health officer of Allen County, succeeding Dr. Adelbert R. Chambers.

**Brinkley Fails Again**—John R. Brinkley of Milford, "goat gland specialist" who sought nomination as a candidate for governor, was defeated in the recent primary, polling less than 70,000 votes out of a total of 300,000. Two years ago Brinkley received 244,607 votes as an independent candidate, according to *News-Week*.

## MAINE

**Dr. Hill Honored**—Dr. J. Frederick Hill, Waterville, was presented with a silver cocktail service at a celebration on his eightieth birthday, June 15. Among those present were Gov. Louis J. Brann, Dr. Edwin W. Gehring, president, Maine Medical Association, and the mayor of Waterville, L. Eugene Thayer.

**Clinical Meeting**—The second clinical meeting of the Maine Medical Association will be held in Portland, October 4-5. Clinical demonstrations in medicine and surgery will be held in the various hospitals. No formal papers will be presented. The Cumberland County Medical Society will entertain with a dinner Thursday evening, October 4. The first clinical meeting was held in Bangor, February 20-21, when the staff of the Eastern Maine General Hospital presented the program.

## MARYLAND

**Outbreak of Typhoid**—Twenty-eight cases of typhoid were traced to a benefit supper in Baltimore recently. Although the manner in which the supper served as a means of disseminating the disease has not been ascertained, according to *Baltimore Health News*, it has been learned that one person closely connected with the management of the affair was suffering from an apparently unrecognized ambulatory form of typhoid.

## MICHIGAN

**Personal**—Dr. Francis A. Hargrave, Palo, recently celebrated the fiftieth anniversary of his entrance into medical practice—Dr. John E. Gordon, epidemiologist of the Detroit Department of Health, will leave the department October 1 to join the staff of the Rockefeller Foundation in New York.—The American Legion, Charles A. Learned Post, number 1, honored the memory of Dr. Max Ballin, Detroit, through the adoption of a resolution eulogizing him as a physician and a soldier. Dr. Ballin died in March—Dr. John L. Burkhart, who has practiced medicine in Big Rapids for fifty years, was guest of honor at a banquet, July 17, attended by more than 200 persons, including Governor Comstock.

## MINNESOTA

**Illegal Practitioner Sentenced**—Mrs. Letha Beach, alias Letha Byers, pleaded guilty to practicing healing without a basic science certificate when arraigned in district court, August 3, at Fergus Falls. Investigation by the state board of medical examiners disclosed that the woman had represented herself as a physician from Nebraska and had sold herb medicines

to two persons in Henning, collecting \$19 from two patients. It was said also that she represented herself as being connected with the medical profession in that vicinity but admitted when arrested that this was not true. It was further brought out that she had practiced the same type of "healing" in Redwood County in 1928. Judge Anton Thompson sentenced the woman to one year in the jail of Otter Tail County and placed her on probation until December 1935. She is to return the money to the persons at Henning and is to refrain from practicing healing in any form in the state.

**Northern Minnesota Meeting**—The annual session of the Northern Minnesota Medical Association will be held at the Elks Hotel in Brainerd, September 10-11. The scientific program is as follows:

Dr. Herbert H. Leibold, Parkers Prairie, Fractures, Diagnosis and Treatment in Rural Practice  
Dr. Ernest M. Hammes, St. Paul, Cerebral Arteriosclerosis  
Dr. Joseph C. Michael, Minneapolis, Recent Therapeutic Advances in Neurology  
Dr. Samuel H. Boyer, Jr., Duluth, Idiopathic Hypochromic Anemia  
Dr. James B. Carey, Minneapolis, Diagnosis and Management of Anemia  
Dr. Morris H. Nathanson, Minneapolis, Treatment of Cardiac Emergencies  
Dr. Robert L. Nelson, Duluth, Report on Meeting of the American Heart Association  
Dr. Edgar T. Herrmann, St. Paul, Present Status of Diminutophenol  
Dr. Berton J. Branton, Willmar, Cost of Liability Insurance  
Dr. William H. Hengstler, St. Paul, Malpractice  
Dr. William T. Peyton, Minneapolis, Malignant Tumors Arising from Epithelioma of the Pharynx  
Dr. Chauncey A. McKinlay, Minneapolis, Treatment of Infertility Associated with Hypometabolism  
Dr. Lloyd F. Hawkinson, Brainerd, Endocrine Growth and Sex Deficiency  
Dr. Edward N. Peterson, Eveleth, Osteitis Fibrosa Cystica  
Dr. Norman P. Johnson, Minneapolis, Nonorganic Causes of Fatigue  
Dr. Edward H. Rynearson, Rochester, Diagnosis and Treatment of Various Types of Goiter  
Dr. Gershom J. Thompson, Rochester, Prevention of Complications of Prostatic Resection  
Dr. Olaf J. Hagen, Moorhead, The Jaundiced Patient  
Dr. Edward Bratrud, Thief River Falls, Urography with Special Reference to the Differential Diagnosis of Kidney Conditions  
Dr. Frank J. Hirschboeck, Duluth, Medical Emergencies in the Chest

A banquet will be held at the Ransford Hotel, Monday evening, with Richard E. Scammon, Sc.D., Minneapolis, as toastmaster. An address on "Minnesota Man" will be delivered by Albert E. Jenks, Sc.D., professor of anthropology, University of Minnesota. Dr. Axel C. Baker, Fergus Falls, will give his presidential address on this occasion, and Dr. Francis J. Savage, St. Paul, president of the state medical association, will speak.

## MISSOURI

**Personal**—Dr. Hyman I. Spector, tuberculosis controller, has been appointed assistant health commissioner of St. Louis to succeed Dr. Paul J. Zentay, resigned, and Dr. Harold D. Choate, city epidemiologist, has resigned to accept an appointment as assistant director of the California State Department of Health.

## NEW YORK

**Quarantine Rules Modified**—Regulations in the sanitary code dealing with quarantine in cases of poliomyelitis, meningococcal meningitis, scarlet fever and diphtheria were amended at a recent meeting of the public health council. Under the new provisions, adults in a household in which there is a case of poliomyelitis or meningitis need not be quarantined. Adults in contact with cases of diphtheria or scarlet fever may continue to follow any vocation that does not involve handling of food or close association with children if the sick persons are properly isolated at home. Children in such households must be quarantined until the patient is released. The isolation period for scarlet fever was also reduced from thirty days to twenty-one days by the new regulations.

## New York City

**Report of Tuberculosis Committee**—Expansion of the city's facilities to the point at which 7,500 patients with tuberculosis can be cared for at one time was recommended by a special committee appointed by Dr. Sigismund S. Goldwater, commissioner of hospitals, several months ago to study the situation. This would mean 2,500 additional beds. There should be a central institution in each borough, the committee averred, for persons requiring relatively short periods of hospitalization, and three country institutions comprising about 1,400 beds for convalescents. The latter should be operated by the state and paid by the city for care of its patients, the committee believed. The Municipal Sanatorium at Otisville should be turned over to the state, the report declared. It was also suggested that the health and hospital departments each appoint a "chief of

tuberculosis" to coordinate the work of the two departments in this field. Until an adequate number of beds is provided, the committee recommended that patients be admitted to hospitals not by priority but by consideration of their condition, that is, those most likely to endanger the health of the community and those most in need of care should be admitted first. The hospital admission bureau should be under the sole jurisdiction of the hospital department, which now controls it jointly with the health department, the report stated. If necessary to achieve integrated service, health department clinics should be turned over to the hospital department, except those conducted by the health department to find new cases. Dr. Haven Emerson was chairman of this committee and members were Drs. Foster Murray and James Burns Amberson Jr., Mr. Henry C. Wright and Mr. Godias J. Drolet.

## OHIO

**Promotions at Western Reserve**—Announcement is made by Western Reserve University School of Medicine of the following promotions to associate professorships: Dr. Norman C. Wetzel in pediatrics, Dr. Emerson Megrair, hygiene and bacteriology, Samuel W. Chase, Ph.D., histology and embryology, and O. W. Barlow, Ph.D., pharmacology. The following were promoted to assistant professorships: Dr. Herbert S. Reichle, pathology, Ramon F. Hanzal, Ph.D., pathologic chemistry, Franklin C. Bing, Ph.D., biochemistry, Donald E. Gregg, Ph.D., physiology.

## OREGON

**Personal**—Dr. James M. O'Dell, Salem, has been appointed superintendent of the Eastern Oregon State Tuberculosis Hospital at The Dalles, succeeding Dr. Dewalt Payne, it is reported.—Major Aldine E. Morgan, chief medical officer at the Veterans' Administration Home at Danville, Ill., for several years has been transferred to the home at Roseville, it is reported.

**Society News**—Dr. Max Cutler, Chicago, addressed the Multnomah County Medical Society, Portland, June 30, on recent advances in radiation treatment of cancer.—Speakers at the annual meeting of the Eastern Oregon Medical Society at Pendleton, June 30, included Drs. James Tate Mason, Seattle, on "Carcinoma of the Colon"; Grover C. Bellinger, Salem, "Early Diagnosis of Tuberculosis," and Louis P. Gambee, Portland, "Management of General Peritonitis."

## PENNSYLVANIA

**Fifty Years in Practice**—Twelve physicians received certificates of honor in recognition of fifty years or more in the practice of medicine at the annual meeting of the Ninth Council District of the Medical Society of Pennsylvania at the Polk State School July 27. An award was made posthumously to the late Dr. Jacob P. Strayer, Oil City, who died recently, and presented to his daughter. Those who received certificates were Drs. William W. Leech and Thomas James Henry, Apollo; Joseph D. Orr, Leechburg; John Thomas Deemar, Kittanning; Edwin N. B. Mershon, Saxonburg; John T. Rimer, Clarion; John F. Summerville, Monroe; David Lewis McAninch, Lamartine; William F. Beyer and Sylvester S. Hamilton, Punxsutawney; Calvin M. Wilson, Franklin; and Spencer M. Free, Dubois.

## Philadelphia

**Camp for Diabetic Children**—The Philadelphia Metabolic Association has established a free camp for children between the ages of 5 and 16 at Blue Grass Lodge, Bustleton. Thirty-two children were to be accommodated from August 27 to September 8. The Children's Country Week Association provides the camp and food, and the association arranges personnel and other details. The new association is made up of physicians, nurses, social workers, dietitians and interested laymen who wish to improve treatment, standardize records, organize diabetic departments in hospitals, disseminate knowledge about the disease and protect the patient from inadequate treatment, nostrums and expensive and worthless food substitutes.

## RHODE ISLAND

**Personal**—Dr. William O. Rice has been appointed superintendent of Rhode Island Hospital to succeed Dr. John M. Peters, who retired January 1. Dr. Rice, who has been acting superintendent in the interim, had served as assistant superintendent since 1910.—Dr. Virgil H. Danford has recently been promoted to the superintendency of Rhode Island State Sanatorium, Wallum Lake.

## SOUTH CAROLINA

**Society News**—Drs. Thomas A. Pitts and Nathaniel B. Heyward, Columbia, among others, addressed the Second District Medical Society, Batesburg, July 31, on "Factors Influencing Gastric Function" and "Gallbladder Complications of Typhoid," respectively.—Dr. Hal M. Davison, Atlanta, addressed the Spartanburg Medical Society, July 30, on hyperpyrexia.—Dr. Edward A. Looper, Baltimore, addressed the Columbia Medical Society, June 11, on diagnosis and treatment of diseases of the larynx, trachea and bronchi.

## TENNESSEE

**Personal**—Dr. William H. McMillan, Erin, was the guest of honor recently at a dinner celebrating his seventy-fifth birthday.—Dr. Russell B. Howard, Murfreesboro, has been appointed health officer of Carter County.

**Health at Memphis**—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million for the week ended August 18 indicate that the highest mortality rate (20) appeared for Memphis and the rate for the group of cities as a whole, 9.9. The mortality rate for Memphis for the corresponding week of 1933 was 14.6 and for the group of cities, 9. The annual rate for eighty-six cities for the thirty-three weeks of 1934 was 11.7, as against a rate of 11.1 for the corresponding period of 1933. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

## WASHINGTON

**Personal**—Dr. Harry H. Dutton has been appointed superintendent of Northern State Hospital, Sedro Woolley, succeeding Dr. Edward C. Ruge.—Dr. Albert S. McCown, Seattle, has been appointed in charge of the child welfare department of the state board of health.

**State Medical Meeting at Spokane**—The Washington State Medical Association will hold its annual session at Spokane, September 10-12, at the Davenport Hotel. The first day will be devoted to the annual golf tournament and the second and third to the scientific and business sessions. The scientific program is as follows:

- Dr. William D. Stroud, Philadelphia, Coronary Disease, Digitalis in the Treatment of Cardiovascular Disease
- Dr. Verne C. Hunt, Los Angeles, Operability of Carcinoma of the Breast: Applicability of Certain Surgical Procedures for Duodenal and Gastric Ulcer
- Dr. Fred W. Bailey, St. Louis, Reduction of Mortality in Appendicitis
- Dr. Brien T. King, Seattle, Etiology of Heart Disease
- Dr. Eugene W. Rocky, Portland, Low Back Pain: Differential Diagnosis and Treatment
- Dr. Paul G. Flothow, Seattle, Treatment of Severe Constipation by Physiologic Surgical Relief
- Dr. Roger Anderson, Seattle, Fractures of the Patella Treated by an Ambulatory Method
- Dr. Sam L. Caldwell, Everett, Retrocecal Appendicitis and Complications
- Dr. Oscar S. Proctor, Seattle, Surgical Treatment of Pulmonary Tuberculosis
- Dr. Homer J. Davidson, Seattle, The Economic Problem of the Physicians of Washington
- Dr. Charles B. Ward, Seattle, Treatment of Malignancies of the Head and Neck
- Dr. Joseph Lynch, Spokane, Diagnosis of Brain Tumor

A public meeting will be held Monday evening, September 10, with the following program:

- Dr. J. Tate Mason, Seattle, Hospitals and the Public
- Dr. Donald V. Trueblood, Seattle, What the Public Should Know About Cancer
- Dr. Stroud, What the Community Should Know About Heart Disease
- Dr. Hunt, Scientific Medicine in Relation to Society
- Dr. Bailey, What You Can Do to Help Your Doctor in Treatment of Appendicitis

## WISCONSIN

**Personal**—Edwin B. Fred, Ph.D., professor of agricultural bacteriology at the University of Wisconsin, has been appointed dean of the graduate school, succeeding Charles S. Schlichter, Sc.D., who retired.

**Society News**—Dr. T. J. O'Leary, Superior, addressed the Barron-Washburn-Sawyer-Burnett Counties Medical Society, June 10, at Rice Lake, on acute diseases of the gallbladder.—Drs. Nelson M. Percy and David S. Beilin, Chicago, addressed the Rock County Medical Society, Beloit, June 26, on "Surgery of Gastric and Duodenal Ulcers and Cancer of the Stomach" and "Analysis of 1,000 Consecutive X-Ray Examinations of the Stomach from the Clinical and Roentgenologic Viewpoints," respectively.—Jacob M. Essenberg, Ph.D., Chicago, made an address on "Embryology of the Ner-

vous System" before the Milwaukee Neuro-Psychiatric Society, June 28 — Members of the Trempealeau-Jackson-Buffalo Counties Medical Society spent July 27 cruising on the Mississippi aboard Dr William J Mayo's yacht, the *North Star*. Sixty-three persons were in the party

### GENERAL

**Interchamber Health Contest**—Announcement is made of the sixth interchamber city health conservation contest by the U S Chamber of Commerce, Washington, D C, in cooperation with the American Public Health Association. The purpose of this year's contest is to interest the business man in public health and assist in the intelligent fostering and promotion of sound public health practices. The fact finding schedules on which the contest is based should be returned to Washington before March 1, 1935

**Society News**—The Pacific Coast Oto-Ophthalmological Society at its annual meeting in Butte, Mont, July 17, elected the following officers: Drs Frank B Kistner, Portland, president, Spencer S Howe, Bellingham, Wash, and Casper W Pond, Pocatello, Idaho, vice presidents, and Frederick C Cordes, San Francisco, secretary. The 1935 meeting will be held in Portland—Dr Charles T Sweeney, Medford, Ore, was chosen president elect of the Pacific Northwest Medical Association at the recent annual meeting in Salt Lake City, Dr George A Dowling, Seattle, became president and Dr Frederick Epplen, Seattle, was elected secretary-treasurer—Dr Edward Jackson, Denver, was elected president of the Western Ophthalmological Society at the meeting in Butte, Mont, in July, Dr Will Otto Bell, Seattle, vice president, and Dr Andrew J Browning, Portland, secretary. The next meeting will be held in Portland

**Railway Surgeons' Meeting**—The American Association of Railway Surgeons held its annual meeting at the Hotel Stevens, in Chicago, August 20-22, under the presidency of Dr Sterling B Taylor, Columbus. Among the speakers were

Dr Harvey Bartle, Philadelphia Syphilis—A Problem in Hazardous Industry  
Dr James A Jackson Jr, Madison Wis Open Reduction Treatment of Fractures  
Dr Ralph C Hamill, Chicago Mental Influences in Traumatic Situations  
Dr Ralph B Bettmann, Chicago Penetrating Wounds of the Chest  
Dr Geza De Takats, Chicago Determination of the Proper Level of Amputation  
Dr Otto Jason Dixon, Kansas City Repair and Restoration of Injured Blood Vessels with Viable Muscle

Dr John Garfield Frost, Chicago, was elected president of the association, Drs William A McMillan, Charleston, W Va, Charles C Stillman, Morganville, Kan, and Michael J Owens, Kansas City, Mo, were elected vice presidents, Dr Louis J Mitchell, Chicago, was reelected secretary

**Meeting of Obstetricians, Gynecologists and Abdominal Surgeons**—The forty-seventh annual meeting of the American Association of Obstetricians Gynecologists and Abdominal Surgeons will be held in White Sulphur Springs, W Va, September 6-8, under the presidency of Dr William Wayne Babcock, Philadelphia. Among the speakers will be

Dr Frederick S Wetherell, Syracuse N Y, Intractable Dysmenorrhea—Relief by Sympathetic Neurectomy  
Dr Lawrence M Randall, Rochester Minn A Standard Test for Measuring the Variability of Blood Pressure  
Dr Frederick H Falls, Chicago, A Critical Study of 500 Cases of Eclamptogenic Toxemia  
Dr Willard R Cooke, Galveston Solid Tumors of Mesonephric Origin  
Dr Thomas E Jones, Cleveland Ohio Recognition and Treatment of Late Bladder Rectal and Intestinal Complications Following Radiation Treatment of Cancer of the Cervix  
Dr Arthur Stein, New York, The Use of Small Dosages of Pituitary Extract in Obstetrics A Review of the Last Twenty Two Years  
Dr Edgar A Vanderveer, Albany N Y Nonparasitic Single Retention Cysts of the Liver  
Dr Howard F Kane, Washington D C The Use of Paraldehyde in Obtaining Obstetrical Analgesia and Amnesia

The Joseph Price Oration will be delivered Thursday evening September 6, by Prof Erwin Zweifel, University of Munich, Germany on "Diagnosis of Carcinoma of the Uterus in Its Earliest Stages"

### CANAL ZONE

**Society News**—At a meeting of the Medical Association of the Isthmian Canal Zone, Panama City July 17, speakers were Drs Elbert DeCoursey, "The First Fatal Case of Chagas' Disease on the Isthmus of Panama" Joseph R Darnell, "Nephrosis" Lawrence Getz, "Tuberculosis of the Wrist Joint," and Orville G Brown, "Discharges for Disability The Panama Canal Zone" All are from Ancon

### PHILIPPINE ISLANDS

**Restaurants Padlocked**—Twenty establishments for the preparation or serving of food in Manila were closed during the week preceding July 21 as a result of about twenty-five cases of food poisoning with five deaths, the *New York Times* recently reported. Almost all those padlocked are owned by Chinese and serve comparatively cheap food. Sanitation and refrigeration in such places are usually ignored. Although the sanitary code requires inspection, the inspectors are not well paid and are lax in their duties. The correspondent pointed out that such conditions do not exist in Manila's larger restaurants and hotels, which are models of cleanliness

### PUERTO RICO

**Influenza Epidemic**—More than 7,000 cases of influenza have been reported in Puerto Rico, according to the *Chicago Tribune*, August 21. A conference of all public health physicians had been called to deal with the epidemic

### LATIN AMERICA

**Radium Center in Colombia**—The National Radium Institute, with 3 Gm of radium, was opened in Colombia, August 4, with ceremonies at which President Enrique Olaya Herrera officiated—The third Pan-American Anti-Tuberculosis Conference will be held in Montevideo, Uruguay, in November

**Poliomyelitis in Cuba**—The *New York Times* reported, August 17, that Dr Edward C Rosenow, Rochester, Minn, had gone to Havana at the invitation of the Cuban government to assist in fighting an outbreak of poliomyelitis. It was said that seventy-three children had died in the last six weeks—A dispatch to the *New York Times* from Lima, Peru, states that 400 children in southern Peru have died of measles and convulsive coughs since May and that 3,000 or more children are still suffering from the epidemic

### FOREIGN

**Clinic Staffed by Blind Technicians**—The National Institute for the Blind, London, has opened a clinic for massage and electrical treatments to be given by blind persons who have qualified as chartered masseurs in the institute's school for blind masseurs. All treatments will be given under strict medical supervision. The clinic was equipped by Mr William Eichholz as a memorial to his cousin Dr Alfred Eichholz who died Feb 6, 1933. Dr Eichholz was formerly chief medical inspector for the board of education and at the time of his death was a councilor for the institute for the blind. The Prince of Wales officially opened the clinic, July 6 and Lord Moynihan made an address

### Deaths in Other Countries

Dr Alfonso Poggi, professor of pathology in the University of Bologna, Italy, for many years, died July 22, according to the *New York Herald Tribune*—Dr Auguste Marie, French psychiatrist, died in Paris, July 29, aged 69, according to press reports

## Government Services

### Evaluation of Serologic Tests for Syphilis

The U S Public Health Service announces that a comparative test of the relative value of serologic procedures for the diagnosis of syphilis is to be made within a few months. In cooperation with the American Society of Clinical Pathologists, the Public Health Service will collect specimens of blood from at least 1,000 persons and distribute comparable specimens to the laboratories of serologists who have described an original modification of a complement fixation or precipitation test for the diagnosis of syphilis. After all laboratory reports have been submitted by participating serologists, a committee of five members consisting of two specialists in clinical syphilology, two members of the American Society of Clinical Pathologists and one officer of the U S Public Health Service will interpret the results on the basis of clinical observations. Collection of specimens will begin about December 1 and a number of serologists will be asked to participate. Any serologist desiring to participate will be extended an invitation on presentation of suitable proof as to the originality of his modification of a serologic test. A brief description of the plan will be sent to workers who may be interested. Correspondence should be addressed to the Surgeon General, U S Public Health Service Washington, D C

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Aug 4, 1934

#### Accidents in Industry

In his annual report, the chief inspector of factories and workshops states that he has been impressed by the number of avoidable accidents. The contempt for machinery, which is responsible for a wholly unnecessary toll of death and disablement, is almost incredible, since its dangerous character has been continuously emphasized from the start of factory inspection. An enormous field is open for education of the kind undertaken by the National Safety First Association, so that those exposed to the risk can be brought to realize that all power driven machinery is dangerous. Remarkable results have been obtained by establishing safety organizations in individual factories. On the other hand in an industrial disease the symptoms may not be immediately apparent and the cause may long remain unsuspected. Thus the existence of asbestosis was for years unrecognized. During the last year several problems have arisen. Investigation of the incidence of silicosis among sand blasters has shown that sandblasting is an extremely dangerous occupation. Fortunately the remedy is at hand in the use of other abrasives.

#### DEATHS DUE TO DIETHYLENE DIOXIDE

A series of deaths due to inhalation of the vapor of diethylene dioxide (dioxan) at an artificial silk works led to an inquiry into the extent to which this substance is in use. The result was negative, but a question of wide importance was raised. There is at present no clear relation between toxicity and chemical constitution, and having regard to the use of new organic compounds as solvents, it would seem to be a valuable safeguard for each to be physiologically tested before being placed on the market for general use. Steps have been taken to have this done.

#### STATISTICS OF ACCIDENTS

At the end of 1933 there were 160,185 factories and 86,851 workshops under inspection—an increase of 2,294 factories and a decrease of 4,008 workshops compared with the preceding year. The number of accidents showed an increase from 106,164 to 113,260 and of fatal accidents from 602 to 688. Two reasons for the increase are given. One is an increase in the number of workers employed. The other is the return to work after long periods of unemployment. Many of the workers are suffering from lack of nourishment and are physically and mentally less alert and more liable to mishap than in normal times.

#### THE EFFECT OF INDUSTRIAL WORK ON FEMALES

There are 1,835,500 women and girls employed in factories, of whom 1,391,400 are over the age of 18. Textile industries employ the largest number (657,600), the manufacture of wearing apparel 313,000, and the food industries 140,700. Women and girls are frequently employed in repetition processes and in operating and tending the lighter machines. The inspector Dr. Sibyl Horner, says: "Such employment illustrates one of the greatest attributes of the feminine sex—adaptability. This is the solution of the riddle which has provoked so much interest in scientific minds—Why is it that women alone of the industrial groups can bring themselves to the daily performance of monotonous work without losing what one may call for want of a better name interest in life? They do it by a nice balance between attention and detachment—which is in effect a prescription for the prevention of boredom. Boys are not so good at maintaining this nicety of balance and why should they when

their outlook is so different from those of women or even from girls of the same age?" As to the effect on the health of industrial employment of women and girls, Dr. Horner says that on the beneficial side are the stimulating effects of discipline and interests of factory life, with the higher standard of living of wage earners. Conditions in factories are in many cases better than those in the worker's environment. The food in the canteens is good and varied. Health risks are eliminated or reduced to a minimum and women are excluded by law from certain industries presenting definite health hazards. On the other hand, there are adverse effects. They age quickly. Physical attraction is early attained and quickly lost. The reason given by Dr. Horner is that women's work often begins when it nominally ends. The house and dependents make their claim on the woman worker. Her work is never done. But the net result is 'good and getting better'."

#### Intellectual Refugees from the German Persecution

Meetings of experts dealing with the intellectual refugees from the German persecution have been held in London. More than 1,300 scholars have been displaced, of whom more than 600 have emigrated or are likely to leave Germany in the next few months. In addition, between 5,200 and 5,500 professional people have had to emigrate because they lost their positions, while 7,000 students had to leave the universities and other institutions before completing their studies. The committee that met this week forms part of the organization set up by Mr. J. G. McDonald, the high commissioner for refugees from Germany. Dr. A. E. Cohn of the Rockefeller Institute, New York, presided at the meetings, and representatives were present of most of the academic and professional committees set up in the various countries to help in the settlement of the refugees. The salient outcome of the meetings is that, provided sufficient funds are forthcoming, most of the displaced scholars and most of the students can be taken care of and permanent places found for them while given a coordinate effort, under the auspices of the high commissioner, a great many of the professional people may hope to create a new livelihood for themselves. It is expected that by July 1935, 140 scholars will be absorbed by the universities and other institutions of learning, while 150 will have found places in research laboratories. Another 130 can be maintained after July 1935 on grants. Thus, 420 of the emigrant German scholars will by then have been enabled to continue their work. The committee will make every effort to create further research scholarships and to elaborate group research schemes. Following a suggestion of Prof. Aage Frus of Copenhagen, the high commissioner was asked to pursue negotiations with various governments to obtain permission for placing a limited number of professional refugees both in and outside Europe. It was felt strongly by the committee that the final liquidation of the problem depended on the attitude of these governments. Each country would have to take only a comparatively small number of academic, professional and student emigrants to assure a new livelihood to all those who were driven out of Germany.

#### The Contrast Between Railway and Road Accidents

The official report for 1933 shows that the number of persons killed on the railways of Great Britain was the lowest for thirty years. Six passengers were killed and 619 were injured in train accidents. The number injured is the highest in five years, but it includes 246 passengers injured as a result of buffer-stop collisions the majority of whom suffered only from shock. Eight cases of train accident were attended by loss of life among railway employees, the total casualties being eleven killed and eighty-one injured. While higher than last year, the total is less than the average for the five year period 1925-1929. In 206 cases of accident at level crossings thirty-nine persons were killed and forty-two injured, including forty-

three pedestrians, of whom thirty were killed. These figures compare favorably with the average of the five year period 1925-1929. In movement accidents—connected with the movement of railway vehicles, exclusive of train accidents—152 were killed and 2,406 injured, which compares favorably with the previous year. In train accidents the liability to death was only one in 262 million passengers carried, and to injury only one in two and one-half million.

The contrast between the safety of the railways and the dangers of the roads is brought out in a letter to the *Times* by the well known writer Mr. St. John Irvine. He points out that the terrible figures of road accidents are accepted as part of the daily routine, but if a train is derailed and several

*Passengers Killed and Injured Annually in Train  
Accidents in Great Britain*

Years	Killed	Injured
1926	13	765
1927	27	518
1928	48	716
1929	3	507
1930	1	552
1931	8	414
1932	4	214

*Persons Killed and Injured Annually in Road  
Accidents in Great Britain*

Years	Killed	Injured
1926	4 886	133 888
1927	5 329	148 575
1928	6 138	164 838
1929	6 696	170 917
1930	7 305	177 895
1931	6 691	202 119
1932	6 667	206 450

persons are injured or killed the press is full of heavy headlines and a rigorous inquiry is held. Motorists kill more people in a fortnight than all the railways of Great Britain have killed in seven years. Comparison of the accompanying tables is illuminating.

### Why Cambridge Wins the Boat Race

At the health congress of the Royal Sanitary Institute, Dr. J. A. NIXON, professor of medicine in the University of Bristol, attributed the success of Cambridge in the famous university boat race to recognition of the value of sugar in sustaining physical effort. Cambridge's reputation is scientific and it has a well known school of physiology and therefore should know all about the physiology of effort. Oxford's reputation is classic and literary. It is occupied with a past that knew nothing about calories or metabolism and so loses the boat race. Professor NIXON added that Dr. Somervell, the Everest climber, told him that in high altitudes the climbers lost appetite for everything but sugar.

### C. J. Heath

Mr. C. J. Heath, known all over the world for his mastoid operation, has died at the age of 77. Educated at St. Bartholomew's Hospital, he early showed his delicate manipulative skill by winning prizes for anatomic dissection and by his appointment as prosector at the Royal College of Surgeons. He was attached successively to the Central Throat, Nose and Ear Hospital and to the Throat Hospital, Golden Square, of which at the time of his death he was vice president. His papers on "The Cure of Chronic Suppuration of the Ear Without Removal of the Drum, Ossicles or Loss of Hearing" and "The Prevention of Deafness and Mortality, Which Result from Aural Suppuration," have become classics. His remarkable mechanical ability was shown also outside the field of surgery. An enthusiastic sportsman, he invented a chamberless wild-fowling gun. During the war he designed an antigas helmet of which 20 million were supplied to the British army.

## PARIS

(From Our Regular Correspondent)

July 11, 1934

### The Absence of Malaria in France

The fact that malaria is rare in France (other than in the island of Corsica) usually occasions surprise. One finds here *Anopheles maculipennis*, which is the agent in transmitting malaria. There are in France many persons who have previously resided in the colonies and who remain infected for a long time and constitute reservoirs of infection. In spite of the apparently favorable conditions for malaria, the disease is almost never observed in persons who have not resided outside of France. The reservoirs of infection were greatly increased at the close of the war by the return to France of soldiers who had served in the Orient, almost all of them being carriers of *Plasmodium praecox* and *Plasmodium vivax*. Nevertheless only a few cases of infection have been diagnosed near certain camps. This has not always been the case. Formerly malaria was prevalent in many regions of France. Flanders (at the mouth of the Somme and the Seine), the Cotentin Swamp, Basse-Loire, Sologne and the valleys of the Aisne, the Charente, the Gironde, the Rhone and the Camargue. But it has disappeared, except in Corsica. Mr. Emile Roubeaud has devoted many years to a study of this peculiar problem. He has published several articles on the subject in the *Annales de l'Institut Pasteur* and in the *Memoires de la Societe de pathologie exotique*. He discovered that in the Vendee and in other regions in which *Anopheles maculipennis* is still found in abundance the mosquito refuses to attack man and prefers to bite animals. In regions where animals exist in large numbers there is no malaria. Attention had been previously called to this fact. Domestic animals, such as dogs, rabbits, horses, cattle and hogs, seem to constitute for man a protective shield. Roubeaud of the Institut Pasteur, during a recent scientific tour in Corsica, found that large domestic animals were numerous and were allowed almost complete liberty in large areas covered with brush and woods—the hot, dark and close stables, such as the French farmer of the continent usually has, and which are the favorite lurking place of *Anopheles*, being absent. That is the reason why in Corsica the mosquitoes prefer to establish their abode in the dwellings. On account of the moderate temperatures, domestic animals are rarely sheltered at night in closed stables. Roubeaud observed also that *Anopheles* gradually adapts itself to new conditions and develops new species, which prefer to bite animals rather than man. The types that bite man have a much weaker biting apparatus than those that attack animals and finally are eliminated by the more vigorous species. The European of the North has seen malaria disappear because he protects his animals better against the cold and thus invites *Anopheles* to his warm stables. Here is a factor in the prophylaxis of malaria that apparently deserves serious consideration and introduces an additional element in the crusade carried on by the ordinary methods.

### Madame Curie

The death of Madame Curie in a sanatorium of the Alpes de Savoie, at the age of 67, has been announced. Her health had been greatly impaired during the last two years and it is supposed that the constant handling of radioactive substances had induced a grave anemia. Madame Curie was a native of Poland, her maiden name having been Marie Sklodowska. In 1893 she entered as a pupil the laboratory of Pierre Curie and later became his wife. She was his collaborator in his search for the elements of radioactivity, the presence of which was suspected in uranium, the first radioactive metal to which Becquerel called attention. As a result of their combined efforts they succeeded, after experimentation covering four years, in isolating a new metal, which was called "polonium" in honor

Madame Curie's native country, the name being later changed to Radium. After the tragic death of Curie in 1906, Madame Curie continued his researches, first in collaboration with her husband and later with Debierne. With the aid of the latter, she isolated pure radium by electrolysis of its chloride. A special chair was created for her at the Faculté des sciences and she was invited to direct, in association with Professor Curie, the Institut du radium de Paris. Her name was proposed for membership in the Académie des sciences, but she was outdistanced by Branly. In 1922 the Academy of Medicine elected her a member of the Section des membres libres. A number of years ago she made a journey to the United States to receive a gift of radium, which had been offered to her (in the form of a general subscription) for the Curie Institute. One of her most recent studies was on the uses of radon. She has two daughters, one of whom is married to a physician (Dr. Marie Skłodowska-Curie) and is continuing, with the aid of her husband, the researches of her parents on radioactivity, while the other daughter, Eve Curie, has distinguished herself as a pianist and has written several plays.

#### Mastoiditis Caused by *Pneumococcus Mucosus*

Mr. Le Maître, head of the otorhinolaryngologic department of the Hôpital St. Louis, has presented to the Academy of Medicine an outline of the results of a research in otology, of which he is an eminent representative. The point in question is the peculiar role of *Pneumococcus mucosus*, a chain pneumococcus that has been termed "*pneumococcus III*." The cases of mastoiditis caused by *Pneumococcus mucosus* are the gravest of the ear suppurations. They may develop without pain, without fever and when the victim is in good general condition. No clinical sign distinguishes them from ordinary simple otitis. The mastoid is often totally destroyed, and the lesion tends to involve the deeper tissues, producing external pachymeningitis. The occipital and the parietal bones and the zygomatic bone become invaded. All the cases of meningitis observed that were due to *Pneumococcus mucosus* were fatal. The diagnosis can be made only by bacteriologic examination and the signs of mastoiditis due to *Pneumococcus mucosus* are almost entirely of a radiologic nature. Treatment should consist of early and ample mastoidectomy. Serotherapy is ineffective and vaccino-therapy is still on trial. Disinfection of the cavity must be continued as long as *Pneumococcus mucosus* is found.

#### BERLIN

(From Our Regular Correspondent)

July 9, 1934

#### The Surplus of Medical Students

The medical league has just published some interesting figures on the overcrowding of German universities and the academic professions. A curve representing medical study during the past sixty years shows three peaks and three lows. From 1870 to 1880 the number of medical students ranged around 3,500 and in 1890 rose to about 8,700. The number of medical licenses granted annually between 1888 and 1903 ranged between 1,200 and 1,500. This excessive number reacted on the number of medical students, which dropped to 6,400 in the summer of 1906. The number of licenses declined in 1907 to 500. This low figure was the signal for increased interest in medical study, so that the number of medical students rose the following summer to 16,000, which denoted an increase of about 150 per cent over the enrolment for the previous summer. The conditions that obtained during the war caused a further increase up to 22,500 students in 1919. Announcement of this excessive registration acted again as a deterrent, so that in 1925 the number of medical students dropped to about 7,750. A dearth of assistant physicians and the uncritical announce-

ment of the incomes of panel physicians again occasioned an enormous increase of medical students, and particularly of women students, the number in 1933 being five times that of 1914. Table 1 shows the registration for the summer semester of certain years between 1914 and 1933.

TABLE 1—Registration of Medical Students, 1914-1933

Summer Semester	Total Registration	No of Women
1914	16 440	979
1919	22 474	2 237
1925	7 758	1 225
1927	9 663	1 541
1928	11 935	1 934
1929	15 067	2 521
1930	18 088	3 261
1931	21 541	4 078
1932	24 808	4 919
1933	25 264	5 123

The classification of the enrolled medical students according to the number of semesters they have studied (as of the summer semester in 1933) reveals the approximate number of graduates during the next few years.

TABLE 2—Students According to Semesters

No of Semesters of Medical Study of Various Students	Total No of Medical Students with Varying No of Semesters	No of Women Students, with Varying No of Semesters
1	2,935	758
2	621	156
3	4 352	905
4	854	205
5	4 565	979
6	868	167
7	3 251	625
8	743	160
9	3,166	529
10	642	122
11	2 749	478
12	196	24
13	152	8
14 or more	158	6
Unknown	12	1
Totals	25 264	5 123

In explanation of the alternate shifting in the figures, it may be noted that most German gymnasiums (secondary schools) end the school year with the beginning of a summer semester (at Easter) at the university. From these figures it is evident that approximately 4,000 students annually will take the government examination (staatsexamen).

The number of Jewish medical students in the summer semester of 1932 was 1,893, which included 591 women students. In the summer semester of 1933 the total number of Jewish medical students dropped to 916, which included 328 women students. Of the 916 Jewish students, 260 were foreigners (thirty-nine women).

TABLE 3—Number of Licenses to Practice Granted in Recent Fiscal Years

Fiscal Year	Total No of Licensed Graduates	No of Licensed Women Graduates
1922-1923	3 062	347
1923-1924	2 616	351
1924-1925	2 430	315
1925-1926	2 033	255
1926-1927	1 488	229
1927-1928	1 158	181
1928-1929	985	188
1929-1930	1 101	202
1930-1931	1 681	270
1931-1932	1 616	273

The number of licenses for 1934 is estimated at 3,500, for 1935 at 4,000, for 1936 at 4,500, and for 1937 at 4,500. In 1931 the annual number of newly licensed physicians needed was placed at 1,200-1,400, but this figure is considered by many as too high. If an optimistic view is taken (that is, if economic conditions improve), more positions might be needed but it



is not likely that the total number of new physicians required would exceed 1,500. The hospitals and similar institutions require about 2,000 new assistant physicians annually. Under the present conditions it appears likely that these institutions also will have to deal with an excessive supply of physicians, so that a considerable number of physicians either will have to work as volunteers without a fixed salary or will be forced to serve in "work service camps" or elsewhere. In any event, the number of physicians seeking openings during the next few years will vastly exceed the requirements of the country and the limitations imposed by economic conditions.

#### Panel Physicians and Recent Legislation Pertaining to Aryans and Communists

In the *Reichsanbeitsblatt*, the official organ of the federal ministry of labor, Ministerialrat Dr. Karstedt publishes an interesting article on the application to the panel physicians of recent legislation pertaining to Aryans and communists. A general survey is in order now that, with the exception of from twenty to thirty complaints, still to be settled, the work of excluding certain physicians from panel practice, in accordance with the published regulations of the new regime, has been completed. The records show that on Jan. 1, 1933, there were 35,000 physicians who had been admitted to panel practice in Germany. Just what percentage of this number were non-Aryans is unknown, as it is difficult to secure reliable statistics. For Berlin, fairly exact data are available, as prepared by Dr. Lollke, the new chairman of the Berlin Aerztekammer (chamber of physicians). According to his estimation, the total number of physicians controlled in 1933 by the Berlin Aerztekammer was 6,558. So far as can be ascertained, 47.8 per cent of this number or 3,135, were Aryan, whereas 52.2 per cent, or 3,423, were non-Aryan. In the group of non-Aryans there is a small number of physicians who are married to Jews or whose lineage is doubtful. The total number of physicians registered in Berlin as of Feb. 14, 1934, was 6,203, showing a reduction of 355. Of this number 53 per cent, or 3,289, were Aryan, while 47 per cent, or 2,914, were non-Aryan. Here also physicians with a Jewish spouse are counted among the non-Aryans. During the period from the middle of 1933 to Feb. 14, 1934, 154 Aryans were added to the register and 509 non-Aryans were removed. To be more exact, there were 285 Aryans added and 131 were removed, while forty-three non-Aryans were added and 552 were removed. Although, as will be seen from these figures the relation of the Aryan to the non-Aryan physicians has been reversed, the total increase of the Aryans amounted to only 2.5 per cent, whereas the total reduction of the non-Aryans represented 8.2 per cent of the total number. Among the panel physicians (*kassenärzte*) in Berlin, which in October 1933 numbered 3,481, Dr. Lollke estimates that there were 40.3 per cent Aryan, or 1,404, and 59.7 per cent non-Aryans, or 2,077. According to the last enumeration (February 1934) the total number of panel physicians (*kassenärzte*) in Berlin was 3,144. 51.6 per cent Aryans, or 1,623, and 48.4 per cent non-Aryans, or 1,521. The number of panel physicians shows therefore a diminution of 337, as compared with a reduction of 355 in the number of physicians in general. It is thus evident that the reduction has affected chiefly the panel physicians.

Dr. Karstedt states that in Berlin a total of 1,144 panel physicians have been excluded. Further information may be obtained from the figures that concern the decisions on complaints by reason of exclusion. The supreme authority in reviewing these complaints was the federal minister of labor. The leagues of the panel physicians had excluded 1,030 physicians by reason of non-Aryan origin, 338 by reason of communistic activities, and nine for various other reasons, or a total of 1,377 most of whom filed objections. First the league

of the physicians of Germany expressed its views in the matter, and then the federal minister of labor decided that 827 physicians should not be admitted, ninety-one physicians being excluded by reason of communistic activities, and that 524 physicians should be retained by reason of having fought at the front in the World War. In twenty-six cases no decision was reached. As communistic activity the ministry of labor interpreted all public or private activity or sufferance that was calculated to aid and abet communistic tendencies, even though the suspected person had not been a member of the communist party or of its affiliated organizations, particularly if he had been a member of the *Verein sozialistischer Aerzte* or of certain *Arbeitersamariterkolonnen*, and the like.

On the basis of general observations, it may be assumed that at least half of the excluded physicians filed complaints by reason of unjust decisions. Dr. Karstedt points out emphatically that the provisions of the decree were carried out much more rigorously with respect to the physicians than as regards the attorneys. This is particularly true with reference to the question as to whether the complainant was justified in claiming service at the front during the war.

#### RIO DE JANEIRO

(From Our Regular Correspondent)

July 13, 1934

#### International Center for the Study of Leprosy

The work of installation at the center for the study of leprosy is proceeding rapidly. This institution is being established in accordance with an arrangement between the League of Nations and the Brazilian government with the philanthropic cooperation of Dr. Guilherme Guinle.

Its inauguration recently took place at the office of the secretary of the exterior in the presence of high authorities, of the specialists on the staff of the new institution, and of the representative of the League of Nations, Dr. Etienne Burnet. The preparatory work of the International Center of Leprology has been started. The center is already organized with its complete personnel, having its seat at the Institution Oswaldo Cruz, the director of which is Prof. Carlos Chagas, who is also director of the International Center of Leprology and with the installation of a pavilion especially constructed for this purpose at the Hospital-Colônia of Curupaity, in Jacarepagua, a leprosarium exclusively erected for the sick of the federal district and under the direction of the national department of public health. This new pavilion has two stories with wards for two and four patients and a capacity of fifty patients, large verandas and recreation and lecture rooms. On the first floor are the consultation room and treatment rooms. The noncontagious cases of the disease will be treated in private clinics, leaving the beds in the leprosarium for the isolation of the contagious cases.

In the Hospital-Colônia of Curupaity is the section of clinical and experimental therapeutics. The school of Curupaity owes its importance in the center to the visit made to the colony in 1931 by Professor Nocht, well known German expert, who came to Brazil for the League of Nations subsequent to the original proposition made by Professor Chagas.

#### Dr. Couto is Dead

Dr. Miguel Couto, a great figure in medicine in Brazil, died recently, at the age of 70 years, from angina pectoris. Dr. Couto graduated as a Doctor in Medicine from the Faculty of Medicine of Rio de Janeiro in 1886. As a student he was noted for a devotion to his studies, which became more intense during his professional life. Dr. Couto became substitute professor of propedeutics and clinical medicine in the Faculty of Medicine of Rio de Janeiro in 1898, after making a brilliant competitive discussion with Dr. Almeida Magalhães, who was also a prominent member of the profession. In 1901 he was

appointed head professor of clinical medicine, and he held that position until his death. He was the best known of Brazilian clinicians. Among his books and contributions to periodicals were "Dos espiismos nas afecções dos centros nervosos," "Das Gelb Fieber," 300 pages in Nothnagel's Medical Encyclopedia, 1901, and "Lições de Clínica Médica" in three large volumes published in 1916, 1918 and 1933. His studies on yellow fever, cardiocirculatory murmurs, visceral polyesteatosis, beriberi and aphasia are all well known. He was the first in Brazil to use methylene blue in the treatment of malaria. He was elected president of the Academia Nacional de Medicina of Brazil in 1913 and held this position until his death. The Academia Nacional de Medicina of Brazil is the oldest scientific institution of South America. It has existed for 105 years. Dr. Couto was a member of the Academia Brasileira de Letras and of many foreign scientific societies.

#### A Method of Staining Blood for the Diagnosis of Leukemia

Dr. H. Froes presented before the Sociedade Médica dos Hospitais de Bahia a report on a staining method which permits a probable diagnosis of leukemia. He examines macroscopically slides prepared with a thick drop of blood and stained by the method of Cropper-Froes, in which methylene blue is used. This method was reported by Dr. J. A. Froes to local medical societies thirteen years ago. Dr. H. Froes exhibited a number of preparations. One slide was prepared with normal unstained blood, the second and third slides were prepared with normal and leukemic blood, respectively, and stained by the Cropper-Froes method. That of normal blood showed a clear green color, while that of leukemic blood showed an intense blue. With this method the nuclei of the leukocytes are stained by the methylene blue, and since in leukemic blood there is a great number of leukocytes, the thick slide of leukemic blood will acquire an intense color. The method is of value, especially when no microscope is available.

#### ITALY

(From Our Regular Correspondent)

June 15, 1934

#### Regulations Concerning Narcotics

The new regulations concerning narcotics, as published in the *Gazzetta Ufficiale*, provide that penalties in the form of imprisonment for from one to three years and a fine of not less than 1,000 lire (\$84) shall be imposed on any person who grows *Papaver somniferum* secretly, who produces crude opium or who collects or carries on traffic in opium capsules, leaves of coca and/or Indian hemp.

No public or private place may be used for the gathering of persons who indulge in the use of narcotic substances not only the keeper of the place but also the addicts are subject to a fine and/or imprisonment.

Persons authorized to sell narcotics may not dispense them without a medical prescription nor to persons whose identity is unknown. Morphine, diacetylmorphine, cocaine and their derivatives may not be sold other than in the form of an ointment or a solution. The medical prescription must be written with ink or indelible pencil and according to a special form it must contain a general description and the address of the patient, the amount of the dosage written out in full, and directions as to the manner and time of administration.

Practitioners who aid or visit a narcotic addict must notify the authorities within two days or they will be subject to a fine of 2,000 lire (\$168).

#### Academy of the Medical Sciences

The Accademia delle scienze medico chirurgiche met recently in Naples under the chairmanship of Professor Pascale, senator

Pennetti spoke on the relation between splenectomy and carbohydrate and oxalic acid exchange. According to some writers the removal of the spleen increases the tolerance for carbohydrates even to the point of producing permanent hyperglycemia, according to others such tolerance is diminished. The speaker studied in splenectomized animals both carbohydrate and oxalic acid exchange. In experiments on dogs he found a distinct but transitory hyperglycemia, which was usually accompanied by hyperoxaluria of short duration.

Tmozzi discussed, from the experimental point of view, the heterologous neoplastic transplant. In order to improve the outcome of heteroplastic transplants of malignant tumors from rats to mice, and vice versa, he added, to the tumor pulp, blood homologous for the receptive animal and heterologous for the tumor, or vice versa. The carcinomas always gave a negative result but the sarcomas gave some positive results. The best results were secured with the addition of blood homologous for the tumor. Jensen's sarcoma brought about occasionally the formation of a sarcoma in the mouse. The tumors obtained differed histologically somewhat from the original. A study of their metabolism showed that the carbohydrate exchange in their cells is quite similar to that of the sarcoma of the rat and differs from that of the original sarcoma of the mouse. Attempts to transplant to the rabbit and the guinea-pig the rat and mouse tumors, with the addition of blood, always failed. The blood added to the tumor pulp has a prevailing local action and furnishes a favorable condition for the growth and the reproduction of the neoplastic elements at the site of the injection. The active part of the blood in this process is the corpuscles.

Argentino carried out research on the healthy and the cataractous crystalline lens. He sought to discover whether the fluorescence that the normal crystalline lens emits in Wood's light can be attributed to organic or inorganic components and concluded that the phenomenon cannot be assigned wholly to the latter, since the fluorescence is found also in the sections of the organ fixed in aqueous solution of formaldehyde in which certain inorganic salts are dissolved. He holds that the greater fluorescence of the cataractous crystalline lens, in comparison with the normal lens, can be ascribed in part to the larger quantity of its inorganic components. But this hypothesis is not definitive, since the histologic changes that the crystalline lens undergoes in the presence of cataract are manifold.

#### The Gynecologic Convention

A gynecologic convention, which was attended by many specialists, was held recently at Salsomaggiore. Professor Alfieri, director of the Clinica di Milano, was elected president.

Professor Cova, director of the Clinica ginecologica and of the research center for the treatment of female sterility, at the University of Turin, described the principal causes of sterility in women, the many forms of treatment (particularly hormone treatment) that may be applied, and the experimental and practical results secured.

Professor Rossi of Parma spoke on the contributions of radiology in the diagnosis of sterility in women. With the technic proposed it is possible to establish, by means of radiology, monolateral or bilateral closure of the tube and also the precise seat of the obstruction.

#### New Mental Institutes at Genoa

The city of Genoa has reorganized the aid for mental patients by combining the three institutes at Cogoleto, Genova-Quarto and Peverano. The institute at Cogoleto is organized as a hospital village with a large agricultural colony in full activity and an industrial enterprise with various features. Here the reeducation of chronic mental patients who are physically strong and amenable to treatment is undertaken. A series of new buildings has been erected at a cost of 5,000,000 lire (\$420,000).

At Genova-Quarto, in the vicinity of the old psychiatric hospital, a new clinical institute for mental diseases has been erected, with a capacity of 500 beds, which is equipped with scientific laboratories. The expenditures amounted to 10,000,000 lire (\$840,000).

Also a new leprosarium has been erected.

#### Professor Simonetta

Prof. Luigi Simonetta, senator, died at Milan at the age of 73. He devoted himself for many years to scientific research in the Hygienic Institute of the University of Siena. He was elected to membership in many high assemblies, particularly the Consiglio superiore della pubblica istruzione, in which body he was for a long period a representative of the senate. He was well known as a philanthropist, having been president of the Collegio per gli orfani dei sanitari, which institution he brought to a high degree of efficiency, having contributed generously from his private means. He was a member of the Direttorio nazionale del sindacato dei medici and of the Associazione per l'igiene, and likewise a commissioner of the Ordine dei medici della provincia di Roma.

#### The Decompression Treatment of Cerebral Tumors

In a communication to the Accademia dei fisiocritici di Siena, Prof. G. D'Ayala admitted that in a large number of cases the physician must be content with prolonging the life of the patient by relieving the symptoms and the pain, in other cases it is important to overcome the acute phases before resorting to a radical intervention, in still other cases it is necessary to improve the general condition of the patient in order to facilitate removal of the tumor. To accomplish this purpose, it is necessary to make use of ventricular puncture and the administration of hypertonic solutions, and, above all, decompressive craniectomy. Subtemporal decompression is not devoid of danger, nevertheless, of the forty-four patients observed in the speaker's clinic, all survived the operation. In many cases the operative results were significant, in other cases they were negative. The technic commonly employed is that of Cushing.

#### Insurance Against Occupational Diseases

The Italian Association of Legal Medicine held recently a session at the University of Parma to study the medicolegal problems connected with compulsory insurance against occupational diseases. Professor Perrando of Genoa called attention to the need that, in schools dealing especially with matters of social insurance, more attention be given to instruction in legal medicine in keeping with modern demands.

The medicolegal conception of occupational disease was discussed. Of importance was the resolution that insurance against occupational diseases is the first step toward a complete protection of the workmen's income against all the causes that operate to reduce it: accident, disease, unemployment, invalidity and old age. Only such a system of complete insurance would make it possible to give adequate protection in many characteristic cases, as, for example, cases of occupational disease aggravated by accident.

Professor Lattes spoke on the compensability of the consequences of infestation with ancylostomiasis. Of the various diseases covered by law ancylostomiasis is the only one in which there is a need, for prophylactic purposes of medicinal interventions in healthy carriers, before the infestation has produced morbid symptoms. Since insurance covers only syndromes actually produced, it happens that the consequences of disinfestation, which are sometimes fatal, are not covered by an indemnity, although they may be regarded as accidents. This is a serious defect in the law.

Prof. Giuseppe Bianchini, of the University of Bari, presented the results of his notable research on the defense appa-

ratus of the lung in relation to pneumonococcosis. Soon after birth, with the onset of respiration, there is within the pulmonary alveoli a defense system formed of phagocytic cells, designed to check and eliminate particles taken in with the respiration from the outside world. The epithelial lining of the alveolus does not participate, directly or indirectly, in this function, since it must remain ready uninterruptedly, in any event of life, to perform its respiratory function.

Professor Biondi, of the University of Siena, reported the results of research on toxicology in connection with occupational diseases, particularly mercurialism in fur workers and the toxicology of tetra-ethyl lead. Biondi traced the general lines of thought among Italian medicolegalists with reference to insurance against occupational diseases.

#### Academy of Medical Sciences, Palermo

At a meeting of the Accademia delle scienze mediche di Palermo, Dr. Mattina spoke on the changes in the blood sugar in experimental stenosis and occlusion of the choledochus. Not only in occlusions but also in stenosis of the principal biliary duct, hyperglycemia is constantly observed. In the animals in which complete occlusion was produced experimentally, increase of the blood sugar index developed rapidly during the first fifteen to twenty days of experimentation. In the animals in which stenosis was induced, hyperglycemia developed slowly during the first fifteen days following the operation, then increased rapidly up to the thirty-fourth day of experimentation. The highest values of the blood sugar in the dogs with occluded choledochus (fifteenth to twentieth day) were constantly higher than the highest values secured (on the thirty-fifth day) in the dogs in which stenosis was produced. After the days mentioned, a slow and gradual diminution of the blood sugar content was observed. The speaker explained the different behavior of the blood sugar as between occlusion and stenosis of the choledochus by the diversity of the changes in the liver that are produced in the two cases. In occlusion the liver undergoes grave changes from the beginning, and it is no longer capable of storing glycogen. In stenosis the liver lesions are in the beginning milder, and the increase of the blood sugar occurs slowly but with acceleration parallel with the aggravation of the changes.

#### Meeting of Italian Surgical Society

At a session of the Società italiana di chirurgia della bocca, Dr. Francia spoke on immunotransfusion in stomatology, stating that he had resorted to that method in a case of osteomyelitis of the lower jaw, using 200 cc of blood and repeating the treatment three days in succession. The results were favorable. He did not succeed so well in two cases of pyorrhea treated (in addition to the usual methods) with a small transfusion of blood derived from a person convalescing from furunculosis. The speaker held that the method of immunotransfusion is to be regarded as a heroic remedy in certain cases of dental surgery but that it was not destined to come into widespread use.

De Fazio discussed the relation between dental caries and pregnancy. He studied the resistance index and the state of the teeth in pregnancy. The diet and endocrine factors have a great influence on dental trophism. From his examination of eighty pregnant women, De Fazio discovered that in the cases in which there was the highest percentage of decayed teeth the anamnesis revealed also other important factors, namely, disturbances of nutrition, hereditary defects, chronic diseases and endocrine disorders. When such factors did not exist, the caries could usually be traced to a period preceding marriage. The number of cases of dental lesions following marriage were too few to conclude that pregnancy exerts a harmful action on teeth.

## Marriages

PAIGE E. THORNHILL, Norfolk, Va, to Miss Marianne E Avery of Watertown, N Y, at Towanda, Pa, June 16

ALEXANDER H STEVENS JR, Farmville, N C, to Miss Vera Naomi Bowen of Wilmington, July 8

ALFRED ABRAHAM KENT JR, Granite Falls, N C, to Miss Lena Evelyn Hellen at Vanceboro, July 19

ROBERT HOUGH JORDAN, Beckley, W Va, to Miss Mary Edith Faulkner of Urbanna, Va, June 30

HARDY H SMITH JR, Fort Smith, Ark, to Mrs Eva Jay Ives Armstrong of New Orleans, June 23

JACOB FEIGENBAUM, Montreal, Que, Canada, to Miss Mina Lee Simon of Brookline, Mass, June 24

MAXWELL GOSSE, Poughkeepsie, N Y, to Miss Ruth Dieffendorf Empe of Baltimore April 7

WILLIAM J ELLIS Covington, Va, to Miss Bessie Virginia Withrow of Clifton Forge, June 8

WILLIAM J REED, Oakland, Calif, to Miss Melba L Evans of Peoria, Ill, in Buffalo, recently

JOHN P THOMAS JR to Miss Thelma Elizabeth Fowler, both of Charleston, S C, recently

GERALD M LANE, Springfield, Ohio, to Miss Mildred Everhart of Mechanicsburg, recently

EDWIN OWEN NIVER to Miss Vivienne Elizabeth Davies, both of Mentor, Ohio, August 1

HAL E FREEMAN, Willard, Mo, to Miss Mildred Irene Real at Louisville, Ky, June 14

WILLIAM SCHOOLFIELD, Orleans, Ind, to Miss Martha Jacobs of Mitchell, June 23

VIRGIL STOVER Spring Rapids, Mich, to Miss Gladys Baribeau of Chicago, June 26

J GORDON RENNIE to Miss Anne Marie Lund, both of Petersburg, Va, June 27

CHARLES BAKER, West Milton, Ohio, to Miss Helen Bradley of Dayton, recently

ORIN QUEAL FLINT to Miss Isabelle Foreman, both of Delhi, N Y, August 18

WALTER STOEFFLER to Miss Allene Hoch, both of Indianapolis, recently

## Deaths

Thomas Vanhook Fitzpatrick, Cincinnati, Cincinnati College of Medicine and Surgery, 1875, fellow of the American College of Surgeons, at one time mayor of Norwood, professor of laryngology and otology, at his alma mater, 1889-1903 and dean, 1899-1903, professor of laryngology and otology, Woman's Medical College of Cincinnati, 1891-1895, formerly secretary of the Cincinnati Academy of Medicine, for many years on the staffs of St Mary's and the Good Samaritan hospitals, aged 79, died, June 25, of heart disease

Millard Homer Foster, Battle Creek, Mich, Indiana University School of Medicine, Indianapolis, 1926, member of the Indiana State Medical Association and the American Psychiatric Association, served during the World War on the staff of the Battle Creek Sanitarium, formerly on the staffs of the City, Methodist, Riley and Long hospitals, Indianapolis, aged 38, was killed, July 1, in an automobile accident near Three Rivers

Pinkney Venning Mikell, Columbia, S C, Medical College of the State of South Carolina, Charleston, 1900, member of the South Carolina Medical Association and the American Laryngological Rhinological and Otolological Society, fellow of the American College of Surgeons, on the staffs of the Columbia and South Carolina Baptist hospitals, aged 56, died, July 31, of injuries received in an automobile accident

Peter Duncan MacNaughton ♂ Lieut. Colonel, U S Army, retired, Wenham, Mass, University of Michigan Medical School Ann Arbor, 1892, veteran of the Spanish-American and World wars, entered the medical corps of the U S Army as a major in 1920 and retired with rank of lieutenant colonel in 1931 for disability in line of duty, fellow of the American College of Surgeons, aged 66, died, June 8

Frank L Schum Huntingdon, Pa, University of Pennsylvania School of Medicine, Philadelphia, 1886, member of the Medical Society of the State of Pennsylvania past presi-

dent of the Hunt County Medical Society, for many years county coroner, on the staff of the J C Blair Memorial Hospital, aged 69, died, June 25, of diabetes mellitus and chronic nephritis

Francis Michael O'Gorman ♂ Buffalo, N Y, University of Buffalo School of Medicine, 1899, fellow of the American College of Surgeons, served during the World War, attending surgeon to the Buffalo Hospital of the Sisters of Charity and consulting surgeon to the Deaconess Hospital, aged 56, died, August 9, of cardiovascular kidney disease

Alfred Smith Frasier ♂ Dothan, Ala, University of the South Medical Department, 1905, Vanderbilt University School of Medicine, Nashville, 1906, fellow of the American College of Surgeons, part owner of the Frasier-Ellis Hospital, aged 53, died, June 14, of pneumonia

Norman Francis Peacock, Darlington, Ind, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1897, member of the Indiana State Medical Association, aged 60, died, July 8, of cardiorenal disease and pulmonary embolism

Charles Christian Biedert ♂ Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1897, for many years on the staffs of the Episcopal Hospital and the Kensington Hospital for Women, aged 59, died, July 10, of hypertension and cardiac hypertrophy

Daniel Joseph Monihan ♂ Chester, Pa Medico-Chirurgical College of Philadelphia, 1907, aged 52, on the staffs of the Taylor Hospital, Ridley Park, and the Fitzgerald Mercy Hospital, Darby, where he died, June 28, following an operation for appendicitis

Jacob P Strayer, Oil City, Pa., Jefferson Medical College of Philadelphia, 1880, member of the Medical Society of the State of Pennsylvania, aged 80, on the staff of the Oil City Hospital, where he died, July 12, of myocarditis and hypertrophy of the prostate

Jefferson Nichol Drennen, Loydsville, Ohio, Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1890, member of the Ohio State Medical Association, aged 71, was found dead, June 26, of cardiac decompensation

Max Henry Klaus, Cleveland, Western Reserve University Medical Department, Cleveland, 1902, member of the Ohio State Medical Association, aged 54, for many years on the staff of the Lutheran Hospital, where he died, July 15, of septicemia

Charles Oliver Hain, Cleveland, Western Reserve University Medical Department, Cleveland, 1897, member of the Ohio State Medical Association, for many years on the staff of the Lutheran Hospital, aged 64, died, July 11, of heart disease

John Gilmore Owsley, Lily, Ky, Hospital College of Medicine, Louisville, 1904, member of the Kentucky State Medical Association, for many years member of the county board of education, aged 67, died, June 23, of heart disease

Ernest Robert McIntosh, Weston, W Va, Tufts College Medical School, Boston, 1897, member of the West Virginia State Medical Association, on the staff of the General Hospital, aged 59, died, June 2, of carcinoma of the bladder

Richard Rupert Stockard, Columbus Miss, University of Virginia Department of Medicine, Charlottesville, 1868, University of the City of New York Medical Department, 1869, aged 84, died, July 21, at Blacksburg, Va, of myocarditis

John Howard Hall, Sacramento, Calif, Atlanta College of Physicians and Surgeons, 1905, member of the California Medical Association, served during the World War, aged 52, died, July 2, in the Sutter Hospital, of duodenal ulcer

Isaac Thompson McCarty, Delaware, Ohio, Western Reserve University Medical Department, Cleveland, 1897, member of the Ohio State Medical Association, aged 66, died, July 11, of myocarditis, angina pectoris and nephritis

Abraham Pincos Fishman, Providence, R I, Jefferson Medical College of Philadelphia, 1905, aged 53, died, June 24, of pneumonia, as the result of septicemia, following a cut on the hand suffered during an operation on a patient

Levi Y Turner, Danglerfield, Texas, University of Louisville (Ky) School of Medicine, 1890, member of the State Medical Association of Texas, formerly county health officer, aged 74, died, May 18, in Dallas, of heart disease

Edward Swasey, Worcester, Mass College of Physicians and Surgeons, Medical Department of Columbia College, 1878, aged 81 was found dead in bed, July 23 at Pleasant Point, Maine of cerebral embolism and arteriosclerosis

**John Rodney Lambert**, Quincy, Ill., Rush Medical College, Chicago, 1889, University of Pennsylvania School of Medicine, Philadelphia, 1890, aged 66, died, July 15, in St Mary's Hospital, of splenomyelogenous leukemia

**Francis Albert Bakeman**, Franklin, N H., Dartmouth Medical School, Hanover, 1901, member of the New Hampshire Medical Society, on the staff of the Franklin Hospital, aged 59, died, July 9, of cerebral hemorrhage

**Carl Oliver Reed**, Albuquerque, N M., Sioux City (Iowa) College of Medicine, 1905, served during the World War, on the staff of the Veterans' Administration Facility, aged 51, died, July 7, of a ruptured left ventricle

**George M Sands**, Rifle, Colo., Baltimore University School of Medicine, 1896, member of the Colorado State Medical Society, aged 66, died, July 9, as the result of injuries received in an automobile accident last Christmas

**William Praytor Cooke**, Odenville, Ala., University of the South Medical Department, Sewanee, Tenn, 1900, aged 56, died, June 10, in a hospital at Pell City, of injuries received in an automobile accident

**Louis Albert Ivey**, Washington, D C., Howard University College of Medicine, Washington, 1925, served during the World War, aged 39, was killed, June 21, in an automobile accident at Spartanburg, S C

**Anthony H Vorwerk**, Burlington, Iowa, State University of Iowa College of Medicine, Iowa City, 1897, member of the Iowa State Medical Society, aged 60, died suddenly, July 26, of heart disease, at St Louis

**Henry Hodges Stearns**, New York, New York University Medical College, 1897, ship surgeon for the United Fruit Company, aged 60, died, July 25, of cerebral hemorrhage while aboard the *S S Peten*

**Henry Allen Barr** ♂ Beaumont, Texas, University of Texas School of Medicine, Galveston, 1896, on the staff of the Beaumont General Hospital, aged 60, was found dead in bed, July 12, of heart disease

**Albert Golden Eaddy** ♂ Johnsonville, S C., University of the South Medical Department Sewanee, 1900, president of the Florence County Medical Society, aged 56, died, June 21, of cerebral hemorrhage

**George Vredenburg Van Neste**, Hopewell, N J., Jefferson Medical College of Philadelphia, 1883, member of the Medical Society of New Jersey, aged 78, died suddenly, May 9, of heart disease

**Amandus Max Horn**, Chicago, Bennett College of Eclectic Medicine and Surgery, Chicago, 1912, member of the Illinois State Medical Society, aged 66, died, July 24, of arteriosclerosis and myocarditis

**Robert A Alton** ♂ Lansing, Mich., Detroit College of Medicine and Surgery, 1913, on the staffs of the Edward W Sparrow Hospital and St Lawrence Hospital, aged 43, died, July 16, of pneumonia

**John Harrison Blanks**, Zion, Ill., University of Tennessee Medical Department, Nashville, 1891, city health officer, aged 68, died July 3, of gangrene of both lower legs and feet and chronic heart disease

**Frank Howard Van Dyke**, St Paul, Minn., Miami Medical College, Cincinnati, 1886, aged 75, died, June 7, in Rochester, Minn., of carcinoma of the pancreas and bronchopneumonia

**Melville M Morrow**, New Carlisle, Ohio, Eclectic Medical Institute, Cincinnati, 1885, member of the Ohio State Medical Association, aged 73, died, June 27, of carcinoma of the liver

**John Henry O'Connor** ♂ Boston, Harvard University Medical School, Boston, 1896, aged 65, died, July 7, in St Elizabeth's Hospital, of chronic myocarditis and rheumatic heart disease

**Robert Gordon MacKenzie** ♂ Frankfort, Mich., University of Michigan Medical School Ann Arbor, 1907, formerly mayor of Ann Arbor, aged 52, died, June 8, of heart disease

**Thomas Marion McGill**, Robbins, Tenn., Tennessee Medical College, Knoxville, 1906, aged 49, died, June 6 in the Knoxville (Tenn.) General Hospital, of cirrhosis of the liver

**Jefferson Neal McKnight**, Fort Worth, Texas, Vanderbilt University School of Medicine Nashville, Tenn, 1879, formerly health officer, aged 82, died, June 26, of heart disease

**Jerome Jesse Manchester**, Indianapolis, University of Vermont College of Medicine, Burlington, 1890, aged 76, died, June 28, in the City Hospital, of arteriosclerotic heart disease

**Frank J A Minnich**, St Louis, University of Pennsylvania School of Medicine, Philadelphia, 1873, aged 83, died, June 28, of chronic myocarditis and cerebral hemorrhage

**Cicero Butler Patton**, Batesville, Ark., University of Louisiana Medical Department, New Orleans, 1872, Civil War veteran, aged 90, died, May 3, of cerebral hemorrhage

**Louis N Burleson**, Cabarrus, N C., University of Maryland School of Medicine, Baltimore, 1891, aged 66, died, June 24, in the Mercy Hospital, Charlotte, of pneumonia

**Archibald McGauhey**, Robinson, Kan., University of Louisville (Ky.) School of Medicine, 1893, formerly mayor, aged 63, died, June 13, of carcinoma of the throat

**James A Stough**, Lagrange, Ind., Cincinnati College of Medicine and Surgery, 1889, aged 72, died, July 10, of chronic myocarditis, nephritis and prostatic hypertrophy

**Joseph Gaston Baillie Bulloch**, Washington, D C., Medical College of the State of South Carolina, Charleston 1877, aged 82, died, July 4, of arteriosclerosis

**Thomas C Ross**, Philadelphia, Medico-Chirurgical College of Philadelphia, 1905, member of the Medical Society of the State of Pennsylvania, aged 57, died, June 6

**Simon Alexander Krumme**, Fond du Lac, Wis., Rush Medical College, Chicago, 1886, aged 69, died, July 17, of pernicious anemia and cardiac decompensation

**Charles Le Roy Burke**, Glendale, Calif., University Medical College of Kansas City, Mo., 1882, aged 80, died, June 20, of arteriosclerosis and cerebral thrombosis

**Judson Arlington Van der Hulse** ♂ Akron, Ohio, Ohio Medical University, Columbus, 1899, aged 60, died, July 13, in Asheville, N C., of cerebral embolism

**Theodore M Lee**, Murrayville, Ga., Georgia College of Eclectic Medicine and Surgery, Atlanta, 1908, aged 54, died, March 5, of carcinoma of the throat

**J W Johnson**, Kingsburg, S C., Baltimore Medical College, 1892, aged 61, died, June 29, in the Saunders Memorial Hospital, Florence, of heart disease

**William Claiborne Isom**, East St Louis, Ill., St Louis College of Physicians and Surgeons, 1898, aged 62, died, July 8, of cholecystitis and cholelithiasis

**Marshall Evans Smith**, Richfield Springs, N Y., Dartmouth Medical School, Hanover, N H., 1892, aged 66, died, July 1, of cerebral hemorrhage

**Charles Newton Sowers** ♂ Benton Harbor, Mich., University of Michigan Medical School, Ann Arbor, 1893, aged 74, died, July 17, of carcinoma

**John Marvin Brooks**, Pasadena, Calif., University of Wooster Medical Department, Cleveland, 1881, aged 77, died, June 14, of heart disease

**Clement Paul LeLasher**, New Britain, Conn., Medical School of Maine, Portland, 1920, aged 45, died, July 18, of cerebral hemorrhage

**William Omar Vallette**, Goshen, Ind., Northwestern University Medical College, Chicago, 1891, aged 69, died, June 1, of heart disease

**Winfield S Sharp**, St Elmo, Ill., University of Louisville (Ky.) School of Medicine, 1875, aged 85, died, May 31, of myocarditis

**Charles William Mackenbach**, Cincinnati, Medical College of Ohio, Cincinnati, 1900, aged 65, died, June 7, of carcinoma

**Robert Willcox Wallis**, Rockdale, Texas, Beaumont Hospital Medical College, St Louis, 1894, aged 61, died, May 5

**Miles D Cunningham**, Decatur, Ga., Atlanta Medical College, 1893, aged 61, was found dead, July 13, of heart disease

**William Franklin Simmons**, Kell, Ill., Barnes Medical College, St Louis, 1897, aged 76, died, June 29, of myocarditis

**Eugene Krohn**, Black River Falls, Wis., Rush Medical College, Chicago, 1889, aged 68, died, July 11, of heart disease

**John T Mathews**, Omaha, St Louis Medical College, 1881, aged 80, died, June 18, of carcinoma of the colon

**William Loraine Jones**, Oakland, Calif., Meharry Medical College, Nashville, Tenn., 1909, aged 58, died, May 29

**Clarence Clarke Towle**, Ojai, Calif., Jefferson Medical College of Philadelphia, 1904, aged 58, died, May 3

**Cyrus H Barr** ♂ Dwight, Ill., Chicago Medical College, 1882, aged 79, died, July 9, of cerebral hemorrhage

**L E Miller**, Stanberry, Mo., Ensworth Medical College, St Joseph, 1886, aged 69, died, May 30

## Bureau of Investigation

### MISBRANDED "PATENT MEDICINES"

#### Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE The abstracts that follow are given in the briefest possible form (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the composition, (4) the type of nostrum (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product]

**Sulphoradion**—Sulphoradion Co Brooklyn Composition Essentially a thiocyanate such as sodium thiocyanate an iodide such as potassium iodide and a nitrite such as sodium nitrite with flavoring sugar and water For high blood pressure Fraudulent therapeutic claims—[N J 20877 June 1934]

**Breast Tea**—E C Dietz Co Inc New York Composition Essentially licorice root anise seed coriander fruit althea root tussillago leaves and mullein flowers For coughs bronchitis sore throat, etc Fraudulent therapeutic claims—[N J 20881 June 1934]

**Cold Inhalant**—American Pharmaceutical Co New York Composition Essentially volatile oils (about 30 per cent by volume) including menthol and lavender, and 70 per cent of alcohol by volume Misbranded because quantity or proportion of alcohol were not declared—[N J 20885 June 1934]

**Cal Spa Mineral Water**—F A Wiggins Seattle Composition Water containing salts of lime magnesium potassium and sodium including iodide equivalent to not more than 175 grains of potassium iodide per gallon For kidney stomach, skin and pulmonary disorders hay fever rheumatism goniter nervousness etc Misbranded because of false declaration of potassium iodide content and because of fraudulent therapeutic claims—[N J 20886 June 1934]

**Felsol**—American Felsol Co Lorain Ohio Composition Essentially synthetic drugs including acetaminophen acetanilide and caffeine an organic iodine compound and plant drugs including lobelia For angina pectoris asthma bronchitis hay fever etc Misbranded because presence and quantity of acetanilide not declared, as required by law and because of fraudulent therapeutic claims—[N J 20887 June 1934]

**Gadoxin**—Gadoxin Co Worcester Mass Composition Pink tablets containing baking soda flavored with wintergreen brown tablets containing potassium iodide cinchophen, small quantities of phenolphthalein guaiac resin and extracts of plant drugs including ginger and a laxative For rheumatism neuritis, lumbago arthritis sciatica etc Fraudulent therapeutic claims—[N J 20889 June 1934]

**Granger Vegetable Tonic**—DeVore Manufacturing Co Columbus Ohio Composition Laxative drugs a bitter drug and licorice with small amounts of iron and ammonium compounds glycerine and water For stomach liver and kidney disorders, etc Fraudulent therapeutic claims—[N J 20891 June 1934]

**Nuran Tablets**—LaSalle Laboratories Detroit Composition In each tablet acetanilide 18 grains aspirin 37 grains and caffeine 0.25 grain For toothache neuritis tonsillitis menstrual pains rheumatism influenza etc Misbranded because acetanilide content wrongly declared and because of fraudulent therapeutic claims—[N J 20892 June 1934]

**Frye's Hydrocarboline Spray Solution**—Geo C Frye Co Portland Maine Composition Essentially liquid petrolatum containing 15 per cent of volatile oils including menthol thymol eucalyptol and winter green For tuberculosis pneumonia bronchitis etc Fraudulent therapeutic claims—[N J 20893 June 1934]

**Tan A Wa Tonic**—Tan A Wa Medicine Co, Inc Columbus Ohio Composition Essentially laxative drugs berberis red pepper and a small amount of salicylate with alcohol and water For liver and kidney disorders and female weakness Fraudulent therapeutic claims—[N J 20894 June 1934]

**Tan A Wa Nervine**—Tan A Wa Medicine Co Inc Columbus Ohio Composition Essentially potassium bromide, ammonium bromide sodium benzoate valerian sugar water and flavoring including vanillin For epilepsy fits nervousness, etc Fraudulent therapeutic claims—[N J 20894 June 1934]

**White Cross Liver Medicine**—American Drug Co Mobile Ala Composition Essentially senna leaves For liver disorders biliousness etc Fraudulent therapeutic claims—[N J 20897 June 1934]

**Marlin Mineral Crystals**—Marlin Mineral Water Co Marlin Texas Composition Essentially Glauber's salt with a small amount of table salt and traces of epsom salt and magnesium carbonate For kidney and bowel disorders rheumatism etc Fraudulent therapeutic claims—[N J 20900 June 1934]

**Warners Safe Diabetes Remedy**—Warners Safe Remedies Co Rochester N Y Composition Extracts of plant drugs wintergreen a trace of alkaloids glycerine and water Fraudulent therapeutic claims—[N J 20901 June 1934]

**Blake's Herb Tablets**—International Drug Co Boston Composition Extracts of plant drugs including aloe and red pepper and a mint oil For kidney and liver disorders rheumatism indigestion etc Fraudulent therapeutic claims—[N J 20915 June 1934]

**Life Powder and Universal Preservation Remedy**—Clara Boerner, Paterson N J Composition Essentially powdered plant drugs including senna leaves licorice root and fenugreek seeds For bad blood fever kidney disorders etc Fraudulent therapeutic claims—[N J 20909 June 1934]

**Parkels**—Philip R Park Laboratories Inc Chicago Composition Essentially plant material containing small quantities of compounds of phosphorus iodine calcium magnesium iron, manganese copper sodium potassium aluminum and sulphur For nervousness, anemia eczema asthma rheumatism female troubles, etc Misbranded because amounts of minerals it contained were misrepresented and because of fraudulent therapeutic claims—[N J 20911 June 1934]

**Lanno Rub**—Lanno Rub Chemical Co Washington D C Composition Essentially 78 per cent of volatile oils such as pine needle oil eucalyptol menthol and camphor with glycerine ammonium soap fats and waxes including lanolin, and a small quantity of borax For hay fever asthma catarrh rheumatism etc Fraudulent therapeutic claims—[N J 20919 June 1934]

**Mentoil**—Mentoil Co Fayetteville Tenn Composition Essentially an oil derived from petroleum such as kerosene containing small amounts of camphor and menthol For catarrh neuralgia sore throat pneumonia asthma etc Not antiseptic Fraudulent therapeutic claims—[N J 20923 June 1934]

**Kola Astler Granulated**—Galila Laboratories Inc New York Composition Essentially sugar (97.3 per cent) and small amounts of plant material, including kola For anemia heart disorders brain fatigue old age etc Fraudulent therapeutic claims—[N J 20925 June 1934]

**Nervotol**—Vitonio Medicine Co Los Angeles Composition Essentially compounds of lime sodium potassium hypophosphites small amounts of iron and manganese compounds and quinine sugar alcohol (13.3 per cent by volume) and water For debility, anemia sexual disorders female complaint, etc Fraudulent therapeutic claims—[N J 20927 June 1934]

**Novolek**—Health Research Laboratories Detroit Composition Essentially plant drug extracts including a laxative drug, with baking soda, small amounts of calcium and magnesium compounds with alcohol glycerine sugar and water flavored with peppermint For indigestion kidney and liver disorders rheumatism piles, etc Fraudulent therapeutic claims—[N J 20928 June 1934]

**Cheney's Red Clover Flowers**—G S Cheney Co Inc Boston Composition Essentially red clover flower For blood disorders rheumatism cancer etc Fraudulent therapeutic claims—[N J 20936 June 1934]

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed Every letter must contain the writer's name and address but these will be omitted on request

### DINITROPHENOL AND WEIGHT REDUCTION

**To the Editor**—I am entirely new to the use of sodium dinitrophenol Two women wives of physicians have self administered the drug for the past five and six months with seemingly satisfying results The elder (58 years old) has a coronary heart condition Four times a day she takes with the dinitrophenol 1½ grains (1 Gm) of theophylline, the latter prescribed by Dr George Farr of Minneapolis Of course he knows nothing about the secret dinitrophenol She also self administered 1 tablespoonful of liquid petrolatum or something equally bland every morning before breakfast She assures me that she has carefully checked herself during the entire six months The only discomfort she has suffered are excessive night sweats She is now content with her present weight (150 pounds or 68 kg), a net loss of 29 pounds (13 kg) The younger woman now weighs 120 pounds (54 kg) a loss of 18 pounds (8 kg) Both women are 5 feet 1½ inches (155 cm) tall Both women are always hungry The questions they asked me were Can they entirely discontinue dinitrophenol without regaining fat? How small a dosage is required if any is necessary to maintain their present weight? Will the continued use four times daily, of 1½ grains of sodium dinitrophenol alpha (Sutliff & Case Co Peoria Ill) prove harmful? Anything enlightening will be gratefully received Kindly omit name if printed in THE JOURNAL  
M D Minnesota

**ANSWER**—The weight of an individual, regardless of constitution, endocrine disturbance or medication, must always depend on the proportion between the energy intake in the form of food and the energy expenditure Since the women in question have resorted to dinitrophenol, a means of increasing energy expenditure, in order to lose weight, they have probably not reduced their food intake If this is so, with the cessation of dinitrophenol administration they would revert to their previous status If their food intake was sufficient to make them gain weight before they will gain weight now If their weight was stationary before and they have not increased their food intake, their weights may remain stationary now

If the food intake of these women was and still is excessive, the daily amount of dinitrophenol necessary for continuous use to prevent the regaining of weight depends on the amount of excess calories that are being consumed and can perhaps be



most easily determined by trial and error. Of course it might be possible to estimate the matter with a greater degree of accuracy by determining the energy output (basal metabolism plus allowances for work) and calculating the energy intake from the daily diet.

The possible harmful effects of the continued daily use of dinitrophenol for an indefinite period can only be a matter of opinion at the present state of knowledge. These women are apparently not particularly sensitive to the drug, as many people are. There are reports in the literature to the effect that rats and dogs have been given daily doses of dinitrophenol over periods of weeks and months with no demonstrable harmful effects. On the other hand, there are at least equally reliable reports which claim to have demonstrated histologic damage to liver and kidneys resulting from the use of the same drug. It should also be pointed out that there is as yet no adequate knowledge of the effects of the drug over periods of months or years.

Dinitrophenol is a potent and dangerous drug, and long continued use except from a purely experimental standpoint is probably unjustified.

#### GLYCINE AND EPHEDRINE IN MYASTHENIA GRAVIS

*To the Editor*—For the past ten weeks I have kept a patient with myasthenia gravis on glycine and ephedrine. At present the patient claims to be feeling entirely better. Objectively except for a slight droop of the muscles of one side of the jaw when the patient smiles and a hypertension of 150/90 (which I attributed to the constant use of ephedrine the patient being only 25 years of age) nothing can be found. Would you give advice as to how long the glycine (10 Gm. three times a day) and the ephedrine (three eighths grain or 0.024 Gm. twice a day) should be continued, and if either is to be cut down on should the glycine because of the great expense it involves perhaps be stopped first? Kindly omit name.

M D New York

**ANSWER**—Most patients with myasthenia gravis have to continue taking glycine indefinitely in five or six doses totaling 30 Gm. daily. If they have had very marked improvement as a result of its use the amount of glycine taken can be gradually reduced. A few patients can get along eventually on a total of 20 Gm. and an occasional patient on even less, after about six months. However, if there is any increase in weakness on reduction of the dose, the full amount should be given again. Ephedrine in doses of 0.008 Gm. (one-eighth grain) is more frequently better than 0.024 Gm. (three-eighths grain); one-eighth grain before breakfast, one or two during the forenoon, one or two during the afternoon and none in the evening, a total dose of between 0.024 and 0.04 Gm. (three-eighths and five-eighths grains) daily. A convenient way to use it is to have the ephedrine sulphate powder dissolved in physiologic solution of sodium chloride so that one eighth grain is contained in a teaspoonful. A general diet should be used and if the muscles of mastication are much involved the meat or other food difficult to chew should be ground up. If there is much difficulty in swallowing, the patient should be taught how to take part of his food by a Rehfsuss tube through the nose into the stomach. The patient should exercise up to the point of fatigue but never beyond.

#### TREATMENT OF SYPHILIS IN PREGNANCY

*To the Editor*—What procedure should be followed in the prenatal care of a patient two months pregnant whose husband has had a Wassermann plus 3 reaction for seventeen years? The patient had a miscarriage eight years ago after which she received twelve injections of mercury and two injections of arsphenamine from another physician. What the Wassermann reaction was at that time is not known. At present it is negative. The husband received eighteen doses of neoarsphenamine 0.6 Gm. and five injections of a bismuth compound over a period of five months in 1930 but stopped treatment because of weakness. The Wassermann reaction remained unchanged. What type dose and frequency of administration of antisyphilitic drug is recommended for the mother in order to insure a healthy baby? Please omit name.

M D New Jersey

**ANSWER**—Whether or not the patient has evidences of syphilis at present, it is almost certain that she did have the disease some years ago. Undoubtedly the physician who treated her eight years ago for syphilis did so on more grounds than simply one miscarriage. On the basis of this and also the fact that the husband still has a positive Wassermann reaction, it is imperative that the patient be treated throughout her entire pregnancy. This must be done in spite of the fact that the patient herself has a negative Wassermann reaction. It may be advisable to try a Kahn or other test for syphilis on the patient. Likewise a spinal fluid Wassermann test should be made.

Care should be exercised in the selection of the drugs used for pregnant women because of the possible harm to the kidneys especially by mercurial preparations. However, other

drugs are capable of producing disturbances. Thus, the use of arsenic may lead to dermatitis and hepatitis, iodides may produce acne and irritation of the upper respiratory tract, bismuth compounds may produce the metallic line on the gums, and bismuth and mercury compounds may bring about intestinal irritation. Before treatment is begun the patient should have a careful and complete physical examination and it is most essential to examine the urine microscopically as well as macroscopically. A highly satisfactory method of treatment is to give arsphenamine intravenously, followed by mercury injections. The injections should be given in courses of from three to six. From one to three months should elapse between courses. During these intervals mercury should be administered in the form of injections. The patient may safely be given between 2 and 25 Gm. of arsphenamine and she may have thirty-five or more injections of mercury. Practically no untoward reactions should occur from this treatment. Abortion does not often result from the use of arsphenamine. Throughout the course of treatment the urine should be carefully examined at frequent intervals. Gammeltoft reported his experiences in the treatment of 1,290 syphilitic women in his hospital in Copenhagen (*Am. J. Obst. & Gynec.* 15:747 [June] 1928). He began his treatment with an initial mercury treatment, either in the form of injections or inunctions, that is, seven inunctions of 3 Gm. Then arsphenamine is given together with the mercury treatment. Four injections of arsphenamine are given at intervals of one week, either arsphenamine in doses increasing from 0.3 to 0.4 Gm. of neoarsphenamine increasing from 0.15 to 0.3 Gm. This treatment takes from six to seven weeks. All treatment is then discontinued for a month. Then the patient is given thirty inunctions of mercury or six injections of mercuric salicylate. In the middle of pregnancy the patient is given another energetic combined treatment with mercury and arsphenamine. From eight to ten injections of arsphenamine are given altogether. Then treatment is discontinued for a month and another course of mercury is given. If labor is not due for another month the mercury treatment is again repeated.

#### PAROXYSMAL AURICULAR FIBRILLATION

*To the Editor*—A farmer aged 55 had the usual childhood diseases and a few attacks of malarial fever. He had influenza in 1918 for three days and recovered. He was in the Spanish American War for two years and in 1899 noted a slight heart attack which lasted only a few seconds. It started by hot flashes and heavy beats for a few seconds, then the heart was very irregular and the pulse fast and thready. At the end of the attack he felt a fullness on each side of the neck as if all the veins in it were distended and there was slight pain. Following these symptoms the heart quieted down and was apparently normal. The patient was superintendent of a coal mine from 1905 to 1930 and since then the attacks have increased in frequency and in length. About six years ago he was advised to stop smoking (cigars being the only form of tobacco used) and drinking coffee which he did for two years with no improvement. He has been given sedatives and aromatic spirit of ammonia and amyl nitrite pearls with no improvement. The attacks continue now at irregular periodic intervals from three to five or seven days elapsing and then two occurring in close succession. The character of the attacks is as stated. During the attacks the patient does not want food or water but following the attack he is both hungry and thirsty. About twenty minutes after the attack begins he has a frequency of urination for about half an hour at five minute intervals and then returns to normal. The bowels are slightly constipated but this condition yields to magnesia magma. Physical examination during an attack revealed normal temperature, irregular weak and thready pulse with a deficit blood pressure 100 systolic and 65 diastolic, heart normal in size and shape and no murmurs. Between the attacks the pulse is regular 68 to the minute at rest and the blood pressure is 110 systolic 70 diastolic. This is increased slightly with exercise. The remaining physical examination is irrelevant. Blood count and urinalysis give normal results. Please give diagnosis and prognosis suggesting a method of treatment. Please omit name.

M D Kentucky

**ANSWER**—A diagnosis of paroxysmal auricular fibrillation would seem to be the most likely one in this case. There is, of course, the possibility of auricular flutter with an irregular degree of block, but because of the infrequent occurrence of flutter as compared to that of fibrillation the former diagnosis is more likely to be correct. The response of the pulse to exercise during the attack would assist in differentiating between the two. With fibrillation the irregularity would remain unchanged or tend to become greater, while with flutter a faster but more regular rhythm might appear. In many instances it is impossible to distinguish between the two without a graphic record. An electrocardiogram taken during the attack should solve the problem.

In either case the prognosis is good unless the new rhythm becomes a permanent one. Under the present conditions, effort should be directed toward the prevention of attacks. Quinidine sulphate is probably the most valuable drug in the control of

such arrhythmias. As this drug is a cardiac depressant, some care must be used in its administration, but it would seem that in a sound heart such as this probably is there would be but little danger. It is customary to test the patient for idiosyncrasy to the drug by the intrital administration of 0.1 Gm by mouth. If no untoward symptoms appear in the next twenty-four hours, 0.1 Gm three times a day may be given. If the attacks continue, the dose may be increased 0.1 Gm each day, each increase to remain unchanged until it is discovered that the attacks still persist.

A daily dose of 2 Gm of quinidine is quite safe with a normal heart. Much larger doses have been given. It is desirable, however, to keep the dose at the lowest possible level that produces the desired result.

In addition to the drug therapy the gastro-intestinal tract and the genito-urinary tract should be carefully examined for pathologic changes that may be responsible for the occurrence of these attacks. It seems unlikely, however, that any serious disorder could have existed for the past thirty-six years without detection.

#### DEFORMITY OF RECTUM WITH PAIN AFTER REPEATED INFECTION

*To the Editor*—I have a patient whose case was diagnosed as rectal neuralgia by a Dallas specialist several years ago. He says that he has continuous pain in the distal portion of the rectum and anal canal as though his bowels should move all the time. He has exacerbations lasting two or three days during which he aches all over and this condition will be followed by periods of comparative relief lasting several weeks to a month or more during which he gains weight and feels fairly well. He is worse during periods of constipation. Some time ago he had a dull pain in the left testicle and along the cord through the inguinal canal. He also is bothered at times by pain in the left posterior part of the muscles of his neck. This was more of the nature of a stiffness than a pain. At times he has dull headaches and pains in the extremities. During exacerbations he has trouble with his stomach consisting of pain in the epigastrium relieved by soda and belching. He says that he does not know whether the rectal trouble causes the stomach trouble or the stomach the rectal trouble. The pain in the epigastrium almost always occurs from one to two hours after meals but sometimes at night. He passes much gas. His present trouble began about five years ago. He had had hemorrhoids for two years and bled occasionally when constipated. About 1925 a pemle discharge developed that was diagnosed as gonorrhea. He was working in an oil field as a tool dresser at the time and the diagnosis was made by a doctor who was probably a quack. He had little discharge. While receiving treatment for the gonorrhea he noticed the peculiar feeling in the rectum. He was using a white medicine that caused severe burning and was followed by the desire to defecate. This was later followed by the continuous desire to defecate which is not relieved by defecation. He had hemorrhoids removed in 1932 and had relief for a month. Then he saw a rectal specialist in Dallas in 1933 and the condition was diagnosed as rectal neuralgia. He was given a few rectal treatments with rectal electrodes and this made him worse. Then he went to a clinic, where an ulcer was found. Within a month after leaving the clinic he was worse than before, though he had been much improved. Slight labor makes him nervous and shaky and he tires easily. Last fall he was relieved for several months and gained 10 pounds (4.5 Kg). He has lost most of this again. The entire anal canal and rectum are inflamed the distal portion of the rectum and the region immediately above the internal sphincter being markedly inflamed. No ulcers could be found and no hemorrhoids but several tags. The left side immediately above the internal sphincter was worse but no ulcer was visible. The Wassermann reaction was negative last year. Hemoglobin is 90 per cent. The urine is normal. The blood pressure is 120 systolic 82 diastolic. I will greatly appreciate any suggestions that you may offer and I will try to supply any information you may think desirable. Please do not use my name.

MD Texas

*ANSWER*—It is not unusual for such conditions to develop in patients who have undergone similar experiences. It is doubtful whether they ever recover entirely from the discomforts. The disorder can hardly be called a neuralgia when there is so much to account for the dysfunction and discomfort. The trouble is, no doubt, due to the distortion that has developed during the years the patient has been receiving treatment. Recurrent breaking down of tissue with subsequent healing has produced a deformed, scarred and infected rectal outlet. Contraction may be associated. The inflamed tissues are sensitive and the bowel discharges cause discomfort and urgent desire to defecate.

It is doubtful whether any treatment is curative. The best results are usually obtained by the simplest palliative therapy. The patient should use hot irrigations (not enemas) at a temperature between 105 and 110 F daily following the movement of the bowel. This may be followed by irrigations with witch hazel (undiluted) then phenolated or white petrolatum may be used to lubricate and soothe the anal margins. Such treatment will probably relieve the symptoms a great deal, but this relief may exist only temporarily. The same treatment may be necessary at intervals for an indefinite period.

#### GOLD PREPARATIONS IN SNAKE BITE

*To the Editor*—In *Queries and Minor Notes* in *THE JOURNAL* June 23 page 2130 it says that in snake bites injections of gold and mercury salts are useful. What dose of gold sodium thiosulphate would you use? What salts of mercury are used? What dosage? Also would you use them intramuscularly subcutaneously or intravenously? Please omit name.

MD

*ANSWER*—Experimental results with snake bites have shown that the heavy metals such as gold, mercury or zinc, give better results than the oxidizing agents such as the permanganates. However, to obtain any decisive result the metal in full dose must be injected at the site of the bite before a lethal dose has entered the circulation, i. e., within fifteen minutes of the accident.

Most of the heavy metals used therapeutically are put up in ampules for intramuscular injection, such as gold and sodium thiosulphate, and mercuric salicylate in oil. Many preparations of these and other heavy metals might be available for injection if carried in a first aid package.

The injection should circumscribe the bite both subcutaneously and intramuscularly. The amount of drug injected into the subcutaneous tissues should be well distributed, so that tissue necrosis may not occur. Naturally the technic of injection is important so that the drug may be well distributed and the full dose used. Intravenous injection would not be employed.

Practical use has permitted larger doses than given in most handbooks of materia medica. In a life saving injection some chances might be taken in giving a maximum dose.

Gold sodium thiosulphate has been given for other conditions in doses of from 0.0013 to 0.016 Gm ( $\frac{1}{60}$  to  $\frac{1}{4}$  gram) to children and from 0.02 to 0.04 Gm ( $\frac{3}{8}$  to  $\frac{3}{4}$  grain) to adults by injections. Gold chloride used in full dose of from 10 to 15 drops of a 1 per cent solution has been injected at the site of the snake bite with good results.

#### EXOPHTHALMOS AFTER THYROIDECTOMY

*To the Editor*—A man aged 45, had a thyroidectomy eight years ago for a severe exophthalmic goiter with marked exophthalmos and heart disturbance. He has been well since that time except for a considerable degree of exophthalmos and a rapid heart. Last fall he began to feel poorly to fatigue easily and to lose weight. He is becoming progressively worse. There is no indication of diabetes nephritis or any blood disease and no sign of an obvious malignant condition. His lungs are clear and he has no fever. His heart rate is rapid about 90 per minute. He has a fine tremor and a throbbing apex beat. His wife feels that there is now more exophthalmos than a short while ago. He has a good appetite eating a large amount of food but in spite of this he continues to lose weight. He appears to give off a large amount of body heat and his skin is always hot and the color is good in spite of a slight anemia. In November his basal metabolism rate was normal. Is it possible that he is having a recurrence of his exophthalmic goiter? Will a negative basal metabolic rate if repeated entirely rule this out? How frequent are relapses into hyperthyroidism after thyroidectomy? Will a course of compound solution of iodine be of value diagnostically? How much would you give? Kindly omit name.

MD Michigan

*ANSWER*—Marked exophthalmos, especially if of long standing, rarely recedes to an entirely normal state following subtotal thyroidectomy for exophthalmic goiter, some degree of exophthalmos usually remains. In fact, exophthalmos may persist or indeed first be noted after operative intervention when other manifestations of the disease may appear to be controlled. This is ascribed to damage of the rectus muscles of the eyes by some, and to a sympathetic nervous system effect by others.

The persistence of rapid heart action after thyroidectomy may indicate that the operation was not successful in controlling the disease, or frequently enough it may be an expression of permanent myocardial damage, the effect of long continued hyperthyroidism, which would not be influenced by the operation. Tremor, tachycardia, a hot skin, increased appetite, loss of weight and an increase in exophthalmos, taken together, suggest a continuation of the disease following operation in this instance, even though a single metabolic rate is reported as normal. The test should be repeated.

In general, thyroidectomy by an experienced surgeon during the early months of exophthalmic goiter is effective in stopping the progress of the disease. The surgeon acts on the conception that the thyroid is an essential link in the chain which produces hyperthyroidism. Removal of the greater part of the thyroid will in most instances reduce the metabolic rate and the clinical manifestations roughly in proportion to the amount of thyroid substance removed. This is one of the good therapeutic procedures for the control of a major illness which is available in the field of medicine. It is well known, however, that a subtotal thyroidectomy is not a true cure for

**exophthalmic goiter** Certain clinical phenomena such as exophthalmos, tremor or tachycardia, as noted in this patient, may make their first appearance or increase following subtotal thyroidectomy, even though other manifestations may seem to have been controlled.

In the case cited it would appear reasonable to suppose that hyperthyroidism has not been controlled by the surgical procedure and is continuing, that a considerable amount of active thyroid substance remains, and that the condition may respond to further surgical intervention. The administration of compound solution of iodine under careful observation at this time may effect a considerable amelioration of the symptoms. If such a favorable result is observed, that in itself may be taken to indicate that the present symptoms are caused by a continuation of hyperthyroidism and a second operation under iodine control for the removal of thyroid remnants is a logical procedure. From 0.6 to 1 cc of compound solution of iodine three times daily would be adequate and may be given over a period of several weeks, the exact dose is immaterial. However, a permanent control of hyperthyroidism by iodine therapy may not be expected.

#### SCOLIOSIS AND PELVIC TILT WITH PAIN IN RIGHT CALF

*To The Editor*—A man of 72 complains of a neuritic type of pain in the right calf worse on weight bearing. Examination two months ago revealed 4 inches shortening of the left leg with the classic observations and history with onset at the age of 4 of tuberculosis of the left hip (quiescent). General physical examination was otherwise negative save for a moderate compensatory scoliosis of the spine. The patient walks with a cane. Neurologic examination was negative, the urine was normal, the blood Wassermann reaction was negative, the prostate was of normal size and consistency. Roentgen examination revealed two devitalized teeth each somewhat infected. In addition one third molar completely unerupted and upside down was seen with no evidence of infection or crowding seen. One of the dead teeth was extracted immediately the other two weeks ago. The man is still suffering considerable pain. Present treatment consists chiefly of rest in bed with a little acetylsalicylic acid occasionally. An internist who has seen this patient with me and an oral surgeon insist that the third molar should come out admitting that there is no evidence of infection or crowding. The argument presented seems to be impacted teeth often cause trouble. Do you consider the scoliosis as possibly the cause of the pain? Do you believe that a completely unerupted third molar free of infection and alive the removal of which is obviously a major operation should be removed in a man of 72 even if his general health and vascular system are very good? Please omit name. M D Indiana

**ANSWER**—There would seem to be a pelvic tilt in this case. It is not a "compensatory" but a postural scoliosis. The patient should not use a cane but two crutches instead. If the scoliosis is the cause of the pain, it should be relieved considerably by rest in bed. It is well known that, in cases of amputation of one leg, flatfoot develops on the other side frequently. Roentgenograms should be made of the lumbosacral and sacroiliac joints for evidence of infection, such as arthritis or tuberculosis. Foci of infection such as occur in the prostate and genito-urinary tract should be investigated, as well as metabolic disturbances. Spinal cord tumor cannot be ruled out except by careful and minute neurologic examination. The tooth is probably the least important factor at the present time. One would suggest caution in removing the unerupted third molar in a man of 72 years. Rest in bed is recommended, with pelvic and leg strapping later on a removable pelvic support may be worn, and taken off for physical therapy including radiant heat, massage and diathermy. The pelvis must be balanced for sitting and standing postures.

#### POSSIBLE INTERMITTENT CLAUDICATION

*To the Editor*—I have a patient who complains of pain in the calf of the leg on walking any distance. He is a bartender and can stand all day and walk up and down behind a bar without any trouble at all. His arches are normal. His blood picture is negative. He has no varicose veins. I can find nothing to account for such a condition. His cramplike pains are very severe requiring him to sit down after walking any distance from a quarter of a mile up. Please omit name. M D Massachusetts

**ANSWER**—This is evidently a case of so-called intermittent claudication, which is a symptom of a peripheral vascular disturbance and should not be considered a diagnosis.

There is a neurocirculatory element underlying the condition, possibly located in the sympathetic nervous system. The myalgia is secondary. The muscle hypertonicity and the neurocirculatory disturbance create a vicious circle.

Some authorities believe that muscle spasm is on the basis of calcium deficiency. Intermittent claudication is the result of arterial spasms and not really a disease entity but it may

develop in the course of any one of several arterial diseases, such as arteriosclerosis, thrombo-angitis obliterans, traumatic arterial diseases, aneurysms, syphilitic arteritis of the extremities, periarteritis nodosa and acute arteritis.

Special significance is attached to the symptom of intermittent claudication because it may be an early sign of threatening gangrene, which by proper treatment may be prevented or at least postponed. It should be considered a danger signal.

There are some contributing factors, such as excessive use of condiments, overexertion, traumas, infections, exposure to cold and particularly nicotine. It is not so much that these patients are heavy smokers as that they are susceptible to nicotine.

Intermittent claudication is often erroneously diagnosed as flatfoot, neuritis, muscular rheumatism, gout, varicose veins and periostitis.

It is not stated whether the symptoms are unilateral or bilateral, nor is one told whether the dorsalis pedis pulse is palpable. Oscillometer readings should be made.

One of the reasons the patient is able to go on with his work is that there is a frequent change of position and he is able to walk a little and rest a little.

It is impossible to say that there are no varicose veins. One may say that there are no superficial varicose veins, because there is an important group of deep veins which may be dilated without superficial evidence.

In addition to roentgenograms of the legs to demonstrate or rule out arteriosclerosis, the patient should have a careful examination for mechanical defects of the feet, such as flatfoot and a short achilles tendon. A casual glance does not rule out a potential defect.

There are various measures which should be considered for this patient, including discontinuance of tobacco in all forms, ingestion of large amounts of fluid such as Willy Meyer solution and alkaline waters, the electric baker, and diathermy to the lumbar sympathetics.

Postural exercises, recommended by Buerger, Allen and others, are helpful. The use of theobromine sodiumsalicylate 0.3 Gm three times a day is of value in some cases. Intravenous saline solution has been highly recommended.

#### SEVERE CONSTIPATION OR HIRSCHSPRUNG'S DISEASE

*To the Editor*—A boy, aged 5 years suffered from constipation all his life. No stool was passed without huge doses of purgatives or an enema. The usual symptoms of constipation were present. He urinated frequently and dribbled when excited. He wet the bed every night. He slept poorly. When first seen the entire colon was filled with a lumpy mass. Tumor was considered but the history indicated a loaded colon. Two tablespoonfuls of castor oil every four hours were ordered. Twelve tablespoonfuls were required to empty the bowels. Next day the tumor had disappeared. Urinalysis showed only indican. The tonsils were much enlarged but sore throat was rare. Phimosis with adhesions existed. The hemoglobin was 75. The child had pot belly. Otherwise the examination gave negative results. A laxative diet was outlined with much fat. Regular meals and rest were advised. Exercise, including somersaults twice daily were ordered. Atropine sulphate was prescribed increasing daily to tolerance. A purgative capsule with iron and ammonium citrate three times a day was given. The hemoglobin and kidneys are better but the constipation is not.

C W HARPER M D Kings Mountain N C

**ANSWER**—An obstipation of the degree described in this case is indeed rarely seen. The average adult dose of castor oil is from 15 to 60 cc and a five year old boy weighing in the neighborhood of 40 pounds (18 Kg) certainly would under normal circumstances require no more than one or two tea spoonfuls for adequate evacuation of the bowels. The twelve tablespoonful dose required to move the bowels in this little boy allows one to visualize the degree of his constipation. If the rectum and sphincter are functioning normally he must be suffering from some malformation of the colon. Stenosis and atresia of the large intestine may occur, though these are much less common than in the small bowel. Congenital idiopathic dilatation of the colon, known as congenital megacolon or Hirschsprung's disease, could well be the etiologic basis of the constipation in the case described. This condition may be caused by an increased length of the mesentery, permitting twisting of the intestine with a partial occlusion. It may be due to changes in the nerve endings of the muscle wall, causing a paralysis of a segment of the colon. More frequently the condition is due to a congenital anomaly in the development of the colon and the hypertrophy of this organ may have existed in the fetal intestine before birth. These cases present a history of constipation since birth, increasing in severity with the age of the child. There are instances reported in which no bowel movement has occurred in weeks or even months. In many instances an enema following a prolonged

period of constipation will produce a stool that would fill half a pail. After the passage of such a movement the abdomen becomes flaccid. Cathartics seem to have little or no effect on this condition. Recently it has been thought that there may be a congenital imbalance between the sympathetic and parasympathetic nerves, innervating the colon. This has led to a therapeutic sympathectomy for the relief of the condition. The inferior mesenteric plexus and the sacral plexus have both been sectioned in the relief of this condition and good results have been reported from such procedure. A barium enema is a valuable aid in outlining the colon and would prove of interest in the case here described.

#### BRONCHOPNEUMONIA OR TUBERCULOSIS COMPLICATING MEASLES

*To the Editor*—Recently I have seen two children, both 5 years of age, who developed pneumonia following measles and died from the pneumonia after from fourteen to twenty days. Neither child after the initial stage of the pneumonia had much elevation in temperature. Both mothers were known to be actively tuberculous and in both instances I have suspected tuberculosis. In one child I had roentgenograms made which could not be definitely labeled tuberculous. What would have been the practicability of a tuberculin test its value and the advisability of administering it? Neither of these cases seemed to fit into that of just an ordinary bronchopneumonia and I have tried to find discussion on such but have failed.

C E HOLLEMAN M D Winston Salem, N C

**ANSWER**—Bronchopneumonia and tuberculosis are among the more frequent sequelae of measles. Onset of bronchopneumonia usually takes place a few days after appearance of the rash, though it may occur in the prodromal stages or during convalescence. The usual duration of such pneumonia is from a week to ten days, and the temperature varies with the severity and extent of the pneumonic process. Chronic pneumonia, which runs a protracted course of many months, may follow measles. Measles is also credited with arousing into fresh activity a dormant tuberculosis. During an attack of measles the cutaneous response to a tuberculin test that has previously been positive may become negative, and the test may not become positive again till some time after convalescence. This depression of the tuberculin test during measles was termed anergy by Pirquet. Similarly it is known that the Wassermann reaction in a case associated with measles may become negative during the morbillous eruption and positive again after the measles rash has faded. A positive Widal reaction may become negative during an attack of measles. A depression of the skin response to tuberculin during the acute stage of other infectious diseases also may occur. In the cases under consideration, in which both mothers were known to be actively tuberculous, one would be forced to suspect strongly that the measles in these children had reactivated a dormant tuberculosis. Had a tuberculin test been performed during the acute stage of measles, a negative reaction would have been of little value in aiding the diagnosis. The tuberculin reaction is often depressed in fulminating types of tuberculosis in childhood especially in the late stages of a miliary tuberculosis.

#### EFFECTS OF BRAN ON GASTROINTESTINAL TRACT

*To the Editor*—One of my patients has asked me the following problem: the answers to which I have been unable to find in my references. Is bran injurious when used in the treatment of constipation other than the spastic type? Has it been necessary in certain cases to resort to surgical measures to relieve obstructions caused by bran? Are there laws regulating the sale of bran products because of these dietary dangers? Please omit name and address.

M D Pennsylvania

**ANSWER**—Bran can be injurious in any type of constipation. The old textbook division of constipation into spastic and atonic varieties is not justified by the facts, because almost all constipated colons appear to be spastic. Some persons who have constipation with a powerful digestion and no tendency to flatulence can be greatly benefited by the addition of bran or other indigestible material to the diet while patients with a weak digestion and a tendency to flatulence are likely sooner or later to get into trouble on any rough bulky type of food. The frail bowel cannot handle it. Answers to a questionnaire (Alvarez, W C. Opinions of 470 Physicians in Regard to the Advantages and Disadvantages of Using Bran and Roughage. *Minnesota Med* 14 296 [April] 1931) indicated that the medical profession is anything but enthusiastic about bran. Most of the men who answered said that they no longer prescribed it and many warned their patients against its use on account of the indigestion it often produces. This does not mean that the substance is always harmful and should never be prescribed. What it means is that it should be prescribed with discretion

in certain types of cases, and always the patient and the physician should know enough to stop the use of the substance as soon as discomfort appears.

Alvarez reported the case of a woman who began the use of bran and in the succeeding four months went downhill until she was skin and bones. In her attempt to relieve the distress in the bowel, she gave up one food after the other until she was living on little besides bran. It never occurred to her to drop that, because she had been led to believe that it was a wonderful health food. In a few cases, bran or any other indigestible material used for the treatment of constipation will pack and cause more or less intestinal obstruction. Alvarez reported a case in which loops of bowel kinked and narrowed and were bound down to the stump of an amputated uterus because packed solidly with bran so that the patient had to be operated on. In the case reported by Murray B Davis (Intestinal Obstruction from Eating Bran, *THE JOURNAL*, July 4 1931, p 24) there was no mechanical narrowing to account for the intestinal obstruction, which had to be relieved by operation.

Manufacturers should warn buyers that not every one can tolerate the substance and that its use should be stopped the minute it begins to produce indigestion, flatulence and malnutrition.

#### CARBOHYDRATES AND BODY ACIDITY

*To the Editor*—There seems to be an impression among the public that taking carbohydrates causes an acid condition of the blood, not the physiologic carbonic acid but uric acid and the purine group. Can you tell me what the basis is for this widespread belief and what are all the acids that can be formed from the carbohydrates with the exception of the carbonic acid if any?

SWITHIN CHANDLER M D Philadelphia

**ANSWER**—The chief acid that may be formed from carbohydrate in the body is lactic acid. However, the acidosis that may occur from the excessive use of carbohydrate foods is not due to the production of this or any other acid from the sugar. The belief may depend on the fact that most high carbohydrate foods of the artificial and refined types are lacking in the basic elements. These basic ions, such as sodium, potassium and calcium, are necessary for the neutralization and excretion of the various acid waste products of the body. Hence carbohydrates may be implicated in the occurrence of such an acid state by displacing other necessary food products from the dietary.

#### EFFECTS OF DIATHERMY

*To the Editor*—Is there any danger in diathermizing a patient for 1,000 hours? This is the number of diathermy hours Dr X of the city of B gave to a patient for his sciatica, three hours a day for a period of almost a year. The following is a copy of Dr X's letter to me.

Will you kindly inform me as to what pathological conditions may occur from diathermy treatments given over an extended period of time in the organs, fluids or other parts of the body, either grossly or microscopically or any functional symptoms? As far as my experience or knowledge goes I am unaware of any such results. Among my patients I have come across some who have taken treatments in the City Hospital of B for more than seventeen years without suffering any apparent ill effects from diathermy (or other modalities). As I am much interested in that question I would greatly appreciate any information to the contrary you can give me as a result of your knowledge and experience. My opinion is that diathermy should not be used indiscriminately. However I have never encountered any pathologic condition caused by the injudicious employment of this modality though I did not come across patients getting such treatment by the thousands. Would you kindly advise in *THE JOURNAL* as to the possible dangers of such heroic diathermy treatments?

JOSEPH ECHTMAN M D New York

**ANSWER**—Authoritative opinions are agreed that diathermy is a triple edged agency by means of which stimulating, depressing and lethal effects may be evoked depending on such factors as the length of time required for treatment and the intensity of heat produced. This is based on laboratory evidence showing that the degree of heat saturation differs with the size and resistance of tissue, the size of electrodes and the amperage imposed on it. For medical purposes from ten to forty-five minutes is generally sufficient for the heating of hands to the heating of the thorax or pelvis. To extend the treatment beyond that period is of no physiologic value, because of the depressing action that follows. During the latter stage the patient becomes irritable and restless and is covered with perspiration. If treatment is prolonged, the active hyperemia and the systemic fever influence the body function and provoke a depressing effect on the circulatory apparatus, the general metabolism and the chemical constituents of the body. It is known that only selected cases can withstand the effect of hyperpyretic treatment, these requiring a limited number of treatments to produce the effect desired. Prolonged and daily treatments as described are undoubtedly subhyperpyretic in

action, the constant drain or insult of which tends to produce changes in hydrogen ion concentration, the blood volume, the muscle, nerve and circulatory apparatus, and the secretion of the internal organs. Since no such untoward effects are mentioned, it is reasonable to assume that the dosage was below the minimal range required for the relief of symptoms. It is worth reemphasizing that, if diathermy does not offer some relief within the first few treatments, any number of consecutive treatments will not benefit the patient. Further treatments only shatter the faith of the physician in the established physiologic effects of diathermy and tend to make the patient more skeptical as to the value of any portion of physical medicine.

#### INCREASING VISCOSITY OF FECES

*To the Editor*—I am interested in increasing the viscosity of the content of the large intestine. I have thought of bismuth subnitrate, agar agar, psyllium seed and acacia. Please inform me what the efficient doses will be to use and which substances you think best for my purpose. What other substances can I use with the same object? How can I estimate the viscosity of the intestinal content it being known that I can get it through a colic fistula? What method would you suggest for its measurement? Can you give me some references concerning this problem? Please omit name.

M D, Maryland

**ANSWER**—Apparently the inquirer is interested in drying up and making more viscid the feces coming through a colostomy. In such cases the addition of bulk producers, such as agar, psyllium seed and acacia, would only add to the patient's distress. The feces might be more viscid but they would also be more voluminous and their escape harder to control. Bergen, whose experience in the care of colostomies is large, finds it most helpful to dry the feces with powders such as bismuth subnitrate, tribasic calcium phosphate and kaolin. His favorite is bismuth subnitrate, in heaping teaspoonful doses three times a day. He has not had any trouble with nitrite poisoning. At times, when the stools become too soft, it is necessary to give, in addition, an occasional teaspoonful of camphorated tincture of opium. The use of fluids should be restricted and it would probably help to take only two meals a day. A diet for patients with colostomy is described in an article by Bergen and Victor (*Diet in Intestinal Disorders*, *THE JOURNAL*, July 18, 1931, p. 151).

#### ANTISEPTICS IN SINUSES

*To the Editor*—Please inform me as to the best antiseptics for irrigation and instillation in chronic maxillary sinusitis the infecting organism being of the mixed respiratory variety. Please omit name and address.

M D California

**ANSWER**—It is doubtful whether the use of antiseptics for irrigation or instillation in cases of chronic maxillary sinusitis has any definite or lasting effect. If concentrated solutions of germicides are employed, probably more damage ensues to the ciliated epithelium of the mucosa than to the offending bacteria. However, the use of dilute tincture of iodine or silver nitrate solution, one of the organic silver preparations or one of the organic mercurials, may give temporary relief, especially in acute exacerbations. But when the antral mucosa shows polypoidal changes, no irrigations will avail. Proper drainage is essential and if this does not suffice, some form of radical operation is often indicated in chronic maxillary sinusitis.

#### CHRONIC PERITONITIS AND PERIHEPATITIS— CONCATO AND PICK DISEASE

*To the Editor*—My question to you is prompted by an argument that arose during one of our staff meetings between Dr. A and Dr. B. Dr. A contends that Concato's and Pick's diseases are absolutely identical and that the terms may be used synonymously. Dr. B contends that this is not so, that while the two diseases closely resemble each other in clinical and pathologic manifestations they are two separate disease entities, it being his opinion that Pick's disease begins as a pericarditis whereas Concato's disease does not necessarily begin with pericardial involvement and frequently the etiology of it is tuberculosis. A number of local pathologists have sidestepped the question as to whether the two diseases are identical.

PAUL MURPHY, M D, Koch Mo

**ANSWER**—There is much confusion in the literature in regard to the group of conditions described under the general terms of chronic peritonitis and perihepatitis. Adams uses the term Concato's disease as a synonym for chronic multiserositis or polyorrhomentitis and calls it a "form of chronic mediastinal inflammation which is of a steadily progressive character." It may begin, according to Adams, either as a perihepatitis extending to the mediastinum by the lymphatics involving in its course the right pleura, or as a pericarditis. The adhesions produced are numerous and dense. The newly formed fibrous tissue may undergo hyaline changes so that a substance of

pearly white character and cartilaginous appearance is produced. This frequently is formed on the surface of the viscera, particularly the liver, spleen, lungs and heart. In regard to the liver, the term applied by Curshmann was "zuckerguss leber."

Pick in 1896 described a group of cases under the title of pericarditic pseudocirrhosis of the liver, occurring in young persons with latent adherent pericarditis and ascites. As the result of the chronic progressive inflammatory process the pericardium became thickened and fibrosed, and constricting bands caused obstruction to the vena cava with resultant engorgement of the hepatic veins and the liver, which in turn became fibrotic and ascites followed. This was the predominant feature. Peritoneal involvement was thought to be a minor part of the picture, the result of possible direct extension of inflammation from the pericardium.

Both of these descriptions exclude tuberculosis. If these conditions are not identical, they are nearly so, and probably represent a syndrome rather than a definite disease entity. The condition is not particularly unusual and was first described in 1847 by Van Deen. Since then many observers have commented on various features of the conditions, including Curshmann, Nicholls and Kelly. The apparent variation in the evolution of the disease has led to the confusion of terms applied, as well as the point of view of the observer. The pathologic and clinical features are in the main essentially the same regardless of the term applied. In addition to those of Pick and Curshmann, chronic hyperplastic perihepatitis, chronic deforming perihepatitis, capsular cirrhosis of the liver, multiple serositis, polyserositis, and multiple progressive hyalo serositis have been used by various other authors.

#### INSULIN IN CARCINOMA OF TONSIL

*To the Editor*—I have a patient a man, aged 67 with moderately advanced carcinoma of the left tonsil and marked involvement of the cervical lymph nodes. Of course, the condition is inoperable and not amenable to irradiation. A consultant has advised the hypodermic injection of 4 units of insulin daily, stating that he has seen marked shrinkage of the growth in similar cases by such treatment. I have never heard of this mode of treatment. Will you kindly advise me as to whether or not there is any evidence to support the contention of the consultant? Would you advise such treatment? If so should injections be given in the growth itself or merely subcutaneously? I will appreciate an early reply as my patient is anxious to begin treatment as early as possible if there is any hope of a palliative result.

M D Florida

**ANSWER**—Dr. S. M. Beale of Sandwich, Mass., recently read a paper before the American Laryngological, Rhinological and Otolological Society at its session in Charleston, S. C., in which he reported a great improvement in a number of cases of carcinoma and recommends highly an injection of from 3 to 4 units of insulin daily. A communication addressed to Dr. Beale, requesting full details as to the method of using insulin, will undoubtedly receive courteous attention. It will, of course, take long and careful study, with a large series of cases as controls, to determine definitely just how far insulin is of value in cases of malignant neoplasm.

#### GASEOUS DISTENTION OF BOWEL

*To the Editor*—A woman about 60 years of age has had four children (the youngest is 25 years old). She never had any sickness except that she was always nervous. She has had hysteria since childhood. The heart, lungs, liver and kidneys all seem normal. About three years ago she noticed that she was troubled with gas after meals. At first an eructation of mild odorless and tasteless gas was noticed. Later she expelled gas by the bowel and also belched. Now her abdomen, especially the lower part, is distended all the time sometimes enough to be painful. She has seen many doctors and she has been given acids by some and alkalis by others. She has been dieted until she is much underweight but nothing has given her any relief from the gas. She sees no difference in her condition when she diets and when she does not. She says that possibly potatoes make her worse but she sees very little difference in other foods.

M C JOHN, M D, Stuttgart, Ark

**ANSWER**—The data submitted are inadequate to form a basis for any opinion. The statement of nervousness and of the patient having had hysteria since childhood are ambiguous without a description of her symptoms and psychic reactions. The few points mentioned might be referable to a cholecystitis with or without calculi, cathartic colitis, irritable colon or carcinoma of the colon, beginning carcinoma of the pancreas or pancreatitis, some form of gastro-intestinal allergy or many other conditions not necessarily affecting the gastro-intestinal tract. Without a more detailed history, laboratory tests including gastric and stool analyses, cholecystography and a complete roentgenologic study of the gastro-intestinal tract, no definite conclusion can be reached.



# CYSTADENOMA OF OVARY

To the Editor—A woman, aged 27 married five years, without children had an appendectomy seven years ago and scarlet fever six years ago. Last April she noticed a mass in the lower part of the abdomen, which gradually became larger. In July 1933 she was operated on. Operation revealed a large papillomatous cyst with several daughter cysts involving both ovaries. A portion of the left tube was so friable that it crumbled in the surgeon's hand. Both ovaries and the left tube were removed. The diagnosis was bilateral malignancy of both ovaries. Since operation the patient has had the usual symptoms of the surgical menopause but complains of occasional pains in the abdomen like a belly ache. She has gained 10 pounds (4.5 Kg) since the operation. She has had no high voltage roentgen therapy. What is the prognosis? What is the possible expectancy of life? Is a cure possible with the surgery performed? Please omit name.

M D Michigan

ANSWER—This case is evidently one in which there was a primary papillary cystadenoma of the ovary with malignant degeneration. Even if all the grossly evident ovarian growth was removed there is little hope of a permanent cure without coincident removal of the body of the uterus. Intensive high voltage roentgen therapy is of considerable value.

Ovarian metastases from extension of adenocarcinoma of the body of the uterus may also produce cystic papillary tumors of the ovary. In these cases the prognosis is not as good.

Primary cystic carcinoma of the ovary also resembles cystadenoma of the ovary with malignant degeneration. In these cases the progress is still less favorable.

## EFFECTS OF MERCUROCHROME ON CERVIX

To the Editor—Is there any danger in the application of 2 per cent solution mercurochrome to the cervix about one time weekly in an effort to prevent conception? In the case in mind this has gone on for three years and the cervix is in excellent condition but if this continues do you think there is any likelihood of the mild irritation causing a malignant condition? Please omit name.

M D Louisiana

ANSWER—Mercurochrome in the ordinary strength cannot be compared to iodine as a contraceptive measure, since it has little effect on tissue cells and it is doubtful whether it would inactivate spermatozoa. As this antiseptic in strengths of from 2 to 5 per cent, is commonly used for the treatment of vaginal and cervical irritations, there is no reason for believing that the use as stated would ever cause any type of cervical irritation.

## UNDERDEVELOPMENT AS AN ENDOCRINE MANIFESTATION

To the Editor—I am puzzled as to the diagnosis and treatment of a case. A youth aged 16 5 feet (152 cm) tall and weighing 90 pounds (41 Kg) has immaturely developed secondary sex characteristics: a small penis and no axillary or pubic hair. His mother states that he stopped growing several years ago and since has complained of nervous spells. These come on especially at night and also during the day following severe physical exertion. The spells are acute last about fifteen minutes and are characterized by a feeling of dizziness over the frontal area and occasional neuralgic pains over the left frontal and temporal regions. The boy otherwise is in good physical condition and examination of the heart is negative during these attacks. I have given him phenobarbital and anterior pituitary by mouth with no relief. What therapy and methods of diagnosis would you suggest? Would a Wassermann test be indicated? His past history and the family history are grossly negative. Kindly omit name.

M D Ohio

ANSWER—In the history of this case, the essential points of which are the stationary development, the nervous spells with dizziness and pain over the frontal and temporal regions, a thorough neurologic examination would seem indicated, as well as an examination of the eyegrounds. A tumor of the brain involving the hypophysis and causing inactivity of this gland might account for the stunted growth and retarded sexual development. The side effects of a tumor causing atrophy of the hypophysis would be manifested by an increased pressure on the optic tracts causing narrowing of the field of vision, choked optic disk, retinal changes, headache and dizziness. A roentgenogram of the skull to visualize the sella turcica might be a valuable aid in determining the presence of a hypophyseal tumor. Hypopituitarism, from whatever cause, may result in retardation of growth and sexual development. There are two chief groups of preadolescent hypopituitarism. One type is characterized by a weak, delicate undersized, dwarfed individual with absent secondary sex characteristics. This is the Loran-Levi type. In contrast is the Fröhlich syndrome, in which adiposity to a considerable degree is a marked feature—the so-called dystrophia adiposogenitalis. Hypofunction of other endocrine glands, such as the thyroid and pineal, and, according to some pluriglandular disturbance may cause retardation of growth. With a disturbance in one gland there

may be secondary disturbance in other glands. Congenital syphilis may cause retardation in growth and development and it would therefore be well to perform a Wassermann test. It would be interesting to note whether the testes were descended, as this might have some bearing on the sexual retardation. Recently, treatment of sexual underdevelopment in boys has been attempted with the anterior pituitary-like principle from the urine of pregnancy. This substance seems to be of value as a human gonad activator, and good results have been reported from its use. The dosage and duration of treatment are dependent on the degree of underdevelopment and age of the patient. It has been found that patients who are treated early in adolescence respond more favorably to this substance.

## SCARLET FEVER IMMUNIZATION

To the Editor—How would you suggest that I proceed to desensitize a 5 year old girl for scarlet fever prophylactic doses? She had gradually increased reactions to the first second and third doses of Squibb's scarlet fever antigen and I am loath to proceed until less sensitivity is exhibited. Please omit name and address.

M D, Ohio

ANSWER—It is helpful in such cases to inject 0.2 cc of a 1:1000 solution of epinephrine simultaneously with the dose of toxin, taken up in the same syringe with the toxin. If it has been more than a month since the child received the last dose, it would be best to start over with the first dose. These answers are based on the assumption that by "Squibb's Scarlet Fever Antigen" the writer means the five graduated doses of scarlet fever toxin containing no foreign serum, which are distributed for active immunization against scarlet fever.

## DOSAGE OF DEXTROSE

To the Editor—With all the conflicting dosages of dextrose what is an appropriate dose in grams intravenously per kilogram of body weight? Is it necessary therapeutically to use insulin when giving dextrose? Can insulin be added to the dextrose solution or must it be given separately by hypodermic injection?

SOLOMON J. LEVINE, M.D., Grover, Colo.

ANSWER—It is necessary to distinguish between the appropriate and the maximum dose. Woodyatt and his collaborators have shown that normal adults begin to excrete sugar in the urine when the hourly rate of injection into the vein is above 0.8 Gm per kilogram of body weight. This might constitute a maximum dose. Giving per hour 500 cc of 10 per cent dextrose solution intravenously would be well within the limit but, if continued throughout twenty-four hours, would yield 6,048 calories a day, which is more than double the income required by the resting person. A 60 Kg patient at absolute rest in bed requires a minimum of 1,200 calories a day, which would be furnished by 300 Gm of dextrose, or approximately 0.2 Gm per kilogram of body weight hourly. This might be considered an appropriate maintenance dose of dextrose, which has also the advantage that it can be given at the optimal rate of infusion, which is literally drop by drop. Insulin is not required unless the patient, owing to hypo-insulinism, develops hyperglycemia during such administration. It may be added to the dextrose solution.

## CHANGE OF POSTURE IN DIAGNOSIS OF APPENDICITIS

To the Editor—Is the following diagnostic sign in acute appendicitis in the young and in those with an appendix which is in the pelvis described in standard works on appendicitis? Place the patient so that he or she lies on the face and then palpate over the lower right quadrant of the abdomen. Several recent experiences in some cases that were doubtful as to the proper diagnosis have convinced me that it is a most useful procedure as the tenderness on pressure is markedly accentuated and often brings out a tenderness that is not demonstrated when the patient is lying on his back.

HUBERT B. HAYWOOD, M.D., Raleigh, N.C.

ANSWER—Several writers have emphasized the importance of changing the posture in an effort to determine the presence of tenderness and spasm in suspected appendicitis.

A great many positions are claimed to be helpful, but no mention of the prone position has been seen. No doubt it has been utilized by these physicians, but other positions have been found more helpful.

There is no doubt, from the varied locations in which the appendix may lie, that different positions of the body will influence the amount of tenderness and muscle spasm obtained.

No doubt in all doubtful cases various changes of positions should be made during examination and the prone position may be easily included. This sign may prove helpful.



## PARASYMPATHETIC PHYSIOLOGY

*To the Editor*—What are the chief differences in the physiology of the sympathetic and parasympathetic nervous systems especially in regard to organs or parts not supplied by both? What are the chief differences if any, in the chemistry of activity of smooth and striated muscle? Do all the sphincter muscles of the body have a parasympathetic supply?

J J HORTON M D, Memphis

**ANSWER**—It is suggested that any standard work on physiology be consulted. In general, the parasympathetic system effects contraction of hollow organs with inhibition (relaxation) of the sphincters, whereas the sympathetic activity results in a relaxation of these organs with contraction of the sphincters. All sphincters appear to be supplied with parasympathetic fibers. There are no known differences in the chemistry of activity of smooth and of striated muscle.

## THIOSINAMINE IN ESOPHAGEAL STENOSIS

*To the Editor*—How long and how far may thiosinamine be pushed? I have a child with a stenosis of the esophagus. Dilatation is being employed but the child does very much better under thiosinamine. In other words will it prove a poisonous drug when used over weeks of treatment?

M D Illinois

**ANSWER**—There are possibilities of ill effects from the prolonged use of even small doses of thiosinamine, which may show themselves in modifications of the metabolism, with loss of nitrogen, emaciation and fatty degeneration of the parenchymatous organs, especially the heart and the kidneys. It would be best to give it only in direct connection with the dilations and to watch the effect on general nutrition. As many as fifty injections have been given.

## PATERNITY DETERMINED BY BLOOD GROUPS

*To the Editor*—Mr — is of group III. Mrs — is of group IV in the Moss grouping and a girl of 18 is of group III. Mrs — is the girl's mother. What does the grouping indicate as to the relation of Mr —?

R E JENSTROM M D Rapid City S D

**ANSWER**—In scientific medical literature the Moss and Jansky designations of the human blood groups have been replaced by letters O, A, B and AB. O corresponds to Jansky 1 and Moss 4, A to Jansky 2 and Moss 2, B to Jansky 3 and Moss 3 and AB to Jansky 4 and Moss 1. The question concerns what relation there may be between the girl of group B and the man of group B, the mother being of group O. The answer is that as the man and the girl are both of group B, the man may have been the father of the girl so far as their blood grouping goes.

## ELECTIVE SITE FOR VACCINATION AND INJECTION OF SERUM

*To the Editor* In THE JOURNAL July 28 I find the advice to inject alum toxoid subcutaneously at the insertion of the deltoid muscle or in younger children between the shoulder blades. For many years I have almost without exception and at all ages my practice being entirely pediatric made my injections in the upper gluteal region and this because in my judgment it is as insensitive a part of the body as there is and I know no contraindication. My second choice for injection would be the outer aspect of the thigh. I would suggest that if you seriously recommend between the shoulder blades you have some body try it on you once. Then you'll know what I mean.

Even among adults with modern raiment and modern psychology I have had no difficulty for reasons either of practicality or of modesty in using the same location for the occasional parental adult whom I have injected. I simply disinfect the skin with iodine always boil my hypodermic syringe and needle—I mention this because I see other people using a less effective means of sterilization—and never cause an abscess. If there is any objection at all to the location for any reason why it should not be preferred to the insertion of the deltoid or between the shoulder blades I should like to know it.

Recently it was recommended to vaccinate girls on their arms because the modern scar was small. Why make even a small scar on their arms? In some years of practice my location for girls has crawled up from below the knee almost to the crest of the ilium where I put it for cosmetic reasons usually telling the mother with a snicker to keep it under the bathing suit. Even in diaper age babies I have never seen serious trouble and seldom any important irritation.

W D LUDLUM M D Brooklyn

## VOMITING IN INFANCY

*To the Editor*—In Queries and Minor Notes in THE JOURNAL July 21 page 206 a question as to vomiting in infancy is answered. I believe that in this case another possibility should be considered namely congenital diaphragmatic hernia which can cause exactly these symptoms. I recently had occasion to make this diagnosis in the condition in which the patient also vomited on lying down at night. Both roentgen examination and auscultation gave positive signs the mass in the chest and a gurgling sound under the stethoscope.

G T SCHIMELPFENIG M D Chaska Minn

## Council on Medical Education and Hospitals

## COMING EXAMINATIONS

ALASKA Juneau Sept 4 Sec Dr W W Council Juneau  
AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written (Group B candidates)* The examination will be held in various centers throughout the country Oct 1 *Oral (Group A and Group B candidates)* San Antonio Texas Nov 13 16 Sec Dr C Guy Lane 416 Marlborough St Boston  
AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written (Group B candidates)* The examination will be held in various cities of the United States and Canada, Nov 3 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh  
AMERICAN BOARD OF OPHTHALMOLOGY Chicago Sept 8 San Antonio Texas Nov 13 Philadelphia June 10 *Application must be filed at least sixty days prior to date of examination* Sec Dr William H Wilder 122 S Michigan Blvd Chicago  
AMERICAN BOARD OF OTOLARYNGOLOGY Chicago, Sept 8 and San Antonio Texas Nov 16 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha  
ARIZONA Phoenix Oct 23 Sec Dr J H Patterson 320 Security Bldg Phoenix  
CALIFORNIA Sacramento Oct 15 18 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento  
COLORADO Denver Oct 2 Sec Dr Wm Whitridge Williams 422 State Office Bldg Denver  
CONNECTICUT *Basic Science* New Haven Oct 13 Address State Board of Healing Arts 1895 Yale Station New Haven  
GEORGIA Atlanta Oct 9 10 Joint Secretary State Examining Boards Mr R C Coleman 111 State Capitol Atlanta  
IDAHO Boise Oct 2 Commissioner of Law Enforcement Hon. Emmitt Pfost 205 State House Boise  
ILLINOIS Chicago Oct 16 18 Superintendent of Registration Department of Registration and Education Mr Eugene R Schwartz Springfield  
IOWA Des Moines Oct 8 10 Dir. Division of Licensure and Registration Mr H W Grefe Capitol Bldg Des Moines  
MICHIGAN Lansing Oct 9 11 Sec Board of Registration in Medicine Dr J Earl McIntyre 202 34 Hollister Bldg Lansing  
MINNESOTA *Basic Science* Minneapolis Oct 23 Sec Dr J Charnley McKinley 126 Millard Hall University of Minnesota Minneapolis *Medical* Minneapolis Oct 16 18 Sec Dr E J Engberg 350 St Peter St St Paul  
MISSOURI Kansas City Oct 24 State Health Commissioner Dr E T McGaughey State Capitol Bldg Jefferson City  
MONTANA Helena Oct 2 Sec Dr S A Cooney 7 W 6th Ave Helena  
NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia  
NEBRASKA *Basic Science* Omaha, Oct 23 Dir Bureau of Examining Boards, Mrs Clark Perkins State House Lincoln  
NEW HAMPSHIRE Concord Sept 13 14 Sec Board of Registration in Medicine Dr Charles Duncan State House Concord  
NEW JERSEY Trenton Oct 16 17 Sec Dr James J McGuire 28 W State St Trenton  
NEW MEXICO Santa Fe Oct 8 9 Sec Dr P G Cornish Jr 221 W Central Ave Albuquerque  
NEW YORK Albany Buffalo Syracuse and New York Sept. 24 27 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany  
OKLAHOMA Oklahoma City Sept 11 12 Sec Dr J M Byrum Mammoth Building Shawnee  
PUERTO RICO San Juan Sept 4 Sec Dr O Costa Mandry Box 536 San Juan  
RHODE ISLAND Providence Oct 4 5 Dir Public Health Commission Dr Lester A Round 319 State Office Bldg Providence  
WISCONSIN *Medical Reciprocity* Green Bay Sept 11 Sec Dr Robert E Flynn 401 Main St La Crosse *Basic Science* Madison Sept 22 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee  
WYOMING Cheyenne Oct 1 Sec Dr W H Hassed Capitol Bldg Cheyenne

## Wyoming June Examination

Dr W H Hassed, secretary, Wyoming State Board of Medical Examiners, reports the examination held in Cheyenne, June 4, 1934. The examination covered 12 subjects and included 119 questions. An average of 75 per cent was required to pass. One candidate was examined and passed. Eleven applicants were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad (1933)	Per Cent
Duke University School of Medicine			81
School	LICENSED BY RECIPROCITY	Year Grad (1933)	Reciprocity with
University of Colorado School of Medicine	(1932)	(1933)	Colorado
Northwestern University Medical School		(1933)	Colorado
Rush Medical College		(1906)	Utah
University of Illinois College of Medicine		(1933)	Illinois
State University of Iowa College of Medicine		(1931)	Iowa
Washington University School of Medicine		(1930)	Missouri
University of Nebraska College of Medicine	(1926)	(1933)	Nebraska
Marquette University School of Medicine		(1927)	Minnesota
Osteopath*			Michigan

\* Licensed to practice osteopathy and surgery

## Hawaii July Examination

Dr James A Morgan, secretary, Board of Medical Examiners, reports the oral and written examination held in Honolulu, July 9-12, 1934. The examination covered 10 subjects and included 55 questions. An average of 75 per cent was required to pass. Three candidates were examined, 2 of whom passed and 1 failed. One physician was licensed by endorsement, April 26, after an oral examination. The following schools were represented:

PASSED		Year	Per
School		Grad	Cent
University of California Medical School		(1927)	87.6
McGill University Faculty of Medicine		(1932)	87.7*
FAILED		Year	Per
School		Grad	Cent
Chicago Medical School		(1920)	75.5†
LICENSED BY ENDORSEMENT		Year	Per
School		Grad	of
College of Medical Evangelists		(1932)	N B M Ex
* License has not been issued			
† Failed in more than three subjects			

## Book Notices

**The Medical and Orthopaedic Management of Chronic Arthritis.** By Ralph Pemberton M.S. M.D. F.A.C.P. Professor of Medicine, Graduate School of Medicine, University of Pennsylvania and Robert B. Osgood A.B. M.D. F.A.C.S. Consulting Surgeon, Boston Children's Hospital. Cloth. Price \$5. Pp. 403 with 59 illustrations. New York: Macmillan Company, 1934.

This book is presented as a practical exposition of the subject of chronic arthritis for general practitioners, including internists and also for orthopedic surgeons. It sets forth the convictions of the authors that chronic arthritis is largely a preventable and curable disease. Fully aware of existing limitations to knowledge in this field, the authors have eminently proved that there has already accumulated a great fund of principles and facts that must become the common property of all who would understand the problems of these diseases and care for their unhappy victims.

The book is in no particular a second edition of Pemberton's monograph of 1929. It is not quite so much of a delineation of his personal ideas as was the latter, and it presents a broader picture and represents the conjoined opinions of an internist and an orthopedist—a fruitful union—on the cause and treatment of chronic arthritis. It is not an inclusive monograph on the arthritides, however, as the authors have seen fit to exclude any discussion of joint diseases other than those which they term "atrophic arthritis" and "hypertrophic arthritis." Therefore, he who expects to find a handbook on the rheumatic diseases including a clinical discussion and differentiation of fibrositis, rheumatic fever, gouty arthritis, chronic traumatic arthritis and so on will need to refer elsewhere, perhaps to one of the American or the more numerous English handbooks.

The subject matter is divided into fourteen chapters and includes discussions on the history and incidence of chronic arthritis, classification, gross and microscopic pathologic characteristics and the associated physiologic disturbances, and considerations on etiology, symptomatology and treatment. The chapters on therapy concern themselves with general medical principles, adjustments of the major bodily systems by means of physical and mechanical aids, dietetics, and special attention to the gastro-intestinal tract, physical therapy, vaccines, drugs, orthopedic appliances and corrective surgery.

Most of the chapters are concise yet comprehensive, and the wide experience and catholic point of view of the authors are apparent. A perusal of chapter III strikingly shows how meager is the knowledge of the physiology of normal joints. The authors frankly realize that certain of their chapters will as they put it achieve little popularity. If such is the case, chapters IV and V will be most likely to arouse debate. The view held by the authors as to the etiology and treatment of chronic arthritis, repeatedly set forth heretofore, is summarized in these chapters. They believe that some abnormal physiologic process of circulation and alimentation may basically underlie both types of chronic arthritis, atrophic and hypertrophic, and that the joint lesions result from the presence in the blood of

some diffusible irritant with an affinity for joint tissues, perhaps arising from foci of infection, perhaps from some change in the local physiology of the part or from a disturbance of the normal body chemistry other than that caused by specific pathogenic organisms. They frankly do not have much faith in the infectious theory or regard the influence of focal infection as of primary importance, and although they occasionally "pull their punches" by giving brief credit to the (generally unnamed) workers in these fields, they buffer each sentence of praise with many paragraphs concerned with the inadequacies of the theory of infection. The more common arguments in favor of this theory are almost wholly omitted, perhaps on the assumption that they are already well known and that repetition might give them undeserved emphasis. Although they have excluded certain data and statistics that forcefully demand recognition for the theory of infection, they have presented in no little detail those which favor the metabolic theory, but without discussing with equal candor the many objections.

It is with entire propriety that the authors stress their own view that bacteria usually play a secondary and minor part in the pathogeny of chronic arthritis and that a fundamental deviation from normal physiologic function consists probably in a widespread vasoconstriction of smaller blood vessels secondary perhaps to some as yet undetermined fault of alimentation. One may hold in high regard the clinical and physiologic observations of these authors and yet feel that their interpretation of the significance of these observations remains yet to be evaluated and that the present exposition still does not satisfy the questionings of those previously unconvinced. To such as these the authors' deductions on cause and treatment derived from these observations will still seem to be on no more solid ground than those which have engendered the several varieties of the infectious theory.

In chapters IV and V the authors do not seem to hold entirely to that air of impassioned objectivity and judicial detachment so repetitiously enjoined. Nevertheless, the authors' views deserve the openminded consideration of all those interested in these diseases, and while one may not agree with the emphasis placed on alimentation and on circulation and on the remedial value of corrective body exercises and of a low calory diet the foregoing chapters will make him pause and proceed with his own thesis at a more considered pace.

For subsequent revisions of this stimulating textbook a few minor changes are suggested: the inclusion of three or four omitted references in the historical chapter; an improved selection and reproduction of several roentgenograms; the correction of a few errors in fact; the rearrangement of a few paragraphs of inordinate length (from one and a half to two pages); the inclusion of at least some of the bibliography of those "other workers" and, perhaps, a more generous use of photographic illustrations and charts for some of the chapters.

The matured consideration of two of the country's distinguished seniors in this field of medicine, their presentation constitutes a full bodied work, the first comprehensive American monograph devoted exclusively to the two major forms of this vexatious disease group.

**Geographie und Geschichte der Ernährung.** Von Dr. med. K. Hintze, Professor an der Universität Leipzig. Paper. Price 21 marks. Pp. 330. Leipzig: Georg Thieme, 1934.

This is a comprehensive survey of the kinds of food used by mankind in various parts of the world from prehistoric times to the present. Attention is given first to the ancient civilizations of the Egyptians, Babylonians, Hebrews, Greeks and Romans, then to life in Europe over a period of 4000 years, treated in historical periods, viz., prehistorical time, early historical to about 800, Carolingian time, to about 1300, the Middle Ages, and the Modern Era. A brief chapter is devoted to the Far North including northern Canada, Alaska, Lapland, Greenland and polar Asia. The continent of Asia is discussed in terms of the history of food in China, Japan, India and Central Asia, Africa chiefly in terms of its geographic divisions. In the Americas North, Central and South, the discussion is limited to the periods before the entrance of the white man. Finally, Australia and the islands of Melanesia, Polynesia and Micronesia are included in this world review. A bibliography, mostly of German works, is included at the end of each chapter.

To those interested in the history of agriculture this book offers a well organized survey of the whole subject. The main factors are probably familiar to most readers or are available in any good encyclopedia, but the author has culled from many sources interesting details as to food preparation and eating customs in all parts of the world, especially in ancient times, and these lighten the recital of the kinds of food available to the various peoples during the development of agriculture in their respective countries. As a reference book its value would have been enhanced by an index. It would be difficult to trace any food, such as wheat, from age to age or country to country, and although so far as the cereals are concerned this objection has been partly met by a section of the appendix devoted to this subject, it would be difficult to find out when and where any other type of food, fruit or vegetable was first used or how its usage spread from one region to others. In the appendix the old subject of vegetarianism is treated historically and the more unusual topics of earth eating and placenta eating are similarly reviewed. The observations made from time to time in the text regarding the relation of diet to health are not supported by scientific data and can be given little weight. The studies of Krogh on the diet of the Eskimo, of Adolph and of Wu on the Chinese diet, of McCarrison on diets in various parts of India, of Orr and Gilks of certain tribes in South Africa exceed in scientific value any citations regarding nutrition made in this book.

**Radiologic Exploration of the Mucosa of the Gastro Intestinal Tract** By the Cole Collaborators. Lewis Gregory Cole M.D. Robert E. Pound M.D. William Gregory Cole M.D. Russell R. Morse M.D. Courtenay J. Headland M.D. and Ames William Naslund M.D. Cloth. Price \$7.50. Pp. 336 with 262 illustrations. St. Paul & Minneapolis: Bruce Publishing Company, 1934.

As readers are duly warned in the preface, this is not a book on the roentgenologic diagnosis of individual gastrointestinal diseases but a description and analysis of principles on which such diagnosis is based. Accordingly, four broad divisions of the text deal successively with (1) the lumen of the tract viewed in profile, (2) special folds of the mucosa viewed on edge, (3) pliability of the mucosa to peristaltic contraction, and (4) the pattern of the mucosal folds, all as applied to the examination of the esophagus, stomach, duodenal bulb, small bowel and colon.

In recent years continental radiologists, led by Berg and Akerlund have written voluminously on the mucosal relief and its importance in diagnosis. Indeed, this feature has been exploited so energetically as to foster the impression that the method is wholly new. To correct this misconception, American writers have pointed out that the principle is by no means novel for it has been generally employed almost since the beginning of gastro-intestinal roentgenology, and that Berg, expressly disclaiming priority in this field, has given full credit to the pioneer work of the Viennese roentgenologists and the later contributions of Forssell. This protest is ably seconded by the present volume, which states that the method was used as a routine in America as early as 1910. Further, it is stated, articles by Akerlund and Berg would lead one to believe that they employ variations in the mucosal pattern as the foundation for every diagnosis, whereas on investigation it will be found that practically all their diagnoses are based on changes in the luminal contour.

Although most roentgenologists follow Holzknecht and rely primarily on roentgenoscopic examination, the senior Cole has adhered tenaciously to serial roentgenography. Hence the technique described in this volume is essentially roentgenographic and is carried out either by serial roentgenography or by what might be called examination de luxe, roentgenocinematography. Whatever may be the opinion of other roentgenologists as to the comparative merits and practicability of roentgenography and roentgenoscopy, they will concede the general efficiency of the roentgenographic procedure as executed by Cole and his associates.

With its broad pages, clear typing and excellent illustrations the book is typographically attractive. Its contents are never dull, for they faithfully reflect a dynamic personality. Interspersed with the ponderous polysyllables that belong to the roentgenologic ritual are many whimsical and homely but apt similes and many pungent bits of sarcasm.

Not all roentgenologists will accept the contentions here set forth, but their dissent will not in the slightest degree shake the confidence or courage of militant Lewis Gregory Cole. Veterans in this field will not fail to read the book with respectful attention, for they are well aware of Cole's important contribution to the diagnosis of duodenal ulcer and his valiant service to the direct method of diagnosis. New recruits should read it that they may get a broader comprehension of roentgenologic tactics and strategy. Noncombatants, physicians who are not roentgenologists, can read it with profit, for they may at least acquire a realization of the fact that a reliable diagnosis cannot be obtained merely by filling a viscus with barium and "shooting" a single roentgenogram.

**La cholecystectomie sans drainage (cholecystectomie idéale).** Par P. L. Mirizzi professeur titulaire de clinique chirurgicale à la Faculté de médecine de Cordoba (Argentine). Paper. Price 28 francs. Pp. 105, with 71 illustrations. Paris: Masson & Cie 1933.

This discusses the author's experience in a large series of cases in which cholecystectomy without drainage has been used. Approximately half the book is given over to the discussion of this problem, with frequent references to the literature and with a description of his operative technique, which is completely illustrated with excellent two-tone drawings.

The most interesting part of the monograph is on studies in cholecystography made in the course of operations on the biliary tract. Thirty-seven excellent reproductions of roentgenograms taken of the biliary tract at the time of, or shortly after, operation, showing various obstructions, are presented. Iodized oil, injected through the cystic duct at the time of operation, was used as the substance to fill the biliary passages and obtain the roentgenograms. Concise, excellent explanations are given beneath each. A discussion regarding the association of lesions of the pancreas and sphincter of Oddi is instructive and will serve to advance present knowledge and understanding of these less frequent, and yet many times puzzling, lesions the symptoms of which are frequently referred to as the post cholecystectomy syndrome. Professor Mirizzi's monograph is a contribution to the physiology of the intrahepatic and extra hepatic biliary passages, particularly as altered by disease.

**A Study of Growth and Development. Observations in Successive Years on the Same Children.** By R. M. Fleming. With a Statistical Analysis by W. J. Martin. Medical Research Council Special Report Series No. 190. Paper. Price 1s. 6d. Pp. 85. London: His Majesty's Stationery Office 1933.

This pamphlet is a statistical study of various measurements taken on children from the age of 3 to 18 in a group of mixed Welsh and English ancestry. More than 1,200 children were studied and the unique thing about the author's work is that observations were made on successive years on the same children, whereas most statistical studies have not followed the various children throughout the growth period. The author confirms the observations that growth occurs in at least two major spurts and the well known fact that girls exceed boys in size in the early adolescent period. The statistical analysis also covers pigmentation of the skin, eye color and forehead shape and discusses various physical, physiologic and psychologic characteristics.

**Einige Carcinome und Adenome beim Menschen. Ferner vom Krebs bei Tieren und 'in Vitro'.** Von K. A. Heilberg. Paper. Pp. 53 with 2 illustrations. Copenhagen: Levin & Munksgaard. Leipzig: Georg Thieme 1934.

The author develops the theory previously expressed in his "Grundlage der Geschwulstlehre" concerning the development of cancer by purely mechanical strain (including in this inflammation and chemical influences) on tissue. This results in a displacement of the previous activity of the cell to a higher level, which is expressed in an enlargement of the entire cell or some part of it relative to normal dimensions. He admits also certain tissue predisposition that synergizes the external stimulus. He pleads for the abandonment of previous concepts of tumor classification based on the characteristics of the tumor tissue as a whole (i.e., faulty differentiation or forgotten embryonic cells) in favor of one based on actual microscopic measurement. He feels definitely that the cancer cell is a unique thing. To demonstrate his theory further he offers tables having the nuclear length in micromillimeters as one coordinate

and the various tumors graded or classified histologically as the other. It is his opinion that this is superior to the grading by the conventional methods (i. e., uterus as undifferentiated ripe, unripe and middle ripe). The superiority lies not only in advantages from the standpoint of classification but also from that of prognosis and the situation of radiosensitive growths. The tables offered include carcinoma of the uterus, myoma, ovarian and fallopian carcinoma, prostatic carcinoma, and adenoma, seminoma, carcinoma of the stomach and colon, skin carcinoma, tumors of the nasal glands, liver and pancreas. He also discusses certain experimental tumors of mice from the same standpoint. The article must be read in connection with the author's previous work to be of most value and the tables in it warrant more careful study than can be presented in a brief review.

**An Introduction to Practical Bacteriology. A Guide to Bacteriological Laboratory Work.** By T. J. Maclellan M.D. D.P.H. Professor of Bacteriology, University of Edinburgh and J. E. McCartney M.D. D.Sc. Director of Research and Pathological Services, London County Council. Fourth edition. Cloth. Price \$4. Pp. 504 with illustrations. Baltimore: William Wood & Company, 1934.

This is one of the best laboratory manuals in the English language. It is clear, concise, accurate and wonderfully abreast of current knowledge. In this edition one even finds a reference to the St. Louis encephalitis epidemic of 1933. There are few things to which the most carping critic can take exception, but

Page 348. Not all bacteriologists agree that Morgan's bacillus and allied types are responsible for some cases of infantile diarrhea in temperate climates.

Page 371. Tularemia in the United States is not confined to the "Western states" but has been reported from practically every state in the Union and from at least one section of Canada.

Pages 428-429. Recent American work is not given full consideration in the section on typhus fever.

The book as a whole can be given the highest praise.

**Die Typenlehre in der Mikrobiologie. Ihre Grundlagen und ihre Bedeutung für die Epidemiologie, Klinik und Therapie.** Von Prof. Dr. med. et phil. Max Gundel. Paper. Price 8 marks. Pp. 192. Jena: Gustav Fischer, 1934.

The discovery that different "species" of bacteria are not units but consist of a larger or smaller number of "types," each with its own pathologic implications, has had important practical consequences. Biochemical and serologic differences at first sight of minor importance have turned out to be of first class significance. The author of this useful little monograph, himself well known as a student of bacterial types, has brought together most of the well established facts in a clear and compact form. Although often treated rather summarily, as in the discussion of *Bacillus botulinus* (pp. 96 and 97), the material is on the whole dealt with critically and with an expert hand. The sections on streptococcus types are particularly good. The book will be of service to all students of one of the most vexed questions in modern bacteriology.

**Lehrbuch und Atlas der Haut und Geschlechtskrankheiten für Praktische Ärzte und Studierende.** Auf der Grundlage von Prof. Jacob's Atlas der Hautkrankheiten. Textlich vollständig neu bearbeitet von Dr. Karl Zieler, o. ö. Professor und Vorstand der Universitäts-Klinik und Poliklinik für Haut und Geschlechtskrankheiten in Würzburg. Band I: Text. Band II: Tafeln. Third edition. Cloth. Price 48 marks per set. Pp. 664. 181 with 512 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1934.

This is a revision of Jacob's well known Atlas of Skin Diseases, with an accompanying text by one of the best known German dermatologists. Volume I gives a brief but complete survey of the field of skin and venereal diseases. In this volume are 168 illustrations, chiefly drawings of microscopic preparations and fungi. Volume II contains 342 colored reproductions. The majority of these are of high class and the colors are beautifully brought out. Some, however, have an artificial appearance because they are taken from moulages and lack photographic accuracy. Taken together these two volumes should prove of great value to the student of dermatology and will be found of great assistance in visualizing the appearance of the numerous and varied cutaneous disorders illustrated. The price seems reasonable.

## Medicolegal

**Death Due to Hypersusceptibility to Nupercaine an Accident.**—The defendant insurance company issued a policy to the plaintiff's wife that provided for the payment of a certain benefit if she died from "accidental bodily injuries

effected solely and independently of all other causes through accidental means." In the course of a tonsillectomy, her physician painted the operative area with nupercaine and injected "the usual amount" of the same drug. While the operation was in progress, his patient collapsed, and died within a few minutes. The surviving husband, as the beneficiary under the policy, sued the insurer for the benefits it had promised to pay. The testimony was to the effect that the attempted removal of the patient's tonsils had nothing to do with her death, that death was due to the administration of nupercaine and the patient's hypersusceptibility to it, and that such hypersusceptibility could not have been known to any practicing physician before the drug was applied and administered. Judgment was given in favor of the beneficiary under the policy, and the insurer appealed to the Supreme Court of Michigan, contending apparently that death was not due to an accidental bodily injury within the meaning of the policy.

"Accidental injuries," said the Supreme Court, have been defined as follows: "Where the effect is not the natural and probable consequence of the means which produce it—an effect which does not ordinarily follow and cannot be reasonably anticipated from the use of the means, or an effect which the actor did not intend to produce, and which he cannot be charged with a design of producing—it is produced by accidental means." 1 C. J., p. 427. The act which here preceded the death of the insured was the administering of the anesthetic to the patient by her physician. As a result thereof, owing to her hypersusceptibility to this drug, an unforeseen, unexpected and unusual occurrence—death—followed. Clearly, the death was caused by accidental means. Judgment in favor of the beneficiary under the policy was affirmed.—*Wheeler v. Title Guaranty & Casualty Co. of America (Mich.)* 251 N. W. 408.

**Malpractice Liability of Physician for Error of Judgment.**—De Groot sued the defendant-physicians for alleged malpractice in the treatment of his fractured leg. A judgment in favor of the patient was reversed by the Supreme Court of Michigan.<sup>1</sup> A second trial resulted in another judgment for the patient, and the defendant-physicians appealed again to the Supreme Court.

The defendants contended that the trial court erred in permitting a lay witness to testify as to the plaintiff's physical condition. One does not have to be an expert witness, said the Supreme Court, to testify to what one sees and knows. An ordinary witness can describe what he sees and can testify concerning the kind of injury or sickness in others whom he has had occasion to consort with, unless it is something out of the common course of general information and experience or unless the question presented involves medical knowledge beyond the ken of ordinary laymen. On the whole, said the Supreme Court, we are satisfied that the trial judge correctly instructed the jury regarding a physician's liability for error of judgment in choosing between approved methods of treatment. The general rule is stated in 48 C. J. 1128, as follows:

Whether errors of judgment will or will not make a physician or surgeon liable in a given case depends not merely upon the fact that he may be ordinarily skilful but on whether he has treated the case skilfully or has exercised in its treatment such reasonable skill and diligence as is ordinarily exercised in his profession. The exemption from liability does not extend to a case where the error occurs by reason of a physician's lack of the knowledge which he should possess or his failure to exercise proper care, thus a physician is liable for the consequences if the error of judgment is so gross as to be inconsistent with the exercise of that degree of skill and care which it is his duty to apply.

Mortality tables, the Supreme Court said, are properly admitted in evidence.

Judgment in favor of the patient was affirmed.—*De Groot v. Winter (Mich.)*, 251 N. W. 425.

<sup>1</sup> *De Groot v. Winter*, 247 N. W. 69, J. A. M. A. 101:1888 (Dec. 9) 1933.

**Workmen's Compensation Acts Tuberculosis Due to Lowered Resistance Following Injury Compensable**—To be compensable under the workmen's compensation act, says the district court of appeal of California, second district, division 1, tuberculosis need not be due directly to trauma. If an injury causes a depleted and weakened condition of a workman and thus renders him more susceptible to tuberculosis germs than he otherwise would have been, or makes him unable to resist the attacks of germs in his system, then disease resulting from such germs is a natural sequence of the condition resulting from the injury. If death occurs, the injury is the proximate cause of death, the disease is but a link in the chain of causation.

In this case a medical expert called by the claimant testified that the workman died from pulmonary tuberculosis and that in his opinion the predisposing cause of the disease was the workman's lowered resistance that resulted from an industrial injury. The employer and his insurance carrier introduced no direct evidence on this point. The evidence showed, however, that the workman might have contracted tuberculosis without first sustaining an injury and that the theory that lowered resistance caused by the injury was the inducing cause of his tuberculosis was "purely speculative." Nevertheless it was error, according to the district court of appeal, for the industrial accident commission to find that although the workman died from tuberculosis the disease was neither caused nor aggravated by the industrial injury and that the claimant was not entitled to compensation—*Baler v Industrial Accident Commission of California (Calif)*, 27 P (2d) 769.

**Issue of Fraudulent Licenses to Practice as "Unprofessional or Dishonorable Conduct"**—Lentine was licensed in 1929 to practice medicine in Missouri. In March 1930 he pleaded guilty in a criminal action in Illinois, which charged that in 1928 he attempted to aid certain unqualified persons to obtain fraudulently licenses to practice medicine in Illinois. In June 1930 the state board of health of Missouri revoked his license to practice in that state, on a charge that he was guilty of unprofessional and dishonorable conduct and was of bad moral character, based on his criminal activities in Illinois just referred to. The circuit court for the city of St. Louis sustained the action of the board, and Lentine appealed to the Supreme Court of Missouri, division number 1.

The Missouri medical practice act (Revised Stats, 1929, sec 9120) provides, in part, as follows:

The board [the state board of health] may refuse to license individuals of bad moral character or persons guilty of unprofessional or dishonorable conduct, and they may revoke licenses or other rights to practice however derived for like causes. Habitual drunkenness, drug habit or excessive use of narcotics or producing criminal abortion or soliciting patronage by agents shall be deemed unprofessional and dishonorable conduct within the meaning of this section.

Lentine argued that his conduct had not constituted unprofessional or dishonorable conduct within the meaning of the statute. The statute, he urged, by enumerating certain acts as unprofessional and dishonorable conduct restricts the meaning of the term to those acts alone and excludes any and all other acts affecting the practice of medicine, however reprehensible, immoral or unlawful they may be.

The Missouri medical practice act, said the Supreme Court, attempts to secure to the people the services of competent practitioners, learned and skilled in the science of medicine, of good moral character and honorable and reputable in professional conduct. The license granted places the seal of the state's approval on the licensee and certifies to the public that he possesses those qualifications. The legislature, in specifying that habitual drunkenness, the drug habit, the excessive use of narcotics, criminal abortion and soliciting patronage by agents shall be deemed unprofessional and dishonorable conduct did not intend thereby to exclude as grounds for the revocation of a license all other acts, conduct and moral behavior of a physician which by common opinion and fair judgment are found to be in their very nature unprofessional and dishonorable. On a showing of any of the things enumerated in the statute, the board of health, and the court on review, is not called on to determine whether such conduct is or is not such as in common judgment is deemed unprofessional and dishonorable, for the statute has expressly declared them so to be. It would not be practicable, however to specify each

and every act or course of conduct which constitutes bad moral character or unprofessional and dishonorable conduct and as to acts other than those named, the statute operates when they are in their nature and by common opinion unprofessional and dishonorable.

The use of the general terms "bad moral character" and "unprofessional and dishonorable conduct" does not render the medical practice act so uncertain, vague or ambiguous as to be unenforceable. Certainty is required, said the court, that in preferring a charge the licensee shall be informed of the specific acts or course of conduct on his part alleged to be unprofessional and dishonorable or the basis of a charge of bad moral character. After due notice of the revocation proceedings, the question whether or not the acts or conduct charged are such as to constitute unprofessional and dishonorable conduct or render the licensee a person of bad moral character, within the purview of the statute, calls for the exercise of judgment and sound discretion on the part of the board of health. The board must hear and weigh the evidence and pronounce a conclusion. If the board orders the license revoked the licensee may then have the finding and order of the board fully reviewed by the courts.

The order of the board revoking Lentine's license was affirmed—*State ex rel Lentine v State Board of Health (Mo)*, 65 S W (2d) 943.

## Society Proceedings

### COMING MEETINGS

- American Academy of Ophthalmology and Otolaryngology Chicago Sept 9-14 Dr William P Wherry 107 South 17th Street Omaha Executive Secretary
- American Association for the Study of Neoplastic Diseases Washington D C Sept 6-8 Dr Eugene Whitmore 2139 Wyoming Avenue N W Washington D C Secretary
- American Association of Obstetricians Gynecologists and Abdominal Surgeons White Sulphur Springs W Va Sept 6-8 Dr A M Mendenhall 23 East Ohio Street Indianapolis Acting Secretary
- American College of Surgeons Boston Oct 15-19 Dr Franklin H Martin 40 East Erie Street Chicago Director General
- American Congress of Physical Therapy Philadelphia Sept 10-13 Dr Nathan H Palmer 921 Canal Street New Orleans Secretary
- American Hospital Association Philadelphia Sept 24-28 Dr Bert W Caldwell 18 East Division Street Chicago Executive Secretary
- American Public Health Association Pasadena Calif Sept 3-6 Dr Kendall Emerson 50 West 50th Street New York Executive Secretary
- American Roentgen Ray Society Pittsburgh Sept 25-28 Dr Eugene P Pendergrass 3400 Spruce Street Philadelphia Secretary
- Associated Anesthetists of the United States and Canada Boston Oct 15-19 Dr F H McMechan 318 Hotel Westlake Rocky River Ohio Secretary
- Association of Military Surgeons of the United States Carlisle Barracks Pa Oct 8-10 Dr J R Kean Army Medical Museum Washington D C Secretary
- Colorado State Medical Society Colorado Springs Sept 19-22 Mr Harvey T Sethman 537 Republic Bldg Denver Executive Secretary
- Delaware Medical Society of Dover Oct 9-10 Dr William H Speer 917 Washington Street Wilmington Secretary
- Idaho State Medical Association Lewiston Sept 7-8 Dr Harold W Stone 105 North Eighth Street Boise Secretary
- Indiana State Medical Association Indianapolis Oct 9-11 Mr T A Hendricks 23 East Ohio Street Indianapolis Executive Secretary
- Kansas City Southwest Clinical Society Kansas City Mo Oct 1-4 Dr Hugh Wilkinson 750 Minnesota Avenue Kansas City Kan Secretary
- Kentucky State Medical Association, Harlan Oct 14 Dr A T McCormack 532 West Main Street Louisville Secretary
- Michigan State Medical Society Battle Creek Sept 12-14 Dr F C Warnshuis 148 Monroe Avenue Grand Rapids Secretary
- Nevada State Medical Association Reno Sept 21-22 Dr Horace J Brown 120 North Virginia Street Reno Secretary
- New England Surgical Society Burlington Vt Sept 28-29 Dr J M Birnie 14 Chestnut Street Springfield Mass Secretary
- Northern Minnesota Medical Association Brainerd Sept 10-11 Dr Oscar O Larsen Detroit Lakes Secretary
- Ohio State Medical Association Columbus Oct 4-6 Mr Don K Martin 1005 Hartman Theatre Building Columbus Secretary
- Oregon State Medical Society Corvallis Sept 27-29 Dr L Howard Smith Medical Arts Building Portland Secretary
- Pennsylvania Medical Society of the State of Wilkes Barre Oct 1-4 Dr Walter F Donaldson 500 Penn Avenue Pittsburgh Secretary
- Virginia Medical Society of Alexandria Oct 9-11 Miss Agnes V Edwards 1200 East Clay Street Richmond Secretary
- Washington State Medical Association Spokane Sept 10-13 Dr Curtis H Thomson 1305 Fourth Avenue Seattle Secretary
- Western Branch of American Public Health Association Pasadena Calif Sept 3-6 Dr W P Shepard 600 Stockton Street San Francisco Secretary
- Wisconsin State Medical Society of Green Bay Sept 12-14 Mr J G Crownhart 119 East Washington Avenue Madison Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to *THE JOURNAL* in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Cancer, New York

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- Adenomatous or Ameloblastoma of Hypophyseal Duct Region. Case Report. Mary Oliver and E. Scott. Columbus, Ohio.—p. 501.
- Studies on Tumor Metastasis V. Metastases of Carcinoma to Spleen. S. Warren and A. H. Davis. Boston.—p. 517.
- Carcinoma of Hepatic Duct. Report of Additional Case. R. Lampert and Elizabeth M. McFetridge. New Orleans.—p. 534.
- Papillary Cystadenocarcinoma of Pancreas. Case Report with Notes on Classification of Malignant Cystic Tumors of Pancreas. L. Lichtenstein. New York.—p. 542.
- Duration and Extent of Irritation Versus Genetic Constitution in Etiology of Malignant Tumors. M. R. Curtis, W. F. Dunning and T. D. Bullock. New York.—p. 554.
- Malignant Cells of Two Crocker Cysticercus Sarcomas. W. Mendel. New York.—p. 571.
- \*Osteitis Fibrosa of Recklinghausen. Heterotopic Parathyroid Adenoma. Metastases of a Benign Adenomatous Struma and Adenoma of Left Adrenal in Same Patient. H. Bergstrand. Stockholm, Sweden.—p. 581.
- Malignant Tumor of Left Tibial Nerve. H. Bergstrand. Stockholm, Sweden.—p. 585.
- Cutaneous Red Pigmented Tumor (Erythrophoroma) with Metastases in a Flatfish (*Pseudopleuronectes Americanus*). G. M. Smith. New Haven, Conn.—p. 596.
- Adenocarcinoma of Uterus in Rabbit. O. I. Cutler. Loma Linda, Calif.—p. 600.
- Body Temperature and Tumor Growth. W. H. Woglom. New York.—p. 604.
- Studies on Chromium. I. Quantitative Determination of Chromium in Human Tumors. A. Dingwall, R. G. Croson and H. T. Beans. New York.—p. 606.
- A Radium Safe. M. C. Reinhard. Buffalo.—p. 612.
- Lipoid Tumors. C. T. Geschickter. Baltimore.—p. 617.
- Cases Admitted to Pondville Hospital (Massachusetts State Cancer Hospital) During Its First Two Years. Further Report. By the Staff.—p. 642.

**Case of Pluriglandular Neoplasm.**—Bergstrand reports the following case of pluriglandular neoplastic growth. In the left lobe of the thyroid there was a partly calcified, encapsulated adenoma, the size of a plum. There were numerous tumor metastases in both lungs, the largest as big as a pea and with a reddish gray, rather soft cut surface. There was a large tumor metastasis in the pleura between the sixth and the seventh rib. Examination of the fatty thymus revealed in its lowest part, in front of the pericardium, a tumor as big as a pigeon's egg and of an appearance somewhat different from the foregoing metastases. This tumor was brown and soft presenting a smooth glossy surface. On the lesser curvature of the stomach there was a pedunculated polyp. Microscopic examination of the adenoma of the thyroid showed a strictly circumscribed fibrous partly calcified capsule. There was no infiltrative growth in the parenchyma of the gland. The structure of the tumor varied. In some places the alveoli were small and lacked colloid. In some areas this small folliculated parenchyma was of a still less differentiated shape and the tumor cells forming bands and fields were separated by capillaries. The parathyroid struma in front of the heart had an appearance which the author has found in several other cases of von Recklinghausen's osteitis fibrosa. The tissue consisted of large epithelial cells rich in protoplasm and arranged in solid follicles surrounded by capillaries. They contained practically no fat. Some areas were adenomatous, and in these the cells were large with multiple nuclei of varying size. The protoplasm in these cells was eosinophil. Microscopic examination of the suprarenals revealed a small encapsulated adenoma. The chromaffin cells of the medulla stood out sharply blue in preparations stained with hematoxylin and eosin. In the kidneys vast deposits of calcium were in the parenchymal cells and in the interstitial spaces. The metastases in the lungs

were a parenchymatous thyroid adenoma with the tumor cells arranged in bands or small follicles mostly empty. The tumor of the left humerus was uniform and the structure resembled a struma colloid, with large follicles filled with colloid. Slides from different parts of the skull, the spinal column and the tubular bones showed the osteolytic process characteristic of osteitis fibrosa of von Recklinghausen. The haversian canals were much widened and filled with connective tissue and giant cells of the osteoclast type, arranged along the walls in small cavities in the bone. There was no evidence of new bone formation, cysts and giant-cell tumors being absent, and the contents of the major marrow cavities of the bones were unchanged.

#### American Journal of Clinical Pathology, Baltimore

4 321380 (July) 1934

- Role of the Pathologist in Cancer Problem. A. G. Foord. Pasadena, Calif.—p. 321.
- Clinicopathologic Relationship in Common Breast Lesions. F. H. Lamb. Davenport, Iowa.—p. 327.
- Cause of Local Reactions Following Administration of Staphylococcus Bacteriophage. W. C. King, D. A. Boyd Jr. and J. H. Conlin. Ypsilanti, Mich.—p. 336.
- Blood Iodine Studies. IV. Clinical Determination of Iodine in Blood Urine and Feces. F. J. Phillips and G. M. Curtis. Columbus, Ohio.—p. 346.
- Accuracy of Common Hemoglobin Methods. H. L. Alt. Chicago.—p. 354.
- \*Presence of Arsenic in Brain and Its Relation to Pericapillary Hemorrhages or So Called Acute Hemorrhagic Encephalitis. A. E. Osterberg and J. W. Kernohan. Rochester, Minn.—p. 362.
- Blood Dyscrasias. Symptom Complex Rather Than a Disease Entity. B. Markowitz. Bloomington, Ill.—p. 370.

**Arsenic in Brain and Its Relation to Pericapillary Hemorrhages.**—Osterberg and Kernohan point out that the condition known as acute hemorrhagic encephalitis may be due to the administration of organic compounds containing arsenic. The changed appearance of the brain and spinal cord is due to multiple capillary hemorrhages in the white matter of the central nervous system. Chemical determination shows that arsenic is present in this tissue in relatively large amounts. When organically bound arsenic is administered in the treatment of neurosyphilis, it usually is demonstrable in the central nervous system in varying amounts. Inorganic arsenic, when ingested by accident or with suicidal intent, also accumulates in the central nervous system, but it seldom produces hemorrhages. In the presence of an unexplained gross hemorrhage or of multiple petechial hemorrhages in the white matter of the central nervous system, a chemical investigation for arsenic should be carried out.

#### American Journal of Surgery, New York

25 1198 (July) 1934

- \*Glossus Tumor. Clinical Study with Report of Ten Cases. F. E. Adair. New York.—p. 1.
- Disruption of Abdominal Wounds. J. F. Baldwin. Columbus, Ohio.—p. 7.
- Relationship Between Retrocecal Appendix and Lane's Kink and Its Surgical Significance. K. A. Meyer and J. L. Spivack. Chicago.—p. 12.
- Acute Appendicitis in Children. S. McLanahan. Baltimore.—p. 14.
- New Incisional Approach to the Appendix. E. H. Fiske and H. E. Rhame. Brooklyn.—p. 19.
- Modification of the Dawbarn Technique for Dealing with the Appendiceal Stump. F. M. Al-Akl. New York.—p. 26.
- Acute Generalized Suppurative Peritonitis. Treatment by Intra Abdominal Lavage with Ethyl Alcohol (Reduction of Mortality from 50 to 4 per Cent). R. J. Behan. Pittsburgh.—p. 28.
- Acute Mesenteric Lymphadenitis. Clinical Syndrome in Children Simulating Appendicitis. S. L. Goldberg and I. T. Nathanson. Chicago.—p. 35.
- Indications and Operative Technique in Diseases of Stomach and Gall Bladder as Practiced at the Clinic of Professor Schmieden University Frankfurt on Main, Germany. E. Kraas, Frankfurt on Main, Germany.—p. 41.
- Enterostomy with Especial Reference to Operative Technique in Acute Intestinal Obstruction. R. R. Linton. Boston.—p. 55.
- Evaluation of Palliative Operation for Cancer of the Pancreas. F. A. Collier. Ann Arbor, Mich. and J. M. Winfield Jr. Wilmington, Del.—p. 64.
- Primary Duodenitis. F. Cunha. San Francisco.—p. 70.
- Repair of Rectovaginal Fistula. T. H. Bowman. Yonkers, N. Y.—p. 80.
- Some Tumors of the Ovary. L. O. Baumgardner. Cleveland.—p. 82.
- Ovarian Thyroid Tissue Tumor. R. O. Lyday. Greensboro, N. C.—p. 89.
- Carcinoma of the Breast. Statistical Fallacy. A. Gentile. Newport News, Va. D. R. Murphey Jr. and E. P. Lehman. University, Va.—p. 91.



- Relation of Fetal Adenoma to Malignancy of the Thyroid Gland J F Habermel New Albany Ind—p 97
- Carcinoma of the Tongue with Generalized Metastases M Lenz and Edith E Sproul New York—p 102
- Superficial Inflammatory Diseases Treatment by Radiation Therapy Review of One Thousand and Eighteen Consecutive Cases A B Friedman, Brooklyn—p 107
- \*Gas Bacillus Infection Following Clean Amputations T G Orr Kansas City Kan—p 113
- Fractures of the Femoral Shaft Comparative Study of the Present Methods of Treatment D Prey and J M Foster Jr Denver—p 116
- \*Tendon Transplantation in Obstetric Paralysis J B L'Episcopo, Brooklyn—p 122
- Inflammatory Joint Conditions as Affected by Menstruation J T Rugh, Philadelphia—p 126
- Evipan Anesthesia Preliminary Report C S White and J L Collins Washington D C—p 131
- Acacia Solution in Treatment of Surgical Shock Analysis of Three Case Histories R W Good, R Mugrage and R Weiskittel Cincinnati—p 134
- Sterilization of Blowfly Eggs in Culture of Surgical Maggots for Use in Treatment of Pyogenic Infections S W Simmons Washington D C—p 140
- Elimination of Certain Dangers in Treatment of Varicose Veins N J Kilbourne Los Angeles—p 148

**Glomus Tumor**—This tumor is a recent addition to oncology. Adair analyzes ten cases. It occurs frequently beneath the nail and on the hands, arms and legs. In no instance did it occur on the body or the head. Pain is the striking characteristic, produced by the slightest amount of pressure. As a rule the tumor occurred in the later periods of life. The average duration of the tumor was nine years. At first glance the lesion appears to be an intradermal neurofibroma. It is smooth, rounded, elevated and colored from rose to purple. It suggests at times a small hemangioma, but it is a solid tumor. The lesion varies from 4 to 10 mm in diameter. If beneath the nail, it is smaller than when in the skin. In the subungual position the lesions were smaller than when located in other places in which there was no pressure element to change their size and shape. The location, the dark rose color, excruciating tenderness and pain, the size, the solitary nature and the age incidence make diagnosis easy. In only one of the ten cases were there multiple lesions. In eight of the ten cases the lesion was surgically removed and a microscopic study was made. The lesion consists of irregular, tortuous, cavernous blood vessels. The lining endothelial cells are cuboidal and rest on a thin collagenous membrane. Some of the vessels are surrounded by a layer of circular muscle, passing gradually into a zone of "epitheloid" cells. There seems to be no constant or definite relationship between this tumor and the occurrence of any other special type of tumor. The wide variety of lesions accompanying the glomus tumor probably has little or no significance. The lesion is benign. The most satisfactory treatment is surgical extirpation under procaine hydrochloride anesthesia. Eight of the patients obtained immediate relief by this procedure and have remained cured. The best treatment of the lesions in the subungual position is removal of the nail followed by excision of the lesion in the nail bed. Irradiation was employed in one case. To this lesion was applied a square radium plaque of 700 millicurie hours, at 1 cm distance with 3 mm of brass filter. This treatment was later repeated. No visible effect on the lesion resulted from these treatments. The lesion may be radio-resistant. The cases have been traced and examined since treatment for periods varying from three months to eleven years. None have recurred.

**Gas Bacillus Infection**—Orr reviews the literature and describes three additional cases. He found that gas bacillus infection, in what is ordinarily considered clean operative wounds, is rare. Because of the prevalence of gas-producing organisms, the possibility of such infection should be kept in mind. Any sudden postoperative rise in temperature, or unusually severe pain following an operation, should suggest the possibility of beginning gas bacillus gangrene, demanding an immediate examination of the wound. The infecting organism may have its source in infections associated with gangrene and therefore may enter the fresh wound either through the lymphatic circulation or as a direct skin contamination from the gangrenous area. The infecting bacillus of one case undoubtedly was an organism of lower virulence than the average *Bacillus welchii*. At no time was there any alarming

evidence of serious infection in this patient. The mortality rate in the twenty-one collected and reported cases is 71 per cent. This high death rate is probably due to the generally serious condition of this group of patients. It is also possible that there may have been some delay in treatment, since gas gangrene is not usually anticipated when amputations are done through relatively normal tissues. As a therapeutic precaution, it is wise to make anaerobic cultures of all gangrene or ulcerations of the lower extremity when amputation is contemplated. If a positive culture is found, gas bacillus antitoxin should be given before operation.

**Tendon Transplantation in Obstetric Paralysis**—L'Episcopo found that residual deformity in obstetric paralysis is essentially due to contracture of the internal rotators and adductors. Multiplicity of operations devised to correct the resulting deformity proves that no one method is satisfactory. Previous operations have been done only to release contractures. The author presents the following operation, which aims to restore muscle balance at the shoulder between the internal and external rotators. The contracted anterior tissues are released by the Sever technic through the usual medial incision. After the wound is closed a skin incision is made, from 3 or 4 inches long, parallel with the posterior border of the deltoid muscle and long head of the triceps. The incision is carried through the superficial and deep fascia, exposing the deltoid, long head of the triceps and teres major muscles. The long head of the triceps is retracted outward, exposing the tendon of the teres major muscle and the humerus. The tendon is freed at its insertion and detached. The dissection is carried out almost entirely with blunt instruments to avoid injury to important structures. These structures are protected against injury if one keeps close to the teres major tendon throughout the dissection. After the teres tendon has been cut, by inserting a blunt periosteal elevator in front of the tendon and cutting against it, the long head of the triceps is strongly retracted outward, exposing the posterior, lateral aspect of the humerus and the upper part of the origin of the lateral head of the triceps. Then an osteoperiosteal flap is lifted from the shaft of the humerus as close to the short head of the triceps as possible. The tendon of the teres major is buried and sutured under this osteoperiosteal flap and the wound is closed in layers. A plaster-of-paris spica cast is applied with the arm abducted and rotated outward with the forearm flexed and supinated. The new insertion is almost directly opposite the old one and the tendon wraps itself round the humerus from behind laterally instead of from behind medially so that, when the muscle contracts, the humerus must rotate outward instead of inward. The cast is left on for six weeks, then cut open so that it can be used as a splint, and the splint is removed three times a week for massage and gentle passive and active exercises. The splint is discarded three months after the operation, but the exercises and muscle reeducation are continued for at least six months. The author performed this operation on six patients with highly gratifying results.

#### Anatomical Record, Philadelphia

59 273 394 (June 25) 1934

- Anomalous Branches from Aortic Arch and Persistent Vena Cava Superior Sinistra Case B S Hopkins Jr and R W Satterthwaite Baltimore—p 273
- Bone Changes Due to Lathyrism in Rats J J Robinson and T H Bast Madison Wis—p 283
- Hemal Nodes in Man H E Jordan University Va—p 297
- Homology of Presemimembranosus Muscle in Some Rodents J E Hill San Francisco—p 311
- Supracondylar Variation in Human Embryo Julia Lindsay Adams St Louis—p 315
- Distribution and Source of Estrin in Pregnant Mare. H R Catchpole and H H Cole Davis Calif—p 335
- Gonad and Thyroid Stimulating Potencies of Phytone and Hebin A Elizabeth Adams South Hadley Mass—p 349
- Effects of Ultracentrifuging on Golgi Apparatus in Uterine Gland Cells H W Beams and R L King Iowa City—p 363
- Effect of Anterior Lobe Extract or Concentrated Human Urine of Pregnancy on Early Part of Gestation in Rabbit G B Wislocki and L Goodman Boston—p 375
- Some Facts Regarding Growth of Wistar Rat Under Standard Conditions in Britain (Derivative Edinburgh Stock) A M Hain Edinburgh Scotland—p 383
- New Formula for Injecting Cadavers C E Kellner, New York—p 393

## Annals of Surgery, Philadelphia

99 881 1050 (June) 1934

- Factors Leading to Death in Operations on Gallbladder and Bile Ducts  
G J Heuer New York—p 881
- Important Factors in Surgical Treatment of Cholecystitis H F  
Graham and H S Waters, Brooklyn—p 893
- \*Acute Cholecystitis Study of Seventy Five Cases with Subsiding or  
Subsided Clinical Manifestations at Time of Operation A S W  
Touroff New York—p 900
- Perforation of Gallbladder E L Eliason and C W McLaughlin,  
Philadelphia—p 914
- Acute Free Perforation of Gallbladder O W Niemeier Hamilton  
Ont—p 922
- Acute Inflammation of Gallbladder Conservative Operative Treatment  
M Behrend Philadelphia—p 925
- Primary Carcinoma of Common Bile Duct W E Lee Philadelphia  
and H P Totten Los Angeles—p 930
- Roentgenologic Localization of Spinal Subarachnoid Block by Use of  
Air in Subarachnoid Space W P Van Wagenen Rochester, N Y  
—p 939
- Treatment of Tuberculous Empyema Complicated by Pyogenic Infec-  
tion A V S Lambert, New York—p 944
- Skeletal Muscle Sarcoma E M Bick New York—p 949
- Localized Chronic Ulcerative Ileitis A D Bissell Chicago—p 957
- Anterior Hempylectomy for Aberrant Pancreatic Tissue of Duodenum  
Diagnostic Difficulties R R Best and W F Bowers Omaha—  
p 967
- \*Carotid Sinus as Etiologic Factor in Sudden Anesthetic Death T M  
Downs Philadelphia—p 974
- Relation of Postoperative Paralytic Ileus to Mortality in Acute Appendi-  
citis P C Potter New York—p 985
- Femoral Hydrocele J D Rives New Orleans—p 989
- \*Germicidal Effects of Tannic Acid With and Without Addition of  
Mercurial Antiseptics J D Martin Jr and C D Fowler Atlanta,  
Ga—p 993
- Treatment of Varicose Ulcers and Veins G P Pennoyer New York  
—p 997
- Fractures of Lower End of Humerus W Bates Philadelphia—p 1007
- Fractures of Leg Below Lower Third A Walkling Philadelphia—  
p 1009
- Fractures of Shaft of Humerus C M Smyth Jr Philadelphia—  
p 1013

**Acute Cholecystitis**—From a review of 429 operative cases of cholecystitis, Touroff concludes that 1 Acute inflammatory changes may exist in the gallbladder of a patient presenting minimal or absent clinical manifestations at the time of operation. 2 The pathologic changes range from simple acute inflammation to hemorrhagic, suppurative and gangrenous inflammation, empyema, perforation and pericholecystic abscess. 3 In general, the patients presenting minimal manifestations at the time of operation show a considerably higher percentage of advanced and progressive lesions than the patients showing no manifestations at the time of operation. 4 In a selected series of seventy-five cases, 80 per cent of the lesions were considered to be subsiding or capable of subsidence. The remaining 20 per cent were considered to be progressive in nature. 5 It is impossible to determine the exact nature and extent of the inflammatory lesion before operation in any given case. 6 In cases of acute cholecystitis, if subsidence once begun does not proceed uninterruptedly, fairly promptly and completely, early operation is indicated. 7 In cases of acute cholecystitis in which the clinical manifestations have subsided, early operation is indicated.

**The Carotid Sinus and Sudden Anesthetic Death**—Downs describes the occurrence of sudden respiratory failure in nitrogen monoxide and oxygen anesthesia. He states that no yet known factor is responsible for this failure and that heretofore no treatment has been of any avail. Animal experiments are mentioned, in which this sudden arrest of respiration was duplicated by stimulation of the carotid sinuses in various ways. This experimental respiratory failure seemed in all respects comparable to that occurring clinically. He suggests that this accident may be avoided by scrupulous care not to exert pressure on or just behind the angle of the jaw, that the addition of ether vapor to the gas will render the sinus less responsive to any accidental pressure and that if respiratory failure should occur mechanical artificial respiration with a respirator is the treatment that offers the best promise of success.

**Tannic Acid May Convey Bacteria**—Martin and Fowler found that tannic acid of strengths from 1 to 5 per cent are not effective germicides. The 10 and 20 per cent solutions were found to be germicidal within twenty-four hours. Tannic acid itself may be the agent of conveyance of the bacteria as evidenced by the recovery of a number of bacteria other than

the original. The 1, 2 and 5 per cent solutions produced nine contaminations gram-positive spore bacillus, four, gram-positive bacillus, three, gram-positive streptobacillus, one, and gram-positive staphylococcus, one. The 10 and 20 per cent solutions showed no growth on the end plates. Owing to this fact, the only explanation of the large number of growths is that the tannic acid itself carried the bacteria into the plates. It was not deemed necessary to find how much less than twenty-four hours would be required to destroy the bacteria, because in the treatment of burns the solutions are allowed to remain in contact with the denuded areas for much longer periods. According to Seeger, the more concentrated solutions of tannic acid, even the lowest used, are highly astringent and tend to cause swelling and edema of the tissues and too rapid fixation of the tannin. This factor alone would prohibit the use of more concentrated solutions in order to derive its beneficial bactericidal property. Therefore the less harmful antiseptic solutions may be of some benefit, since it was found that in the less concentrated solutions of tannic acid with the antiseptics there was an inhibition of bacterial growth.

## Archives of Pathology, Chicago

18 1156 (July) 1934

- Extramedullary Erythrocytopenia in Man H E Jordan University  
Va—p 1
- \*Chronic Cicatrizing Enteritis Involvement of Cecum and Colon  
J C Donchess and S Warren, Boston—p 22
- \*Hepatic Changes Associated with Decompression of Obstructed Biliary  
Passages H L Stewart and M M Lieber Philadelphia—p 30
- Cytology of Peritoneal Fluid in Partially Hepatectomized Animals  
G M Higgins and L G Montgomery Rochester Minn—p 42
- Phagocytic Behavior of Interstitial Cells of Brain Parenchyma of Adult  
Rabbit Toward Colloidal Solutions and Bacteria R J Lebowich  
Gloversville N Y—p 50

**Cicatrizing Enteritis**—Donchess and Warren report a case of chronic cicatrizing enteritis involving the entire cecum and ascending colon, without any appreciable change on the proximal side of the ileocecal valve other than a moderate degree of hypertrophy of the muscularis produced through partial obstruction at the valve. They believe that the condition apparently developed after appendicitis. The exact etiology is unknown. The recovery of organisms from the lesions would have been without significance, because of the ease with which the ulcerated mucosa could be traversed. The chief importance of this lesion lies in its mimicry of carcinoma. In all probability, apparent cases of certain intestinal cancers may be explained by the fact that a lesion of this nature was mistaken for carcinoma.

**Hepatic Changes Associated with Obstructed Biliary Passages**—Stewart and Lieber observed that, following surgical decompression of an obstructed biliary system, hepatic pigmentation diminishes progressively in patients who survive the immediate effects of the operation, and the hepatic parenchyma tends to return to a normal condition by the recovery of many of the degenerated but still viable hepatic cells and also by regeneration. There is no evidence that hepatic cells arise from the biliary ducts, which rapidly involute following decompression. Lobular expansion subsequent to regeneration of hepatic cells results in compression and condensation of connective tissue at the periphery. The features of regeneration may be minimal or entirely absent in some livers in which the changes are those of a severe acute hepatitis occasionally complicated by hemorrhage and superimposed infection. Disruption of the intralobular architecture with disorganization and dissociation of hepatic cell cords occurs regularly. The necrosis in the inner third of the lobule often extends into the middle and outer thirds or involves the entire lobule, resulting occasionally in acute diffuse necrosis. Many of the focal midzonal and biliary necroses also enlarge and may form abscesses. In addition, the hepatic cells may be atrophied and distorted and at times show cytoplasmic and nuclear vacuolation. The recently regenerated hepatic cells may undergo degeneration and necrosis. The vascular changes include thrombosis, rupture of the sinusoidal reticular walls, hemorrhage, edema of the perivascular tissue spaces and hyperemia, either focal or general throughout the organ. Physical, chemical and infectious factors probably play an etiologic part in the pathogenesis of these lesions.

**Arkansas Medical Society Journal, Fort Smith**

31 27 40 (July) 1934

- Recent Advances in Surgery C S Holt Fort Smith—p 27  
Recent Progress in General Medicine S C Fulmer, Little Rock—p 32

**California and Western Medicine, San Francisco**

41 172 (July) 1934

- Nonorganic Convulsive Disorders of Childhood with Especial Reference to Idiopathic Epilepsy I McQuarrie Minneapolis—p 1  
How Can Psychiatry Progress? C W Mack Livermore—p 8  
Bad Anesthetic Risks Their Management J M Wilson Pasadena—p 12  
Diagnosis Versus Treatment with Reference to Dermatology L F V Wilhelm Los Angeles—p 14  
Ruptured Ectopic Pregnancy L J Tiber, Los Angeles—p 16  
Physiology of Sense Organs Some Recent Advances J M D Olmsted Berkeley—p 20  
Mussel Poisoning W Stegeman Crescent City—p 26  
The Radiologist in the Hospital His Status L S Goin Los Angeles—p 28  
Compulsory Health Insurance F L Hoffman Philadelphia—p 33

**Mussel Poisoning**—During the summer, Stegeman encountered five cases of mussel poisoning in Crescent City. Other cases, some fatal, were reported along the Oregon coast, also for the first time. The first symptoms are generally a feeling of numbness about the mouth and tingling of the hands and feet. Another significant, early complaint is a feeling of "lightness." Generally, recovery is complete and fairly quick. In the fatal cases, death occurs in a relatively few hours from respiratory paralysis. The approved treatment is the rapid elimination of the toxic material by emesis, followed by supportive treatment. Because the toxic material does not generally promote increased peristalsis or diarrhea, purges must be given promptly and in large doses to be effective. However, in view of the rapid absorption of the toxin, the use of cathartics may be questioned owing to the additional shock imposed on the patient. At the first sign of dyspnea, artificial respiration should be resorted to.

**Canadian Public Health Journal, Toronto**

25 255 306 (June) 1934

- Some Public Health Activities and Needs in Ontario J J McCann Renfrew Ont—p 255  
The 1932 Epidemic of Poliomyelitis in Quebec A R Foley Quebec Que—p 260  
Making Ice Cream Safe E Langevin Quebec Que—p 275  
Trachoma Among Indians of Western Canada J J Wall Ottawa Ont—p 279  
Milk Contamination and Methylene Blue Reduction Test H R Thornton N J Strynadka F W Wood and C Ellinger Edmonton Alta—p 284

**Johns Hopkins Hospital Bulletin, Baltimore**

55 184 (July) 1934

- Pneumococcal Lipoid Nephrosis and Relation Between Nephrosis and Nephritis I Clinical and Anatomic Studies S S Blackman Jr Baltimore—p 1  
\*Acid Base Balance of Gastric Juice Blood and Urine Before and at Intervals After Stimulation of Gastric Juice by Histamine L Martin with assistance of E Steigerwald Mary Lee Carroll and M Morgenstern Baltimore—p 57

**Stimulation of Gastric Juice by Histamine**—Martin observed a number of cases in order to estimate the electrolyte changes in the gastric juice, blood and urine during the period of gastric secretion. Histamine was used as a stimulant, and the gastric juice was continuously extracted during the period of observation. The patients were divided into two groups: those who were able to secrete free hydrochloric acid into the gastric juice and those who were not. The amount of salts lost from the body in the first was about four times that lost in the second group. In the blood of the first group the typical changes were a decrease of chloride and phosphate, and an increase of the carbon dioxide content and serum protein. There was a slight rise of total serum base. This represents a state of relative alkalosis. The urine became more alkaline in the majority of cases. Among the anions, chloride and phosphate fell while the carbon dioxide increased. Of the cations, base hydrogen ion concentration and ammonia nitrogen fell. The author describes instances of atypical changes of both blood and urine and advances hypothetical explanations of these changes. In the achlorhydrias the variations in the majority of the cases were similar in kind but different in

degree from those described. The difference in degree consisted of a smaller loss of electrolyte in the gastric juice and correspondingly smaller variations in the blood and the serum. In the initial specimen, certain distinctive differences between the groups were noted. In the second group the carbon dioxide capacity of the serum fell more frequently and the blood chloride rose more often, although the rises were small. In the urine the change of  $pH$  was apt to be less marked and in a larger proportion of cases the urine became more acid or remained unchanged.

**Journal of Allergy, St Louis**

5 439 540 (July) 1934

- Development of Hypersensitiveness in Man I Following Intradermal Injection of Antigen F A Simon and F M Rackemann Boston—p 439  
Id II Absorption of Antigen Through Nasal Mucous Membrane F A Simon and F M Rackemann Boston—p 451  
Ultrafiltration of Ragweed Pollen Extracts W C Spain and J M Newell New York—p 455  
Production in Rabbit of Hypersensitive Reactions to Lens Rabbit Muscle and Low Ragweed Extracts by the Action of Staphylococcus Toxin C J Burky Baltimore—p 466  
Vasomotor Rhinitis with Negative Skin Tests Local Nasal Allergy J A Rudolph and M B Cohen Cleveland—p 476  
Perennial Hay Fever from Indian Gum (Karaya Gum) S S Bullen Rochester N Y—p 484  
Skin Reactions in Infants Susceptibility of the Skin of the New Born to Passive Atopic Sensitization Comparison with Reactions to Histamine T N Carey and L N Gay Baltimore—p 488  
\*Relation of Inspiratory Distention of Lungs to Emphysema M Prinzmetal St Louis—p 493  
Study of the Silk Allergen S J Parlato and Gertrude Swarthout Buffalo—p 505  
Blood Inorganic Phosphorus in Allergy L A Crandall and S M Feinberg Chicago—p 515  
Hypersensitivity to Bees Successfully Treated with Whole Bee Extract Case Report D C Fisher Clarence Center N Y—p 519  
Tricophytin Its Use According to Allergic Principles H J Templeton Oakland Calif—p 521

**Relation of Inspiratory Distention to Emphysema**—Prinzmetal observed that experimental bronchoconstriction in dogs first causes pulmonary distention with increased inspiratory position of the chest, and a more negative intrapleural pressure. In four cases of bronchial asthma the intrapleural pressure was found to be more negative than normal instead of more positive, indicating active pulmonary distention by increased inspiratory effort. The prolonged effect of more negative intrapleural pressure causes distention and stretching of the lungs with probable loss of elasticity. This is the first step in the production of structural emphysema. Thereafter the intrapleural pressure rises and the weakened alveolar walls subjected to further strain rupture and coalesce. Direct experiments show that increased carbon dioxide tension and anoxemia also cause a more negative intrapleural pressure and a mean increased thoracic girth. Anoxemia produced by low oxygen tensions has been shown to produce emphysema in rats. The greater negative intrapleural pressure found in bronchoconstriction may be explained by increased resistance to respiration, carbon dioxide retention and anoxemia resulting from bronchoconstriction.

**Journal of Biological Chemistry, Baltimore**

105 633 816 (July) 1934

- Effect of Variation of  $pH$  on the Process of Heat Denaturation of Egg Albumin B M Hendrix and P S Wharton Galveston Texas—p 633  
Petroleum Ether Constituents and Ether Soluble Constituents of Cranberry Pomace K S Markley and C E Sando Washington D C—p 643  
Effect of Inorganic Salt Intake on Mineral Composition of the Blood V G Heller and H Paul Stillwater Okla—p 655  
Basic Amino Acids of Three Crystalline Mammalian Hemoglobins Further Evidence for a Basic Amino Acid Analogue of Tissue Proteins R J Block New Haven Conn—p 663  
Effect of Dry Heat and Dilute Alkali on Lysine Content of Casein R J Block D B Jones and C E F Gersdorff Washington D C—p 667  
Directive Influences in Biologic Systems IV Further Study of Lipase Actions of Type I Pneumococci Grace McGuire and K G Falk New York—p 669  
Gravimetric Determination of Total Base of Serum and Blood Note Pauline M Hald New Haven Conn—p 675  
Some Enzymes of Solanum Indicum H Tauber and I S Kleiner New York—p 679  
Composition of Proteins of Eggs from Hens on Different Diets H O Calvery and H W Titus—p 683  
Influence of Epinephrine on Chemical Changes in Isolated Frog Muscle A H Hegnauer and Gerty I Cori St Louis—p 691

- Oxidation of Glucose by Air in Presence of Iron Pyrophosphate  
A Goerter, Brooklyn—p 705
- Provitamin D of Cholesterol I Antirachitic Efficacy of Irradiated  
Cholesterol J Waddell with assistance of E L Rohdenburg, New  
Brunswick N J—p 711
- Spectrophotometric Characteristics of Hemoglobins I Beef Blood and  
Muscle Hemoglobins J H Shenk J L Hall and H H King  
Manhattan Kan—p 741
- Id II Hemoglobin of Fowls Dorothea E Klein J L Hall and  
H H King Manhattan Kan—p 753
- Salts of Ergosteryl Sulphate Preparation and Antirachitic Activity  
on Irradiation in Aqueous Medium S Natelson A E Sobel and  
B Kramer, Brooklyn—p 761
- Effect of Insulin on Glucose Chloride Relationship and Anhydremia in  
Blood of Rabbits A S Charkels New York—p 767

### Journal of Bone and Joint Surgery, Boston

16 495 760 (July) 1934

- Leadership in Orthopedic Surgery M S Henderson Rochester Minn  
—p 495
- \*New Radical Operation for Pott's Disease Report of Ten Cases  
H Ito J Tsuchiya Kyoto Japan and G Asami Ube Japan—p  
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- Acetabular Decompensation L K Cravener, Schenectady N Y  
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- Traumatic Dislocation of Hip (Head of Femur) into Scrotum A G  
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- Operation for Bilateral Osteo-Arthritis of Hip H Goldberg Louis  
ville Ky—p 721

**Operation for Pott's Disease**—Ito and his associates outline incisions and operative procedures for Pott's disease involving the lumbar vertebrae below and including the second (pararectal incision with extraperitoneal approach), for resection of the body of the twelfth dorsal or first lumbar vertebra (oblique incision, similar to that of Bergmann's for nephrectomy) and a preliminary costotransversectomy for resecting the body of a dorsal vertebra. They believe that in performing a radical operation it is not only necessary to be thorough in curettage but also the eburnated bony tissue of the immediate vicinity must be chiseled off as this maneuver definitely favors the subsequent regeneration of bone. A complicating cold abscess heals by mere aspiration of its contents and obliteration of its communication with the original focus. In a

series of experiments on rabbits the authors proved that, when autotransplantation of bone is made into the place of a resected body of vertebra, a new bone is formed on the line of contact between the healthy vertebra and the transplant, the transplant itself grows by proliferation of its own tissue and a weight of 20 Kg is easily withstood by the transplanted segment of the spine. A defect in the body of the vertebra caused by resection may be repaired either by an operation after the method of Albee or by direct transplantation of a piece of the patient's own tibia or rib, without subsequent disturbance of weight-bearing function, as shown by the fact that a kyphosis does not develop and that no increase of a preexisting kyphosis occurs. Of the ten cases in which they employed their technic of radical operation on the vertebrae, all except two cases showed healing by first intention. In one of the two cases, in which a fistula had developed, its spontaneous closure occurred quite early and the patient was discharged in a satisfactory condition a month after operation by the Albee method. In the other case, discharge from the sinus has greatly diminished and there is evidence to indicate its spontaneous healing in the near future.

**Transverse Fractures of Neck of Radius**—Patterson describes a method of operative removal of the head of the radius in children applicable only to complete fractures of the neck, or that portion of the radius between the head and the insertion of the biceps, with displacement, and possibly to epiphyseal separation. The annular or orbicular ligament must be intact. An assistant grasps the arm and fixes the humerus placing one hand against the inner condyle to act as a fulcrum for leverage. Another assistant uses traction on the arm and forces the forearm inward until the carrying angle is obliterated. He also supinates the forearm to relax the supinators. The position is checked by roentgenograms and if the fracture has been reduced, a cast is applied with the arm in complete extension. The cast is worn two weeks and then removed, following which physical therapy is instituted. The elasticity of the ligaments and other joint structures in children enables one to revolve the forearm inward on a vertical axis passing through the inner condyle. The method has been used in two instances with satisfactory reduction.

### Journal of Lab and Clinical Medicine, St Louis

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- Friedman Rabbit Ovulation Test in Differential Obstetric Diagnosis  
A G King New Orleans—p 1033
- Relationship Between Coronary Blood Supply to Experimentally Pro  
duced Ventricular Lesions and Resulting Electrocardiographic Altera  
tions D I Abramson J H Crawford and G H Roberts  
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- Effect of Hyperpyrexia on the Phosphorus Partition of Whole Blood in  
Paresis D Sackett and A W Turner Elgin Ill—p 1045
- Spinal Fluid Sugar Determinations in Experimental Hypoglycemia of  
Dogs R Davis and H Brown Philadelphia—p 1049
- Blood Lipase in Patients with Peptic Ulcer Its Relation to Hepatic and  
Pancreatic Disease F H Jergesen and J P Simonds Chicago  
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- Carcinoma of Pancreas F K Hick and H M Mortimer Chicago  
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- \*Use of Synthaline in Diabetes Mellitus L K Campbell Chicago  
—p 1067
- Basal Metabolism of Old People Y Kise and T Ochi Tokyo, Japan  
—p 1073
- Blood Picture in Oral Infection H H Peterson and J L T Apple  
ton Jr Philadelphia—p 1079
- Effect of Various Colloidal and Crystalloidal Metallic Compounds in  
Nutritional Anemia of Rat H L Keil and V E Nelson Ames,  
Iowa—p 1083
- Experiments in Use of Mineral Water in Management of Diabetes  
Mellitus L K Campbell Chicago—p 1088
- Dynamic Consequences of Auriculo-pericardial Fistula H Landt and  
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- Typhoid Like Infection Associated with an Organism Resembling  
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- Improvised Bacteriologic Incubator R A Hankey, Butler Ind  
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- Determination of the pH of Normal and Malignant Tissues with Glass  
Electrode and Vacuum Tube Null Indicator H M Partridge,  
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- Recording Electrodynamical Brake Bicycle Ergometer L E A Kelso  
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- Tryptophan Content of Blood Serum New Technic A T Brice Jr  
Palo Alto Calif—p 1113
- Combination Condensing and Receiving Vessel R A Greene and  
R R Roehm Tucson Ariz—p 1116
- Dog Operating Table R A Cutting New Orleans—p 1117

- \*Estimation of Plasma Bilirubin Comparative Study of van den Bergh and Thannhauser and Andersen Procedures E H Bensley, Montreal—p 1122  
Method of Preparing Duodenal Pouches for Use in Experimental Work F C Hill I Neigus and C M Wilhelmj Omaha—p 1126  
\*Reticulocytes E E Osgood and Mable M Wilhelm, Portland, Ore—p 1129  
Small Animal Metabolism Cage S E Owen Hines Ill—p 1135

**Decamethylene Diguandine in Diabetes Mellitus**—Campbell states that the daily administration of 0.025 Gm of decamethylene diguanidine (synthaline) by mouth produced a well defined reduction in the urinary dextrose excretion in a diabetic patient. The maximal effect or complete desugarization of the urine was not reached until the fourth day of administration with 30 units of insulin daily and not until the sixth day without insulin. The failure of the level of urinary dextrose excretion to return in the after period to that of the fore period in the first instance was probably due to a return of the natural tolerance of the patient, brought on by the period of desugarization. This was less evident in the second instance, for the dextrose excretion level in the second after period almost reached that of the fore period. Because of the toxic effect on the liver reported by other investigators, the use of decamethylene diguanidine was discontinued.

**Estimation of Plasma Bilirubin**—Bensley made 100 determinations of the bilirubin content of blood by the van den Bergh and the Thannhauser and Andersen methods in cases with "direct" bilirubin. Both methods were used in each case and determinations were made simultaneously. In subsiding jaundice, the values obtained by the van den Bergh technic are not even approximately correct, loss of bilirubin may be as much as 60 per cent or more. In such cases, therefore, the Thannhauser and Andersen procedure is indispensable. In all other cases, however, including latent jaundice, the van den Bergh technic, although not strictly quantitative, is sufficiently quantitative for clinical purposes.

**Method for Staining Reticulocytes**—The study of Osgood and Wilhelm of methods for reticulocyte staining showed a great number of different technics giving variant results. The following is the most satisfactory technic for staining and counting reticulocytes. Equal parts (5 drops) of oxalated venous or capillary blood and 1 per cent of brilliant cresyl blue in 0.85 per cent sodium chloride solution are mixed in a small test tube. This is allowed to stand at least one minute, it is mixed, and thin smears are made, which are dried in the air as usual. These smears may be counted at any time within twenty-four hours, but if a permanent preparation is desired they should be counterstained with Wright's stain by the usual technic. The brilliant cresyl blue solution keeps well but should be filtered if debris appears on the slide. An area is selected on the slide which contains from 50 to 75 red cells per oil immersion field. All the cells are counted and all the reticulocytes in as many adjacent fields as is necessary to give a total of 500 red cells if the count is more than 5 per cent, or 1,000 red cells if the count is less than 5 per cent. With this method a count of 23.6 per cent was obtained in the blood which gave 17.6 per cent with the best method previously studied.

### Maine Medical Journal, Portland

25 117 140 (June) 1934

- Hypertension and Kidney Disease E R Blaisdell Portland—p 119  
Analysis of Cancer Work in Four Kennebec County Hospitals for a Two-Year Period E H Risley Waterville—p 124  
Analysis of Forty Three Cases of Cancer Treated at the Augusta General Hospital During the Years 1932 1933 V T Lathbury Augusta—p 127  
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Analysis of Cancer Cases at Sisters Hospital During Years 1932 1933 L A Guite Waterville—p 131

### Military Surgeon, Washington, D C

74 281 334 (June) 1934

- Value of Studies in Health and Sanitation in War Planning P W Gibson—p 281  
March Casualties Due to Heat Exhaustion Suggested Cause and Treatment H A Brodtkin—p 292  
Amputations in the Aged for Gangrene H M Williamson—p 298  
Pellagra in a Soldier Case Report H E Fraser—p 302

### Puerto Rico J Pub Health & Trop Med, San Juan

9 365 504 (June) 1934

- Pathogenesis of Chronic Ulcerative Pulmonary Tuberculosis E R Long Philadelphia—p 365  
Edema and Its Treatment R F Loeb New York—p 392  
Principles and Theories of Anthelmintic Medication M C Hall Washington D C—p 418  
Studies on Schistosomiasis Mansoni in Puerto Rico II Epidemiology and Geographic Distribution of Schistosomiasis Mansoni in Puerto Rico Survey of Intestinal Parasites in Endemic Schistosomiasis Areas in Puerto Rico E C Faust, W A Hoffman, C A Jones and J L Janer New Orleans—p 447  
\*Paragonimus Westermani Report of Case Presenting Abdominal Involvement Z Bercovitz, Pyengyang Chosen, and J M Rogers Soonchun Chosen—p 492

**Paragonimus Westermani**—Bercovitz and Rogers report a case of abdominal involvement in a patient with lung fluke (*Paragonimus westermani*). The ova, unevenly distributed, were found in the lymphoid tissue and lymph sinuses but not in any of the blood vessels of nodules removed from the mesentery and parietal peritoneum. Surrounding each group of ova there was evidence of cloudy swelling and hyperplasia of the endothelial cells. Degeneration of the nuclei took place in the nodules surrounded by the clustering ova. No adult worms were found in any of the tissues. The clinical impression was that of a generalized malignant condition of the abdomen.

### Radiology, Syracuse, N Y

23 1130 (July) 1934

- Infectious Granulomas of Bones and Joints with Especial Reference to Coccidioid Granuloma R A Carter Los Angeles—p 1  
Lymphoblastoma Generalized Disease G W Holmes Boston—p 17  
Standard Ionization Chamber for Grenz Rays L S Taylor and C F Stoneburner, Washington D C—p 22  
Cholecystography with Tetraiodophenolphthalein by Mouth Experience with Regard to Success and Untoward Reactions R R Newell and E Leef San Francisco—p 31  
Physiology of Gallbladder Cholecystography Shows No Psychic Emptying E Leef San Francisco—p 35  
Roentgen Ray Burns Report of Nine Cases from University Hospital Philadelphia 1907 to 1933 G S Zugsmith Pittsburgh—p 36  
Roentgenologic Consideration of Arthritides L J Gelber Newark N J and S Goldberg Belleville N J—p 45  
Animal Experiments with Colloidal Thorium Study in Lymphatic Absorption R Pomeranz Newark N J—p 51  
Gas X Ray Tube for Irradiation with Soft X Rays H Kersten Cincinnati—p 60  
Exponential Law of Tissue Recovery Applied to Radium and Radon Dosage M M D Williams Peiping China—p 64  
X Ray Therapy of Carcinoma of Lip and Skin W E Howes Brooklyn—p 71  
Objective Otologic Roentgen Stereoscopy and Its Significance for Roentgen Diagnosis of Diseases of Mastoid Process C E Koch Cologne Germany translation by H A Jarre Detroit—p 75  
Roentgen Findings in Small Stomach Lesions Compared with Intragastric Photographs of Living Subject P E Thal Chicago—p 80  
Effect of Roentgen Ray Exposures of Cerebral Cortex on Activity of Cerebral Hemispheres M I Nemenow Leningrad U S S R—p 86  
Effect of Roentgen Rays on Brain M I Nemenow Leningrad U S S R—p 94  
\*New Method for Radiographic Exploration of Mediastinum and Concealed Portions of Pulmonary Fields P M Andrus London Canada—p 97

**Roentgenographic Exploration of Mediastinum**—Andrus outlines a method for exploring the mediastinum and concealed portions of the pulmonary fields, by the employment of which glandular masses are frequently visible which are not seen in tube-centered or the conventional oblique exposures. Their position in relation to the trachea or main stem bronchi is also apparent. Such visualization depends on the presence of calcium, because of the density of the vascular structures with which they are contrasted. Complete calcification is not necessary, as scattered lime may indicate the presence of caseo-calcareous deposits. It would seem that an improved visualization of the occurrence, extent and relationships of the glands in the region of the tracheal bifurcation can be expected to constitute an important advance, especially in the study of tuberculous infection in children. The author suggests off-centered thoracic exposures for the roentgenography of the concealed portions of the pulmonary fields and the region of the tracheal bifurcation, in anticipation of a more widespread experience than is possible in a single center, determining whether the procedure has anything of importance to add to medical methods.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Radiology, London

7 257 320 (May) 1934

- Pneumoconiosis Part I Silicosis J F Bromley —p 263  
Id Part II Pulmonary Asbestos W B Wood —p 277  
Id Part III Pulmonary Asbestosis P Ellman —p 281  
Effect of  $\gamma$  Rays and Gamma Rays on the Indophenol Oxidase R E Havard —p 296

## British Medical Journal, London

2 148 (July 7) 1934

- Presacral Nerve Its Anatomy, Physiology, Pathology and Surgery A A Davis —p 1  
Thyroid Adenoma S W Patterson —p 6  
Severe Menorrhagia Due to Chronic Thrombocytopenic Purpura Cured by Splenectomy S J Hartfall and C Oldfield —p 8  
Weil's Disease Among Sewer Workers in London N H Fairley —p 10  
Spirochetal Hemorrhagic Jaundice (Weil's Disease) Case W G Willoughby and A G Shera —p 14  
Pulmonary Tuberculosis After Sunbaths A Hope Gosse and G S Erwin —p 15

**Pulmonary Tuberculosis Following Sunbaths**—Gosse and Erwin made a study of the relation, if any, between sunbathing and pulmonary tuberculosis. Careful inquiry in each case elicited the fact that, out of sixty-six cases of pulmonary tuberculosis admitted to the hospital between August and December 1933, the onset or exacerbation of symptoms in eleven cases followed sunbathing. The age incidence ranged between 19 and 33, years common to sunbathing and to the production of the exudative type of the disease, which was the one present in the eleven cases on roentgen appearances. Although there was a considerable proportion of the fibroid type of disease among the other fifty-five patients, each one of them denied indulging in sunbathing during the summer, and an absence of sun pigmentation supported their statements as far as it could. The fibroid type was present in some patients whose age was greater than the average of sunbathers, and in others who had passed the exudative stage. Many of these patients had a long history of tuberculosis and had been deliberately warned by their doctors against the danger of sunbathing. That the abnormal exposure of the usually covered skin surfaces to the action of the sun's rays aggravates the development of pulmonary tuberculosis is a conclusion suggested by these eleven cases. The authors believe that this new social custom has elements of danger if indulged in extensively and indiscriminately. The exact manner in which sunbathing may aggravate tuberculosis is not understood, that is, whether long sunbaths raise the body temperature in healthy young adults or possibly only in those in a hyperallergic state. For the latter possibility there is some support in the fact that several patients showed an immediate reaction in the form of malaise and sweats, as well as a delayed reaction from some weeks to three or four months later in the more dramatic form of hemoptysis among other symptoms.

## East African Medical Journal, Nairobi

11 73 104 (June) 1934

- Some Considerations on Diagnosis in Leprosy and on Treatment of Lepers T B Welch —p 76  
Immunization Against Trypanosomiasis S C Schilling H Schreck H Neumann and H Kunert —p 83  
Investigation into Certain Cases of Edema Occurring Among Kikuyu Children and Adults R U Gillan —p 88

## International Journal of Psycho-Analysis, London

15 117 386 (April July) 1934

- Fate of Ego in Analytic Therapy R Sterba —p 117  
Nature of Therapeutic Action of Psychoanalysis J Strachey —p 127  
Oral Erotism in Paraphrenia Facts and Theories A J W Holstijn —p 160  
Infectious Parapraxes A Szalai —p 187  
Prophetic Dreams H Zulliger —p 191  
Analysis of Psychotics P Federn —p 209  
Psychoanalysis of the Uncanny E Bergler —p 215  
Play Analysis of a Three Year Old Girl Melitta Schnudeberg —p 245  
Elié Wetschnikoff and His Theory of an Instinct de la Mort A L Cochrane —p 265  
Depersonalization in Relation to Erotization of Thought C P Oberndorf New York —p 271

## Journal of Pathology and Bacteriology, Edinburgh

39 1 254 (July) 1934

- Nephrosis or Nephritis? J S Dunn —p 1  
Neurogenic Tumors of Sympathetic System in Children J W S Blacklock —p 27  
\*Lympho-Epithelioma of Nasopharynx and Tonsils D F Cappell —p 49  
Experimental Infection with *Trypanosoma Congolense* in Mice Effect of Splenectomy C H Browning D F Cappell and R Gulbransen —p 65  
Prophylaxis of Experimental Trypanosome Infections by Chemotherapeutic Agents C H Browning and R Gulbransen —p 75  
\*Sarcoma of the Spleen J W McNee —p 83  
Observations on Bactericidal Properties of Leukocytes and Blood Platelets, with Particular Reference to Their Action in Presence of Normal Serum T J Mackie C E Van Rooyen and M H Finkelstein —p 89  
Degeneration of Lateral Geniculate Bodies Contribution to Pathology of Visual Pathways Ivy Mackenzie —p 113  
Study of a Luminous Organism in Relation to Nutrition on Agar J Cruickshank —p 141  
Qualitative Difference Between Syphilitic and Nonsyphilitic Human Serum in Syphilis Flocculation Test Physicochemical Study of Sachs Georgi Reaction E M Dunlop and S Sugden —p 149  
\*Observations on Bacterial Capsules as Demonstrated by a Simple Method J W Howie and J Kirkpatrick —p 165  
Epithelial Cysts of Renal Pelvis, Ureter and Bladder G H Wilson —p 171  
Mixed Tumor (Renal Blastocytoma) of the Parovarium J S Young and C G Lowry —p 179  
Blood Changes in Rats and Mice After Splenectomy with Observations on Bartonella Muris and Eperythrozoon Coccoides J A W McCluskie and Janet S F Niven —p 185  
Is Fatty Degeneration of the Heart Muscle a Phanerosis? J H Dible —p 197  
Observations on the Incidence of Malignant Disease in South African Natives A S Strachan —p 209  
Conversion of Glycogen of the Vagina into Lactic Acid R Cruickshank —p 213  
\*Cultivation of Gonococcus as a Method in Diagnosis of Gonorrhea with Especial Reference to Oxidase Reaction and to Value of Air Reinforced in Its Carbon Dioxide Content J W McLeod, J C Coates F C Hapgood D P Priestley and B Wheatley —p 221  
Pulmonary Fibrosis of Hematite Miners M J Stewart and J S Faulds —p 233

**Lympho-Epithelioma of Nasopharynx and Tonsils**—Cappell studied twelve cases of malignant disease of the nasopharynx, tonsils and pharynx and believes that they are of epithelial origin, arising from the specialized epithelium of the pharyngeal lymphoid tissues. He emphasizes the value of silver impregnation of the reticulum as a means of demonstrating the structure of such growths. These tumors show distinctive clinical and pathologic features and may justifiably be separated from other neoplasms under the name of "lympho epithelioma." Two main types of histologic structures have been recognized, one corresponding to the classic lympho-epithelioma of Regaud and the other to the lympho epithelioma of Schmincke. It is shown that these are not different types of neoplasm but represent merely quantitative differences in the mode of growth and spread of the tumor cells. Evidence for regarding transitional cell carcinoma of the nasopharynx and the tonsil as a different form of neoplasm from lympho epithelioma is not definitely established in the present observations and it is believed that the two are at least closely related. Lympho-epitheliomas are highly radiosensitive and the value of radiation therapy in contrast to surgical excision is clearly demonstrated in the present series of cases.

**Sarcoma of the Spleen**—The spleens removed by McNee from two patients represented two types of the same variety of primary lymphosarcoma of the spleen, arising from the lymphoid malpighian bodies, as indicated with certainty by the recognition of a central arteriole in many nodules of the growth. In the first patient there were no obvious metastases at the time of the operation, but now, four years later, a mass of uncertain nature is present in the left side of the abdomen. In the second patient the lymph nodes of the groins were enlarged and invaded by growth of the same histologic structure for more than a year before splenectomy was performed. No further secondary growths were observed during the operation and no necropsy was held. Two spleens apparently identical with the author's first case have been recorded, one by Forx and Roemmele and one by Ross. This is the type which Paraf and Abaza, speaking of the case reported by Forx and Roemmele describe as "splenome nodulaire" in contrast to the far more numerous examples of "splenome massif" in which the spleen contains a single large mass, or several masses, of



**lymphosarcomatous growth** The term "splenome" is obviously used in an entirely general sense. The second spleen described here would appear to occupy an intermediate place, but approaching more the first than the second category of Paraf and Abaza. Ross regards the essential pathologic change as a progressive hyperplasia of the follicular reticulum cells—a lymphoid reticulosis rather than a true tumor growth. In view of the abundant mitotic figures exhibited in the cells of both cases, and of the certainty of growth of the same kind at a distance in one case and the possibility of secondary growth in the other, the author prefers to regard the whole process as a true tumor rather than as any form of hyperplasia. Since it is evident that in these cases metastatic spread is uncommon, the correct treatment would seem to be removal of the spleen provided a correct diagnosis can be made.

**Demonstration of Bacterial Capsules**—According to Howie and Kirkpatrick, a simple and reliable method for the demonstration of bacterial capsules consists in adding to a loopful of exudate or of culture suspended in broth on a microscope slide a drop of dilute phenolphthalein, followed by a drop of a 5 to 10 per cent solution of eosin and then making films. The bacterial bodies are positively stained and the capsules are seen by "relief staining." Suspending capsulated organisms in water hinders or completely prevents the demonstration of the capsules but does not destroy the latter. Capsules and bacterial bodies can still be demonstrated in cultures of pneumococci cleared by the addition of bile salt.

**Cultivation of the Gonococcus**—McLeod and his collaborators maintain that cultural demonstration of the gonococcus is superior to demonstration by the examination of smears in chronic cases of gonorrhea in both sexes, and in all cases in the female, especially when material for examination is taken from the cervix. There is, however, a residue of cases positive in smear and negative in culture which with the methods at present available is larger than can be explained by false positives. A small proportion of false positives is undoubtedly recorded if diagnosis is determined by microscopic examination of gram-stained smear preparations only. Culture of many strains of gonococcus is promoted by incubation in air containing 8 per cent carbon dioxide. The recognition of gonococcus colonies in culture is greatly facilitated by the use of the direct oxydase reaction, and the employment of this reaction results in a marked economy of time.

### Journal of State Medicine, London

42 373 434 (July) 1934

- Role of the Medical Practitioner in the Care of the Mother Lady Barrett—p 409  
Tuberculosis from a Layman's Point of View Lady Suffield—p 415  
Disease and National Disaster Traceable to Vegetable Sources T Oliver—p 418  
Problems of the Slums C K Millard—p 426

### Journal of Tropical Medicine and Hygiene, London

37 193 208 (July 2) 1934

- \*Melanoprecipitation Serologic Reaction in Malaria Note E D W Greig C E Van Rooyen and E B Hendry—p 193  
Effects of a Prolonged Drought on Disease Carriers F G Cawston—p 195  
Pellagra in Sudan N L Corkill—p 196

**Melanoprecipitation Reaction in Malaria**—Greig and his associates investigated Henry's melanoflocculation reaction in malaria. Melanin pigment extracted from human hair by hydrolysis with hydrochloric acid and dialysis through a celloidion membrane has been found to give more satisfactory results than the use of crude aqueous suspensions of ox choroid membrane. By their technic it is possible to obtain a quantitative estimation of the reaction property of malarial serum with melanin pigment. The appearance, the rise and the fall of this property during the course of an illness have been accurately traced by the induction of benign tertian malarial infection in selected persons. The nonantigenic properties of melanin pigment and the low thermolability point (55 C for half an hour) of the reacting power in positive malarial serum have been demonstrated. As evidence of the fact that the reaction is due to the presence of melanin pigment and not to any other, an analogous reaction has been shown to occur between dioxyphenylalanine, the precursor of melanin and

malarial serums. The authors suggest the term melanoprecipitation reaction as a suitable name for the phenomenon. Their procedure consists of a row of ten Wassermann tubes laid out on a rack with a corresponding row of narrow agglutinating tubes opposite them. To each of the Wassermann tubes 0.4 cc of distilled water is added, and in the first tube 0.4 cc of the patient's serum is placed. From the first tube 0.4 cc of 1:2 dilution of serum present there is withdrawn and added to the second tube, from which in turn is withdrawn the same amount, and the process repeated until the ninth tube is reached, from which 0.4 cc is removed and discarded. With a pipet, 0.4 cc of melanin is added to all the ten tubes. The 1 cc measuring pipet is discarded and a Pasteur quill tube is substituted, with which mixtures are transferred from the Wassermann tubes to the narrow agglutinating tubes, commencing with the tenth one and working backward. The ultimate dilutions of patients' serum are thus 1:4, 1:8, 1:16, 1:32, 1:64, 1:128, 1:256, 1:512 and 1:1,024, respectively, the control tube (the tenth) containing melanin solution plus distilled water. The entire series should on examination be clear and transparent in appearance with no trace of particles in suspension, it is now incubated at 37 C for five hours and the results are read at the end of that time.

### Lancet, London

1 1377 1428 (June 30) 1934

- Functional Efficiency and Body Build in the Young Male Adult H A Treadgold—p 1377  
Incidence of Human and Bovine Bacilli in Tuberculous Meningitis A S Griffiths—p 1382  
\*Pellagra in Sudanese Millet Eaters N L Corkill—p 1387  
Practical Treatment of Rickets in Children J R W Hay—p 1390

**Pellagra in Millet Eaters**—Corkill observed a pellagrous condition in 103 members of a tribe in Sudan, due no doubt to millet. Certain physical signs were "sulphur-flake" sebaceous dysfunction on the forehead, wings of the nose, cheeks and chin; a stomatitis characterized by the pronounced impression, as if in wax, of the lateral aspects of the closed rows of teeth on the mucous membranes of the cheeks; glossitis of various forms; blueness or blackness of the gums in patches or to complete involvement and in certain subjects a deepening of the natural pigmentation on the forehead and cheeks. The most common subjective symptom was a burning pain in the hands, feet, head and interscapular region. This pain came at night or on going into the shade after being in the sun. It came daily in the hot dry season. In the rainy season it disappeared. Some subjects got it at seasons other than the hot dry season if they worked hard. The pain was often associated with swelling of the skin followed by desquamation. Other common symptoms were a gnawing or "hot" pain in the epigastrium, weakness, wasting, flatulence, vomiting, diarrhea, pains in the joints, lumbago, formication, vertigo, sleep dysfunction and mental disorder. The author suggests a new theory of the causation and nature of pellagra in that 1. The fundamental condition is a lack of cholesterol and vitamin A and D in the food, lack of vitamin C being a contributory factor. 2. Pellagra is largely allergic, and the evils resulting from cholesterol and vitamin deficiency contribute to the syndrome, as do also cereal toxin effects. 3. Pigmentation is protective against the actinic and tactile traumas affecting the skin of pellagrins. 4. Vitamin D, and not the hypothetical water soluble vitamin B, is the antidermatitis vitamin.

2 162 (July 7) 1934

- \*Principles of X-Ray Therapy of Malignant Diseases H Coutard—p 1  
The Dangerous Multipara B Solomons—p 8  
Observations on Rosacea S Shone and G P B Whitwell—p 11  
Psychologic Effects of Bodily Illness in Children D Forsyth—p 15  
Tuberculosis of Central Nervous System in Children Apparent Clinical Recovery Three Cases Agnes R Macgregor H J R Kirkpatrick and W S Craig—p 18  
Cyclopropane Anesthesia in Obstetrics W Bourne—p 20

**Roentgen Therapy of Malignant Diseases**—Coutard points out that the two principal factors in roentgen therapy are the energy and the time. They must be considered in their relation to the cancer cells and to the vasculoconnective tissue and the general tissues of the site from which the cancer is developing. In the course of treatment the principal guides should be the roentgen reactions of the vasculoconnective tissue of the covering epithelium and of the cancer cells. When one

is irradiating a small cancer, embryonic in type, the treatment can be completed in a short time, about twenty days, the epithelial roentgen reactions may be relatively intense, on condition always that their duration never exceeds fifteen days. When one is irradiating a cancer less embryonic in type, the treatment should be of longer duration, and the epithelial roentgen reactions should be slight. When an extensive cancer is being irradiated through fields of large dimension, as in the case of cancer of the uterus, the treatments should be forty days as a minimum, the cutaneous roentgen epidermitis should not be exudative and the roentgen epithelitis of the vaginal, intestinal or vesical mucosa ought to be slight. Symptoms, even temporary, of cystitis, proctitis or enteritis should be avoided. The question of energy—cancericidal dose—is essential in the treatment of an undifferentiated embryonic, roentgen sensitive cancer, and it is more important than the question of time. The energy seems to be directly destructive, the chronology is, above all, protective, since it allows the preservation of the supporting tissues in order to avoid accidents. The question of time is more important than the question of energy in the treatment of a differentiated roentgen resistant cancer. The energy should not provoke a destructive effect. Owing to a slow chronology and to weak daily doses, the disappearance of the cancer cells seems to follow a cellular evolution resembling the normal evolution. In determining the longer duration of treatment, one should aim at the perfect preservation of the supporting tissues so that the evolution effect may become possible.

### Medical Journal of Australia, Sydney

1 707 738 (June 2) 1934

- Low Backache from the Orthopedic Point of View E B M Vance —p 707  
Role of Surgery in Carcinoma of Buccal Cavity H S Stacy —p 712  
Cancer of Lip L M McKillop —p 717  
Epithelioma of the Lip Analysis of Cases E M Fisher —p 720  
Epithelioma of the Lip and Associated Glands I B Jose and H A McCoy —p 721

1 739 766 (June 9) 1934

- Some Activities of a Mental Hospital Laboratory During Thirty Years O Latham —p 739  
Treatment of Suppuration in Bones and Joints A V Meehan —p 748  
Treatment of Cancer of Lip by X-Rays E H Molesworth —p 752

1 767 796 (June 16) 1934

- Some Activities of a Mental Hospital Laboratory During Thirty Years Epiblastic Tumors O Latham —p 767  
Treatment of Carcinoma of the Bladder and Prostate by Radium Implantation R J Silvertown —p 776

1 797 828 (June 23) 1934

- Some Activities of a Mental Hospital Laboratory During Thirty Years Pathology of Divers Mental States O Latham —p 797  
Obesity E H Stokes —p 804

**Treatment of Cancer of the Lip by X-Rays**—When not more than half the depth of the lip from the edge to the reflexion of the mucous membrane to the alveolus is involved, Molesworth employs the following procedure. The lip is everted and fixed with strapping. After this a dose of 700 roentgens of the quality 120 kilovolts constant potential, with 1 mm of aluminum filter, is delivered to the inner surface of the lip over a semicircle, 1 cc of apparently normal mucous membrane being allowed to come into the beam. Of this approximately 500 roentgens survives at the opposite (skin) surface of the lip. Then the lip is allowed to fall back into normal position and a similar dose is delivered to the skin surface over a similar area, a piece of lead rubber being placed between the lip and the teeth and alveolus. This brings the dose at each surface to 1,200 roentgens and the distribution throughout the lip is quite even. A dusky red reaction with some exudation occurs on the surface of the skin and there is frank erosion on the mucous surface. This begins about eight days after irradiation and lasts for three weeks. Thereafter the improvement is rapid and at the end of ten weeks the lip is well with no remaining infiltration. In the author's fifty cases in which he used the foregoing technic the tumor has disappeared. There were two recurrences—marginal in each case and due to failure to expose a sufficiently wide margin of apparently healthy tissue. In only one case have the regional glands subsequently shown carcinomatous deposits. These two patients were operated on subsequently at an early stage with apparent success.

### South African Medical Journal, Cape Town

8 397 432 (June 9) 1934

- Preparation of Maize Flour in Tanganyika Territory R R Scott —p 399  
Carbon Monoxide Poisoning at the Pretoria Steel Works L Milner —p 402  
Postural Drainage in Treatment of Acute Pylitis V Vermooten —p 405  
The Acnes J J Jacobson —p 408  
Thyroid Intoxication C F M Saint —p 412

8 433 472 (June 23) 1934

- What We Eat and Why D C Watt —p 435  
Nupercaine in Spinal Anesthesia with Description of One Hundred and Ten Cases R S Verster —p 442  
Manipulative Surgery A Radford —p 446  
Prevention of Maternal Mortality in Urban and Rural Areas D J Malan —p 450  
The Workmen's Compensation Act K Bremer —p 456

### Tubercle, London

15 433 480 (July) 1934

- Allergy as a Factor for Consideration in the Treatment of Tuberculosis S L Cummins —p 433  
State of the Teeth as a Guide to Prognosis and Treatment of Pulmonary Tuberculosis F W Broderick —p 443  
Simple Method of Estimation of Proteins of Blood Serum and Its Value in Tuberculosis W Pagel and L B Stott —p 454

**Estimation of Proteins of Blood Serum Its Value in Tuberculosis**—Pagel and Stott examined more than 100 cases of all forms and degrees of pulmonary tuberculosis by the following method which they found to be reliable for clinical purposes. Into six tubes is placed 0.5 cc of physiologic solution of sodium chloride. To tube 1 is added 0.5 cc of fresh filtered ox bile, from which 0.5 cc of the mixture is transferred to tube 2. This process is continued up to tube 5, and 0.5 cc of the mixture from tube 5 is discarded. The last tube (6) being a control tube contains only 0.5 cc of physiologic solution of sodium chloride. After this, 0.5 cc of 1:7 dilution of the serum to be examined is added to each tube and all tubes are heated until coagulation of the proteins appears in the last tube. The results are recorded immediately, and after twelve hours standing at room temperature. There are all degrees of coagulation, from intensive opacity like milk (++++), less opacity (+++), faint transparency (++) , gradually falling (+±), to entire clearness (—). The authors believe that the bile test as a measure of the amount and behavior of the proteins of the blood serum gives a good indication of the extent and the activity of the anatomic changes in the majority of cases of pulmonary tuberculosis. Cases of hematogenous tuberculosis of the lung especially showed a strong bile test. Exudative infiltrations with a tendency to liquefaction and the development of more than one cavity reinforce the reaction, while local fibrosis of the foci and cirrhotic changes decrease the reaction. Marked anatomic change, such as cavitation and cirrhotic tuberculosis, can show a favorable bile test if the general condition is good. The number of such cases is small. In cases of albuminuria or loss of albumin from the body by any other way (sinuses), the bile test fails. In such cases the blood cell sedimentation gives reliable results. In many cases the bile test is in advance of the blood cell sedimentation test and coagulation band determination.

### Quart Bull, Health Org, League of Nations, Geneva

3 1156 (March) 1934

- Best Methods of Treating Manure Heaps to Prevent Hatching of Flies J Parisot and L Fernier —p 1  
Health and Economic Depression in United States of America I Illness in Families of Wage Earners in Five Surveyed Cities in Early Part of 1933 H S Cumming —p 32  
Health Organization and Narcotics Problem (1921-1933) I Wassermann —p 49  
Art of Healing and Sale of Remedies in France G Forestier —p 72  
Malarial Control in Turkey Husamettin —p 129

### Japanese Journal of Obstetrics and Gynecology, Kyoto

17 85 184 (April) 1934

- Experimental Study on Effects of Vitamin B to Female Genital Organs Part III Morphologic Change Due to Deficiency Disease of Vitamin B in Female Genital Organs J Ueno —p 86  
Study of Icterus Neonatorum H Fujimori —p 95  
Comparative Study of Operative and X-Ray Castrations S Tomita —p 116

Presse Médicale, Paris  
42 937 952 (June 9)

—Baldenweck describes a simple sign which he considers useful in the diagnosis of simulated deafness. It is based on the phenomenon that when two persons converse they instinctively use a similar vocal pitch. Thus, when one addresses another in a high voice, the other responds in the same fashion. Smaller vocal changes in pitch can be observed in persons with moderate degrees of true deafness. In cases of partial deafness after the ear has not been examined in persons with undamaged and strong conversational limits of the low conversational apparatus, that has not been examined in persons with partial deafness, the hearing limits are determined by the distance the voice is then varied from loud to low. The subject may not respond at all and has not heard or is not understood. If this is so, tests by other methods may be used. He may respond but without following the subject of voice intensity. In this case he is simulating. The subject may respond but this time imitating the voice of the person with whom he is conversing. This may indicate exaggeration of the response. If this sign is negative in suspected simulation one other means must be used. If positive, it is a valuable proof of simulation.

**Schweizerische medizinische Wochenschrift, Basel**

Operation for Cryptorchidism—Matti says it is erroneous to assume that a truly retained testicle may still descend spontaneously during the first years of life or up to the period of puberty. Subsequent descent is possible only in the case of so-called floating testicles drawn to the internal inguinal ring by the cremaster but which can be brought down into the scrotum in all forms of retained testicles the relative shortening of the spermatic cord increases with the years, the prospect of tensionless transplantation of the testicle to the normal position becomes constantly lessened. For this reason the author recommends early operative correction of cryptorchidism at the end of the first year of life or in the course of the second year. He asserts that in such early operations the orchiopexy,

**Influence on Respiratory Exchange of Pharmacologic Agents**—The object of the investigations of Labbe and Rubin<sup>1</sup> was to determine whether substances that stimulate the sympathetic system and the pneumogastric exert a simultaneous influence on the respiratory exchanges, and whether substances like epinephrine, with specific sympathetic action, possess an effect on the respiratory exchange opposite to that of substances which paralyze the sympathetic. The subjects of the experiments were dogs, and a half hour rest lying down was measured by the usual technique. The subjects of the experiments were the usual technique. The subjects of the experiments were the usual technique.

**Influence on Respiratory Exchange of Pharmacologic Agents**—The object of the investigations of Labbe and Rubin was to determine whether substances that stimulate the sympathetic system and the pneumogastric exert a simultaneous action on the respiratory exchanges, and whether substances like epinephrine, with specific sympathetic action, possess an effect on respiratory exchange opposite to that of substances which, like physostigmine, paralyze the sympathetic. The subjects for the tests were examined in the morning after a twelve hour fast and a half hour rest lying down. The basal metabolism was measured by the usual technic. Immediately afterward the medicament to be tested was injected. The respiratory exchanges were then remeasured at the end of ten minutes, thirty minutes and each thirty minutes thereafter for three hours. This gave information as to the time at which the greatest modification of exchanges occurred. The results are expressed in percentages of metabolism in relation to the normal basal metabolism of the subject. The respiratory quotient and of the pulse and the arterial pressure were taken and the surface was calculated from the Du Bois tables. The substances examined, acting in different ways on the vegetative nervous system, exert a different qualitative and quantitative action on respiratory exchanges. Epinephrine increases the exchanges, while insulin and acetylcholine produces a double phased reaction, first paralyzes the vagus, produces a lower rate, which is related perhaps to the initial stimulation of the vagus, which second is elevation of the respiratory exchange rate, which is the paralysis of the vagus. There is consequently an antagonism between the excitants of the sympathetic and the vagus as far as respiratory exchanges are concerned. Different persons react unequally to these substances. Those who react strongly to epinephrine react feebly to atropine and acetylcholine. Conversely those who react weakly to epinephrine react strongly to atropine and acetylcholine. Subjects reacting by strong hypermetabolism to epinephrine exhibit other signs of sympathetic stimulation such as rise in blood pressure and increased pulse rate. Those who have a weak metabolic reaction to epinephrine and a strong reaction to atropine and acetylcholine show symptoms of vagal stimulation such as lowering of the arterial tension and slowing of the pulse rate. These correlations lead to the opinion that tests of the basal metabolism after injection of substances stimulating the sympathetic or the vagus are capable of throwing light on the condition of the neurovegetative system.

**Paris Médical** 1 457 496 (1912)

**Schweizerische** 64 641 676  
Ligation of Veins in Puerperal Hemorrhage  
Ring or Operation in Puerperal Hemorrhage  
Anterior Fenestration of Prostate  
—p 644  
Surgical Treatment of Ectopic Pregnancy  
E Lexer  
\*Indication

Paris Médical  
457 496 (June)

**Paris Médical**  
1 457 496 (June 2) 1934

Infectious Diseases in 1934 Annual Review  
Vaccination Against Exanthematicus Typhus G C Dopter —p 457  
Rectopelvic Abscess by Meningococcus with Fatal Intestinal Obstruction Blanc —p 471  
Use of Melittine in Patients with Undulant Fever F Codvelle —p 474  
Therapeutic Interest of Cambessedes —p 477 Its Diagnostic and  
Micrococcus Catarrhalis Pathogenic Agent Hugonot and Andrieu —  
p 481  
Acute Articular Rheumatism and Serotherapy J Huber —p 487  
\*Gonococcus Reaction Diagnostic Element Test of Gonococcus Infection Recovery L Jame A. Jude and E Aujaleu —p 490

**Gonococcus Complement Fixation Reaction** —Jame and his collaborators conclude that the gonococcus complement fixation reaction as practiced according to the technic of Gauran (1923) is specific. In acute blennorrhagia it is however of little diagnostic interest, since microscopic examination of the urethral discharge is simple, rapid and to the point. It is of some value in the differential diagnosis of nongonorrheal urethritis. In chronic blennorrhagia its diagnostic value is relative. A positive reaction is confirmatory evidence of the

**Gonococcus Complement Fixation Reaction**—Jame and his collaborators conclude that the gonococcus complement fixation reaction as practiced according to the technic of Gauran (1923) is specific. In acute blennorrhagia it is however of little diagnostic interest, since microscopic examination of the urethral discharge is simple, rapid and to the point. It is of some value in the differential diagnosis of nongonorrheal urethritis. In chronic blennorrhagia its diagnostic value is relative. A positive reaction is confirmatory evidence of the

which frequently has injurious results, can as a rule be dispensed with. A testicle that can be placed into the scrotum without great tension may be held in position by a suture that narrows the subcutaneous isthmus. The author is convinced that an improvement in the results of the treatment of cryptorchidism can be obtained only if early operative treatment is adopted as a general rule.

**Etiology of Relapsing Cystitides**—Wildbolz observed that the stasis of secretion in the female urethra predisposes to cystitis. He also noticed that women who consulted him on account of relapses of cystitis quite frequently had the external urethral orifice deep in the vagina (indication of hypospadias) and also an unusually high posterior vaginal commissure, which inhibits the proper discharge of the vaginal secretion. In some of these women the abnormally high vaginal commissure was the result of plastic repair of the perineum, and in others it was congenital. There was always a stasis of vaginal secretion behind the transverse fold of the vaginal introitus. The urethral orifice was constantly surrounded by the secretion. The lips of the orifice were reddish and swollen, and the urethra contained purulent secretion. The cystoscopic examination of these patients did not disclose a cause for the relapsing cystitis in the bladder or in the upper urinary tract, and it was therefore logical to assume that the stasis of the secretion by the high vaginal commissure with backflow into the urethra was the cause of the frequent attacks of cystitis. This assumption was corroborated by the fact that the relapses of cystitis ceased as soon as the discharge of the vaginal secretion was facilitated by a median incision into the posterior vaginal commissure. The author emphasizes that the possibility of this undesirable result of a high posterior vaginal commissure should be kept in mind in case of plastic repair of the perineum.

### Archivio Italiano di Chirurgia, Bologna

36 645 764 (May) 1934

- \*Pyelovenous Reflux and Intrarenal Absorption E Ciocca—p 645
- Melanoma of Parotid A Migneco—p 670
- Technic of Excision of Stellate Ganglion F B La Rossa—p 677
- \*Action of Blood on Activity of Micro Organisms Inoculated in Peritoneal Cavity S Teneff—p 698
- Relations Between Pyogenous Pulmonary Infection and Ligature of Bronchus P Bezza—p 715
- Fibroma of Sublingual Gland A Migneco—p 736
- Clinical and Surgical Considerations of Hydatidiform Choleperitoneum and of Hydatid Peritoneum O F Mazzini—p 742

**Pyelovenous Reflux and Intrarenal Absorption**—Ciocca conducted experiments on dogs and rabbits. He found that micro organisms in suspension, introduced into the renal pelvis through the ureter in ten minutes time and usually at a pressure of scarcely 10 mm of mercury, may be recovered from the blood stream of the efferent vein. With opaque substances the author obtained roentgenologic images attributable to pyelocanalicular reflux not only in the kidney of the dog but also in that of the rabbit. The average degree of pressure to make this phenomenon visible on the plate usually begins at 40 degrees for the rabbit and at 60 for the dogs. At high pressure of from 80 to 100 degrees for the rabbit and from 120 to 140 for the dog, a direct pyelovenous reflux is shown in the live animals with yielding of the pressing piston, and also in the extirpated kidney under roentgenographic control and by direct observation of the reflux of the liquid injected into the renal vein. As an explanation of his results the author cites the factor of intrarenal absorption (previous pyelocanalicular reflux) through the epithelium of the tubules. This is also the reason for certain renal infections such as cortical abscesses and infectious nephritides, without calling into play the pyelovenous reflux, which is a traumatic, accidental and violent phenomenon.

**Action of Blood on Bacteria in Peritoneal Cavity**—Teneff experimented with rabbits to study the influence of the blood on the development of micro organisms in the peritoneal cavity. He injected bacteria into the peritoneal cavity after having induced a hemoperitoneum by cutting the mesenteric artery. In the control rabbits he gave only an injection of bacteria in equal quantity. He used virulent cultures of *Staphylococcus pyogenes-aureus*, *Staphylococcus pyogenes albus*, *Bacillus coli* and *Bacillus prodigiosus* and followed their numerical behavior several days after the injection. The author's results demonstrate that normally the peritoneum has a notable

resistance to pathogenic germs which, when a certain quantity of autogenous blood is present, increases in the beginning, and the micro-organisms are destroyed in a large proportion by the physiologic bactericidal power of the blood. In the second stage (after from six to eight days) a rapid numerical increase in micro-organisms of the peritoneal cavity is observed which culminates sometimes in the appearance of a peritonitis, probably because the blood, being altered and exhausted in its bactericidal power, serves as food for the development of the micro-organisms.

### Archivos de Medicina, Cirugía y Espec, Madrid

37 697 724 (June 30) 1934

- Allergy in Children Who Received BCG Vaccine A Urgotti J Hermida and E Hervada Iglesias—p 697
- Muscular Metabolism in Addison's Disease J A Collazo Isabel Torres and J Barbudo—p 698
- Diagnosis of Acute Perforation of Gastroduodenal Ulcer R López Baena Moran—p 704
- Bone Graft to Cover Partial Loss of Radius Technic A Ferre—p 706
- \*New Medium for Isolation of Gonococci 'in Vitro' H del Castillo and L Herraiz—p 710

**Medium for Isolation of Gonococci**—Castillo and Herraiz report satisfactory results in the isolation of gonococci "in vitro" by the use of a new medium. In its preparation 500 Gm of beef, deprived of aponeurosis and fat, and 20 Gm of caked brewers' yeast in 1,000 Gm of water are left in maceration for fifteen hours. These ingredients are then boiled for fifteen minutes and filtered, enough water being added to make the original volume. Then 20 Gm of Witte's peptone and 0.5 Gm of potassium chlorate are added. The  $pH$  is then fixed at 7.6 and the preparation boiled again but only for a short time to precipitate the phosphates, and then filtered again. Agar-agar is then added in a proportion of 3.5 per cent, that is, 3.5 parts of agar-agar to 96.5 parts of the preparation. The preparation is then sterilized for three successive days for thirty minutes at a time in high pressure steam. After it is melted at a temperature of 45 C, rabbits' or horse's blood is added in the proportion of 20 per cent, that is, 20 parts of blood to 80 parts of the preparation. The medium is then ready to be placed in separate sterile receptacles for use.

37 725 752 (July 7) 1934

- Relations of Psychiatry to Penal Laws A Abaunza—p 725
- Relation Between Tetany and Rickets M Diaz Rubio—p 731
- \*Index of Nuclear Deviation in Infantile Tuberculosis and Its Post-tuberculin Modifications M Blanco Otero—p 736
- Rapid Diagnosis of Type of Pneumococcus as Etiologic Agent in Pneumonic Diseases V Callao—p 738

**Nuclear Deviation in Infantile Tuberculosis**—Blanco Otero studied the modifications of the index of nuclear deviation forty-eight hours after the intradermal injection of a 1:10,000 solution of Koch's old tuberculin in a group of fifty-two children who suffered from different forms of either active or inactive (latent and residual) tuberculosis and five non-tuberculous children. The author, considering the index of nuclear deviation as represented by a fractional number, regarded the variations of the index, not exceeding one fifth (either in increase or in diminution) to the original fractional number, within the type of invariable reaction. The most frequent reaction in the whole group was that of the invariable type (60 per cent). The author interprets the invariability of the index as caused by a reaction of the organism to the stimulus of tuberculin with a parallel and proportional production or diminution of both immature and mature cells (myelocytes, juvenile cells and staff cells and segmented forms, respectively). The increase of the index is interpreted by an overproduction of immature cells, and its diminution by an overconsumption of mature cells by the organism during the reaction. There is no relation between the reaction of the augmentative type and the grave forms of tuberculosis in children. Only in cases of secondary infiltration were the variations of the augmentative type higher than those of the diminutive and invariable types (66.68 per cent). The variations of the augmentative type were also high in the group of nontuberculous children (40 per cent). This group, however, had the same figures for the augmentative type as for the invariable type of reaction. The author concludes by saying that up to the present time no prognostic or diagnostic value

can be given to the variations of the index of nuclear deviation following the intradermal injection of tuberculin in infantile tuberculosis

### Minerva Medica, Turin

- 1 861 892 (June 23) 1934  
Further Contribution to Knowledge of Familial Hyperhemolysis with Growth of Osmotic Resistance of Erythrocytes G Usseglio and F De Matteis—p 861  
Morphology of Hypopharynx in Man and in Common Mammals I Balzano—p 870  
Contribution to Knowledge of Echinococcosis of Thyroid Gland L Loi and E Puxeddu—p 874  
Ketogenic Diet in Bronchial Asthma L Montagnini—p 877  
Protein Diet in Diabetes Mellitus S De Candia—p 884

### Ketogenic Diet in Bronchial Asthma—Montagnini states

that in every asthmatic attack factors arise which influence the acid base equilibrium. If the asthmatic attack is partial, only a part of the bronchial tree is involved in the spasm with a corresponding number of alveoli. Thus through the increased respiration in deep respiratory movements an amount of carbon dioxide greater than normal is eliminated resulting in a condition of gaseous alkalosis of the blood. If the spasm involves the greater part of the bronchial tree there is an acute retention of carbon dioxide in the poorly aerated alveoli with consequent gaseous acidosis. That the elimination of carbon dioxide may be profoundly and rapidly changed during an asthmatic attack is demonstrated by the rapidly changeable results in the depth of respiration and the basal metabolic rate. The author placed twelve asthmatic patients on a ketogenic diet consisting mainly of broth, meat, egg egg white and some green vegetable (spinach). Some patients were in grave asthmatic conditions lasting several days at a time while others had frequent and violent attacks. In these patients no other forms of hyper-sensitivity were manifest, such as habitual urticaria or the edema of Quincke. In general the patients were normal in type and well nourished. Urine was collected every twenty-four hours after which the daily quantitative determination of the acetone and the beta-oxybutyric acid was made. The alkali reserve and the leukocytic formula were determined before and after the diet. During this period the patients showed no ill effects from the diet and the results were encouraging. The author does not believe that there is a primary tendency to alkalosis in bronchial asthma due to the constitution of the asthmatic patient which brings on the attack. He maintains, however, that the acidifying method depresses the vagal tonus element in the treatment of bronchial asthma. Although he observed a disappearance of crises and general improvement in all cases, he maintains that the acidifying diet is essentially a palliative treatment the effects of which are felt only during the period of treatment since the state of artificiality produced equilibrium lacks stability and must be continually stimulated. The author maintains that the degree of eosinophilia during the diet is completely independent of the variation of the alkaline reserve because the elevated acidotic condition does not bring on the disappearance of the eosinophils and the alkalotic condition does not tend to increase them.

### Policlinico, Rome

- 41 923 962 (June 18) 1934 Practical Section  
Chronic Pancreatitis A Gasbarrini—p 923  
Changes in Pulmonary Auscultatory Signs as Influenced by Vagus Sympathetic Action L Katzilambros—p 931  
\*Pathogenesis and Treatment of Cephalalgia Following Spinal Anesthesia G Zappala—p 932  
Paraplegia in Scoliosis E Fiorini—p 937

### Cephalalgia Following Spinal Anesthesia—Zappala

studied 100 patients presenting cephalalgia following tutocain and epinephrine spinal anesthesia. He found in the majority of cases that cephalalgia is accompanied by marked hypotension of the cerebrospinal fluid. The author experimented with intravenous and subcutaneous injections of various drugs such as caffeine, ephedrine an epinephrine-ephedrine preparation and ergotamine tartrate to combat the hypotension that is sometimes thought to be the cause of headache. He found that all have only an evanescent effect. The author advocates intradural injection of a 1 per cent solution of dextrose in severe and obstinate cases until the headache disappears. In fact it gener-

ally disappears during injection and when the mercurianometer shows a pressure of from 21 to 23. According to the author, the volume action of the solution injected in the hypotension disappear at once and therefore also cephalalgia, while the slightly irritating action of the dextrose on the choroid plexus removes its temporary inhibition of secretion of the fluid. The author concludes that the reflex inhibition of the choroid plexus is the true cause of hypotension.

### Semana Médica, Buenos Aires

- 41 1897 2004 (June 21) 1934  
Histopathology of Infantile Psychosis Associated with Flexibilitas Cerebra and Cataleptic Attitude V Dimitri and M Victoria—p 1897  
Parovarian Cyst with Twisted Pedicle Simulating Normal Pregnancy and Removed Through Vaginal Route Case A Chueco and R Fellner—p 1907  
Recklinghausen's Disease Case F Bazan and Herta Hotte—p 1910  
Dystocia Due to Presence of Calcified Dermoid Cyst in Rectovaginal Septum A F Gibert and A Liras—p 1913  
Dominion of Peridural Anesthesia and of Peridural Space in Surgical Technic G Zorraquin—p 1918  
Value and Significance of Deep Q Wave in Third Lead of Electrocardiogram J M Balbi Robeco—p 1922  
\*Arterial Pressure and Peripheral Venous Pressure in Mitral Stenosis and in Complete Arrhythmia J Espejo Sola—p 1937  
Mibelli's Angiokeratoma Case L E Pierini and N O Sanchez Basso—p 1940  
Mystic Delirium of Intuition Case T Gorriti—p 1948  
Meningitis Caused by Friedländer's Bacillus Case G A Schiavone and F Idelison—p 1950  
Internal Dacryorhinocystotomy (Haller's Operation) in Surgical Treatment of Dacryocystitis B Just Tiscornia and C P Mercandino—p 1958

### Venous Pressure in Mitral Stenosis—Espejo Sola

considers the rise in venous pressure of great importance in early diagnosis of cardiac decompensation in cardiac and cardiovascular diseases. He compares the figures of arterial pressure (maximal, minimal and mean) with those of the venous pressure in patients with mitral stenosis hypertension and other cardiac diseases. He concludes by saying that in compensated mitral stenosis with and without complete arrhythmia both the arterial and the venous pressure were normal. In decompensated mitral stenosis with and without complete arrhythmia the arterial pressure was either normal or approximately normal while the venous pressure was high. In auricular fibrillation the venous pressure does not undergo the systolic modifications to which the arterial pressure is constantly subjected, owing to the differences in the amplitude of the cardiac pulsations. The oscillometric index was held between 3 and 5 in compensated and decompensated mitral stenosis whether or not complicated by complete arrhythmia. In arterial hypertension complicated with decompensated complete arrhythmia, the venous pressure was high. In other decompensated cardiopathies with complete arrhythmia the arterial pressure was normal, while the venous pressure was high.

### Deutsche medizinische Wochenschrift, Leipzig

- 60 1003 1038 (July 6) 1934 Partial Index  
Irritated Stomach and Peptic Ulcers Their Etiology and Therapy K Westphal and W Kuckuck—p 1003  
Status Epilepticus and Progress of Malignant Tumors G Ernst—p 1008  
\*Lead Encephalopathy H G Schwarz—p 1011  
Occurrence of Yellow Strains of So Called Bacterium Typhi in Environment U Villanueva Castro—p 1014  
\*Local Application of Vitamin A in Treatment of Wounds Z I and S Sandor—p 1018

### Lead Encephalopathy—Following a review of the literature

in the course of which he points out that the opinion still differ about the nature of lead encephalopathy, Schwaib gives the histories of two cases. The two cases resemble each other in that the patients had attacks of convulsions and signs of lead poisoning. The first patient presented the aspects of lead poisoning with the lead line on the gums and with the typical changes in the blood picture. The neurasthenic condition that existed in the beginning was doubtless the precursor or atypical onset of the later severe nervous disorders. Gradually there developed inflammatory processes of the auditory and optic nerves. After an observation of two months the symptomatology of lead encephalopathy developed rather suddenly with epileptic convulsions pyramidal symptoms and psychic disturbances. The condition improved slowly but there were several relapses with impairment of the consciousness. The second case described by the author demonstrates how

difficult may be the differentiation of lead encephalopathy from other conditions. The case was finally cleared up by the post-mortem examination, which revealed no signs of lead poisoning but rather a severe cirrhosis of the liver with contraction of the liver and splenic tumor. The author points out that the terminal stage of the cirrhosis could readily be mistaken for lead encephalopathy, although diarrheas do not belong to the aspects of lead poisoning and the splenic tumor should have pointed to a different diagnosis. The cirrhosis of the liver led to hepatic coma with manifestations of stupor, anxiety and convulsions, which, in view of a former lead poisoning, were at first interpreted as the symptoms of lead encephalopathy. However, the final expert testimony was to the effect that the patient had died of cirrhosis of the liver.

**Local Application of Vitamin A in Treatment of Wounds**—Horn and Sandor employed an ointment, containing in each cubic centimeter 2,000 units of vitamin A, in the treatment of new injuries. They observed that the healing process is influenced favorably. The secondary infection is inhibited by the acceleration of the formation of granulations. In the treatment of suppurating wounds, the ointment furnishes a protective layer between bandage and wound surface. The discharge of the secretion of the wound is facilitated. The formation of granulations is greatly increased, the disintegration of necrotic portions is promoted and the entire healing process is considerably accelerated.

### Jahrbuch für Kinderheilkunde, Berlin

143 164 (July) 1934

Cardiac Activity During Disintegration of Respiratory Center A. Peiper and C. F. Good—p. 1  
Pathogenesis of Renal Dwarfism A. Loeschke—p. 11  
Congenital Duodenal Stenosis During Childhood W. Ziegler—p. 36  
Fetal Chondrodystrophia Case B. Szendi—p. 49

**Pathogenesis of Renal Dwarfism**—In the first part of his study Loeschke discusses the growth disturbance in renal dwarfism. He points out that, although the chronic renal disturbance and its sequels has no doubt a certain significance for the growth of the organism, there are nevertheless many factors that speak against its primary importance. He thinks rather that a congenital component, that is, a defective general constitution, is the most important factor. This assumption is borne out by manifestations of degeneration in the ancestry, familial occurrence of renal disturbances in general and of renal dwarfism in particular, occurrence of growth disturbances before the onset of the renal symptoms and independent of the state of the disturbance, and occurrence of other malformations on or outside of the urogenital tract. All these factors may be found alone, several together, or entirely absent. The author differentiates two types of renal dwarfism. As representative of one type he cites the case of a renal dwarf with intact renal function. This case proves that renal dwarfism may occur without impairment of the renal function and thus speaks against a modification of the growth process by the renal disturbance. The growth of renal dwarfs is frequently unproportional and in figure and general development they may be infantile. The author thinks that in congenital hydro-nephrosis growth disturbances are more frequent than is commonly assumed. In the discussion of another type of renal dwarfism it is shown that it is not dependent on the existence of a chronic interstitial nephritis. In the second part of his paper the author discusses the metabolism in renal dwarfism and the pathogenesis of renal rickets. Here he shows that the phosphatemic curve is higher in renal dwarfism than in children with normal elimination. This corroborates Mitchell's thesis of the stasis of phosphates. The blood sugar curve of renal dwarfism is somewhat higher and the epinephrine reaction is more pronounced than is the case in normal children. This is most likely the result of the acidotic metabolic condition of the children with chronic renal disease. The diastase elimination of children with renal dwarfism is not increased but is within normal limits. The author advances evidence for his opinion that the growth inhibition of the renal dwarf and the renal changes that occur in renal dwarfism present a congenital syndrome. In the development of renal rickets two factors probably assume an etiologic role, calcium deficiency and chronic acidosis.

### Klinische Wochenschrift, Berlin

13 969 1008 (July 7) 1934 Partial Index

Modern Treatment of Detachment of Retina and Extraction of Cataract with Aid of Electrocoagulation A. Jess—p. 969  
Studies on Uric Acid and Pathologic Renal Function W. Voigt and H. Schulke—p. 973  
\*Behavior of Cholesterol Metabolism in Various Disorders of Vascular System G. Kirchgessner—p. 976  
\*Experimental Production of Gastric Ulcers by Caffeine H. Hanke—p. 978  
Tachypnea in Epidemic Encephalitis K. Liedholm—p. 980  
\*Changes in Blood Caused by Poisoning with Aniline A. P. Gaeta—p. 983  
Free Diet and Blood Sugar Curves Following Oil Tolerance Test H. Sehestedt—p. 985  
Castle's Ferment and Funicular Myelitis F. Salus and F. Reimann—p. 986  
Influence of Aging Erythrocytes of Sheep on Heterophile Antibody Reaction in Blood Serums of Healthy Persons G. K. Wenckebach—p. 990  
Newer Staining Methods for Tubercle Bacilli I. D. Hadziemanuil—p. 991

**Cholesterol Metabolism in Vascular Diseases**—On the basis of a comparison of the colorimetric and gravimetric methods for the determination of the cholesterol content, Kirchgessner concludes that, if done carefully, the gravimetric method gives exact values, while he rejects the colorimetric method as too inexact. He considers a causal relation between hypercholesterolemia and hypertension unlikely, because he found no unequivocal increases in the cholesterol values in any of the various forms of hypertension. With few exceptions, however, the patients with hypertension show a disturbance in the ratio between free cholesterol and cholesterol ester, the free cholesterol is nearly always increased. The author describes experiments on rabbits. On the basis of clinical and experimental observations, he rejects the theory that the increased cholesterol content of the blood is the cause of hypertension, but he admits the occasional concurrence of hypercholesterolemia and hypertension.

**Production of Gastric Ulcers by Caffeine**—Because caffeine stimulates the secretion of gastric juice, Hanke employed it for the experimental production of chronic ulcers in cats. For two months the animals were given almost daily subcutaneous injections of from 0.2 to 0.3 Gm of caffeine sodiosalicylate (in a 10 or 20 per cent solution). They were given their usual plentiful supply of food in the evening. The remnants of the food were removed early in the morning, so that, when the injection was made at noon, the cats had had no food or fluid for at least four hours. A new supply of food was not given until six hours after the injection. At the end of two months the stomachs of the cats showed chronic ulcers, the structure of which resembled closely that of human ulcers (leukocytic layer of exudate, layer of fibrinoid necrosis, layer of granulation tissue). The author assumes a primary peptic pathogenesis. He thinks that the ulcers develop as the result of the influence exerted by the excessive amount of acid gastric juice (secreted because of the caffeine injection) on the mucous membrane of the empty stomach. He calls attention to the possibility that caffeine may play a part in the pathogenesis and further development of peptic ulcers in human subjects.

**Changes in Blood Caused by Poisoning with Aniline**—Gaeta describes the changes observed in the blood of rabbits that had been poisoned with parenterally administered aniline. He observed an intense and rapid reduction in erythrocytes running parallel with the severity of the poisoning, and a slight hypochromia with progressive decrease in the hemoglobin. The blood smears revealed anisochromia, anisocytosis, polychromatophilia and poikilocytosis. During the terminal stage there appeared orthochromatic and basophile erythroblasts in the circulating blood. It was never possible to demonstrate the presence of erythrocytes with basophile granules, or those endoglobular formations which other observers had noted in the erythrocytes of animals poisoned with substances forming methemoglobin. Vital staining revealed a constant increase in the erythrocytes with granular and thready substance, but it proved extremely difficult to demonstrate the presence or a percental increase of the erythrocytes with metachromatic granules. The white blood picture was hardly at all influenced, except that shortly before death, after the poison had caused



a severe cachexia, there was a pronounced leukocytosis. The examination of the bone marrow disclosed an intensive erythremic reaction with involvement of the leukopoietic as well as of the megakaryopoietic system. In some animals the bone marrow even showed the typical aspects of a myeloid metaplasia.

### Wiener klinische Wochenschrift, Vienna

- 47 801 832 (June 29) 1934  
 Biology of Processes of Development and Transformation of Bone in Light of New Histologic and Experimental Experiences — Carla Zawisch Ossensitz — p 801  
 Allergic Manifestations and Their Interrelations — B. Forstner — p 804  
 Comparison Between Treatment with Long and Short Waves — J. Kowarschik — p 806  
 \*New Method of Artificial Respiration — S. Jellinek — p 808  
 \*Clinical Aspects of Coronary Thrombosis — R. Singer — p 810  
 \*A Mandelstamm and E. Kaplan — p 813  
 \*Symptomatology of Thallium Poisoning — Edith Klemperer — p 814  
 Early Diagnosis of Carcinoma of Stomach — R. Lenk — p 818  
 Masked Myxedema — E. Risak — p 821

**Artificial Respiration**—Jellinek calls attention to deficiencies in the usual methods of resuscitation, namely, to the fact that there is frequently neglect to pull the tongue of the victim forward so as to permit a free passage of air, and to the fact that by the compression of the thorax, which is the principal pressure, which is so important for the cooperation of lung and heart and also for the compression of the thorax, sometimes produces results does not appear to the author as a valid argument against the danger inherent in this method. In discussing the first point of his criticism, that is, the failure to insure a free passage of air, he shows that some of the methods suggested for this are not suited for emergencies. He suggests a new method. He advises that the second and third fingers of the right or left hand of the victim be brought into the mouth so that their terminal phalanges press the tongue against the lower teeth, and that at the same time the fingers be pushed completely into the mouth. In order to keep them in this position the elbow has to be given support by tying it up. Not only respiratory experiment but also roentgenoscopy reveals that this automatic fixation of the tongue leaves the air passage unhindered. In order to avoid the dangers involved in the compression or traction of the thorax the author suggests the following method. The victim is lying horizontally and on his back. A folded cloth, some paper or straw is placed under him in the region of the upper angles of the scapulas, thereby producing a free space between the shoulders and the surface of the patient is lying on. Then the tongue fixation is done in the manner described. Artificial respiration is done by grasping each shoulder with one hand in such a manner that the fingers rest on the external surface of the upper end of the arm and a quick pressure is released just as quickly. The same procedure is repeated after intervals of all three diameters. In discussing the effect on the thorax, the author points out that roentgenoscopy reveals that the described manipulation of the shoulders results in an extension of all three diameters of the thorax. Tests of the pressure conditions and manometric tests disclose the suction produced by the method, in fact, all tests prove that this new technic of artificial respiration produces an enlargement of the thorax and active inspiration.

**Rapid Diagnosis of Pregnancy**—Mandelstamm and Kaplan show that, if sexually mature mice which have been exposed to irradiation with red rays are employed in the hormone pregnancy test, the time required for its completion is only half of that required for the original Aschheim-Zondek test. They inject from 3 to 5 cc of detoxicated urine of a pregnant woman intravenously into the animals and from forty-eight to fifty hours later the characteristic blood dots can be seen in the ovaries of the animals without the aid of microscopic inspection. The irradiation with red rays permits a reduction in the number of experimental animals for each test to two or even one. The authors assert that the reliability of their modified method is equal to that of the original method. A great advantage of the method is the ease with which the experimental animals can be obtained because adult animals can be used, irrespective of the phase of the sex cycle. More-

over, the animals do not have to be killed and can be used for other experiments.

**Thallium Poisoning**—Klemperer relates the clinical history of a woman, aged 37, who was hospitalized from five to six weeks after her disorder had begun with vomiting and diarrhea. The woman related that in the last three or four weeks she had had pains in the lower extremities, particularly in the thighs. At first she was still able to walk but later there was formication, her toes felt dead and the pains became so severe that she was unable to walk. She felt formication also in the left arm and vomited after eating. She lost all the hair of her head, and her scalp was painful. At first there was no shimmering before her eyes and severe pains in the occiput. The severe pains resulted in insomnia. She had a sensation clue as to what could have caused the disturbance, but finally the patient recalled that shortly before the first symptoms appeared she had tried to poison her dog (old and blind), by putting a poisonous paste in his soup. She ate the same kind of soup and since the two plates looked alike she must have mistaken the one for the other, for nothing happened to the dog. The author gives a detailed description of the clinical course. The patient presented the aspects of a polyneuropathy with frequent recurrences. There were several unusual aspects, which from the typical symptomatology of thallium poisoning, superciliary hair growth was not impaired in the lateral and more curly. Another not quite typical symptom was dilatation of the pupils. They reacted to light promptly but slightly and became dilated again immediately, so that they presented the aspects of a hippus. Most interesting were the motor disturbances of the upper extremities. When the woman held the arms forward a tremor was noticeable like that which is observed in alcoholism or lead poisoning. Superimposed on this tremor, there were peculiar pendulum-like movements of the arms. The patient was unable to suppress these movements when she tried to hold the arms quiet, but when she performed active movements they disappeared. The nature of the lesion that caused these symptoms can only be conjectured.

- 47 833 864 (July 6) 1934  
 Assimilatory Portion of Metabolism in Its Connection with Function of Insular Organ — H. Schur — p 833  
 Vessels of Mucous Membrane of Bleeding Uterus — O. Frankl — p 838  
 Problems and Foundations of Treatment of Epilepsy — F. Frisch — p 843  
 \*Presence in Human Blood of Water Soluble Substance Producing the Unusual Clinical Aspects in Diffuse Metastization of Mammary Carcinoma — R. Engel — p 847  
 \*Treatment of Anuria Caused by Corrosive Mercuric Chloride by Means of Peritoneal Dialysis — J. Balazs and S. Rosenak — p 851  
 Roentgenologic Diagnosis in Obstetrics and Gynecology — H. Heidler — p 854  
 Mistakes and Dangers in Local Anesthesia — F. Starlinger — p 856

**Substance Producing Allen-Doisy Test**—Engel succeeded in demonstrating in the blood a substance capable of producing a positive Allen-Doisy test. However, the substance influences neither the uterus nor the male genitalia. It lacks gonadotropic influence. The substance is obtained in a similar manner as is the estrogenic substance of the pineal body (which it resembles also in its action), by alkaline-aqueous extraction from acetone dry powder. The blood of younger men contains the substance in larger quantities than does that of older men. In women the opposite condition seems to obtain, but in both sexes there are so many exceptions from this rule that a valid generalization is impossible. Many factors seem to indicate that the substance is identical with that of the pineal body, but because the substance is more rapidly than is the action appears and disappears more rapidly than is the case in the extracts of the pineal body, this conclusion cannot be drawn with absolute certainty. Of course it is possible that the pineal body contains also an inhibiting substance. The concentration is much less in the blood than in the pineal body.

**Anuria Caused by Corrosive Mercuric Chloride**—Balazs and Rosenak review the literature on the intravital dialysis of the blood and then describe their application of it in cases of poisoning with corrosive mercuric chloride. Following infiltrative anesthesia of the abdominal walls button-hole laparotomy is done at the upper median line and in the ileocecal region. Through each of these openings a perforated glass

cannula is introduced in such a manner that the end of the one cannula comes between the liver and the diaphragm and the end of the other into Douglas's pouch. In this manner a continuous irrigation of the abdominal cavity is made possible. The authors maintain that this method is superior to the mere filling of the abdominal cavity by means of puncture and by subsequent withdrawal. It is desirable to extend the irrigation for from three to four hours. Dextrose solution seems to be superior to sodium chloride solution as an irrigation fluid. Case reports indicate that the authors employed a 42 per cent solution of dextrose or an 0.8 per cent solution of sodium chloride. The temperature of the irrigation fluid was between 42 and 44 C. Peritoneal dialysis seems to be indicated in severe anuria or oliguria resulting from poisoning with corrosive mercuric chloride, particularly when uremic symptoms threaten. It is combined with other methods such as infusion and venesection.

### Zeitschrift für experimentelle Medizin, Berlin

93 685 825 (June 14) 1934

- Position of Head Labyrinth and Circulation R. E. Mark and L. B. Seiferth—p. 685  
 Method of Determination of Osmotic Resistance of Erythrocytes W. E. Kustner—p. 706  
 Influence of Sympathetic on Refractory Stage of Muscle R. du Mesnil de Rochemont, H. Christ and B. Heimbrecht—p. 723  
 Influence of Throttling of Pulse on Result of Determination of Blood Pressure H. J. Wolf and W. Aurin—p. 740  
 Method of Direct Determination of Blood Pressure in Human Subjects: Registration of Absolute Sphygmogram by Means of Arterial Puncture H. J. Wolf and K. Kindler—p. 746  
 Experimental Studies on Influence of Thoracic Trauma (Caused by Dull Force) on the Heart G. Schlomka—p. 751  
 Investigations on Changes in Cerebral Volume in a Man with Cranial Defect M. Dobreff and T. Gotzeff—p. 775  
 Experimental Studies on Problem of Hemolytic Function of Spleen Surface Tension of Blood Serum in Veins of Hepatolienal System Dora Abramsohn and G. Frenckell—p. 782  
 Amino Acid Tolerance Test as Functional Test of Liver S. Wagner and W. Gnetting—p. 786  
 Histologic Foundations of Acetonitrile Test on Thyroid of White Mice E. Santo—p. 793  
 Pathophysiology of Carbohydrate Metabolism in Infectious Fever S. Leites, L. S. Lifschitz and A. Odnow—p. 803  
 Development and Form of Short Wave Heat Bands in Agar Models W. Albrecht—p. 816

**Influence of Throttling of Pulse on Blood Pressure**—Wolf and Aurin point out that the nonsurgical determination of maximal pressure is, except when oscillographic methods are used based on the principle of the closed artery. Objections have been made to this procedure by some investigators, who call attention to the fact that if the maximal blood pressure is determined on the basis of the closed artery, the tension of the arterial wall as well as the kinetic energy of the blood is included in the result obtained by this method of measurement. For this reason the authors decided to determine the influence of the throttling of the pulse on the type of pulsation and on the height of the blood pressure by means of a method of the registration of absolute sphygmograms, which avoids the division of the vessels and thereby leaves essentially unchanged the wall tension of the arteries as well as the movement of the fluid. The experiments were made on dogs and it was found that the throttling of the pulse causes considerable changes in the pulsation. Independent oscillations of the throttled section of the artery heighten the blood pressure values; the systolic maximal value becomes increased, the diastolic minimal value remains unchanged or is only slightly increased, the blood pressure amplitude becomes considerably increased. The independent oscillation of the throttled portion of the vein becomes especially noticeable following injection of epinephrine; it begins now earlier in the ascending portion of the systole, but as a result of this earlier development it causes no great increase in the blood pressure. The authors conclude from their observations that the throttling of the pulse causes a change in the results of the measurement of the absolute blood pressure values, which should not be overlooked when the human blood pressure is measured on the basis of the principle of the closed artery.

**Direct Determination of Blood Pressure**—Wolf and Kindler discuss the registration of the absolute sphygmogram by means of arterial puncture. They describe an apparatus that permits the direct measurement of the blood pressure in the cubital artery, and they give a detailed description of the entire procedure.

### Zentralblatt für Gynäkologie, Leipzig

55 1569 1632 (July 7) 1934

- \*Clinical Experiences with Counting of Labor Pains According to Frey H. P. Müller—p. 1570  
 Pregnancy and Normal Delivery Following Implantation of Uterine Tube E. Kattermann—p. 1580  
 Etiology of Spontaneous Abortion: Pregnancy and Brucella Abortus Infection F. Witenstein—p. 1583  
 \*Torsion of Axis of Myomatous Uterus R. Schweigl—p. 1588  
 \*Management of Delivery in Myoma Praevium O. Koller—p. 1592

**The Counting of Labor Pains**—Müller considers counting of labor pains according to Frey a method that permits a qualitative estimation of the process of delivery. The counting should begin after the rupture of the bag of waters, for certain rules can be applied only after this point is reached. Frey and his associates have determined the highest number of pains for the various stages of the labor process. They found that after these numbers have been exceeded a spontaneous delivery cannot be expected without threatening the life of mother and child. The author's observations corroborated Frey's statements to a large extent, and he concludes that the counting of the labor pains is a valuable and simple aid in the management of the process of birth.

**Torsion of Axis of Myomatous Uterus**—Schweigl gives the clinical history of a woman, aged 53, whose abdominal symptoms had been diagnosed as resulting from a myomatous uterus with necrosis and possibly torsion of the uterine axis. Signs of severe cardiac insufficiency predominated for a time and laparotomy could be resorted to only after the cardiac insufficiency had been counteracted. The operation revealed a large myomatous uterus, the axis of which had been turned 450 degrees, the twist being in the region between the body and the neck of the uterus. The operative specimen weighed 3.5 Kg. The author discusses the incidence of torsion of the axis of the uterus and the pathogenesis of the phenomenon. A review of the literature convinced him that the condition is comparatively rare. In discussing the development he cites Albrecht, who maintained that large intramural myomas during pregnancy and large myomas during the postmenopausal age are predisposing factors in torsion of the uterine cervix. He mentions Sellheim's theory explaining the torsion as the result of the persistence of a pedicled growth in a rotary motion that has been transferred from the body of the woman to the growth (lifting, sudden bending, dancing). This theory has been corroborated by Kustner. Payr, however, has suggested a hemodynamic theory of torsion, according to which stasis in the veins of the tumor may produce a turning movement. In the reported case, the causal factor was not determined.

**Management of Delivery in Myoma Praevium**—Koller describes three cases of myoma praevium, each of which required a different procedure: in one case an abdominal cesarean section with simultaneous enucleation of the two tumors from above, in another case perforation and extraction of the child with subsequent vaginal removal of the tumor, and in the third case abdominal cesarean section with subsequent removal of the tumor through the vagina. However, the author admits that a certain hesitation about the enucleation of the tumor from the puerperal uterus is justified. In the reported case it was permissible because of the superficial position of the tumor on the vaginal portion of the uterine cervix. Postponement of the removal of the tumors until after the puerperal period was inadvisable, because of the large size of the tumor, which caused an obstruction of the cervical canal and which in turn would have provoked a further complication by causing stasis of the lochia. The author considers an exception in myoma praevium the fact that in the other case the child had to be sacrificed. In the case under consideration this was unavoidable, because of the undetermined nature and site of attachment of the tumor and the impossibility to differentiate it from the fetal head, which stood at the pelvic inlet. The subsequent vaginal removal of the cervical myoma after the cesarean section, the procedure followed in the third case, is considered the least dangerous method, provided of course that the approach from the vagina is feasible. At any rate the three cases prove that general rules cannot be made and that individualization is necessary in cases of myoma praevium.

## Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

78 3091 3234 (July 7) 1934  
 Value of Absorption Tests in Serologic Diagnosis of Various Leptospirosis Infections A Charlotte Kays and W A P Schuffner—p 3110  
 Manner of Infection in Weil's Disease P H Van Thiel—p 3115  
 \*Deficiency Symptoms in Chronic Gastro-Intestinal Diseases J Goudsmit—p 3123  
 Witch in Folk Medicine M A Van Andel—p 3140

## Deficiency Symptoms in Gastro-Intestinal Diseases—

Goudsmit found that real avitaminoses (pellagra and beriberi) may occur in chronic gastro-intestinal diseases. They may be the consequence of an unbalanced diet or of an insufficient resorption of vitamins (conditional deficiency). It may be assumed that latent deficiencies take place in chronic gastro-intestinal diseases. Four patients presented a symptomatology of nail, tongue and reflex lesions that corresponded fully to the symptoms often seen in achylic anemia. The ectodermal syndrome in achylic anemia is probably caused by a faulty resorption of indispensable substances. Perhaps a deficient resorption of B is responsible. Consequently the ectodermal syndrome observed in four gastro-intestinal patients was considered a sequel of deficiency. Areflexia in gastro-intestinal diseases was recorded as an atypical form of the tongue nail reflex lesions. These deficiency symptoms are caused by faulty diet or by impeded intestinal resorption. The frequent occurrence of fat in the feces of patients presenting this syndrome may in connection with research done by Schuringa on fat-free diets indicate that a poor fat resorption is of great importance for the causation of latent deficiency in those suffering from chronic gastro intestinal diseases. In these patients attention must be paid to a correct diet as well as to fat resorption. Faulty fat resorption may be the sign of a chronic secondary gastro enteritis and the author considers it a more important factor in causing deficiency symptoms than an insufficient diet.

## Acta Chirurgica Scandinavica, Stockholm

75 1176 (Supplement 31) 1934  
 Study on Cause of Death in High Intestinal Obstruction on Chlorine Urea and Water E Schnohr—p 1

## Observations

**Cause of Death in High Intestinal Obstruction—**In experiments on rats, Schnohr investigated whether the loss of chlorine of water or of both was the cause of death in high intestinal obstruction. He found that chlorine was lost from the gastro intestinal tract leading to hypochloremia and a definite lowering of the chlorine concentration in the skin, the liver and the kidneys. No alterations were traced in the muscles, lungs or spleen. The chlorine content of the brain was increased. The conclusion was drawn that the period of survival does not depend on the degree of hypochloremia and that there is no evidence that death was caused by concentration of chlorine in any particular tissue or that the decrease or increase or any specific level of chlorine concentration was the decisive factor in causing the death of the animal. The author found that the skin and the kidneys lost 30 per cent of their initial chlorine content, and the liver about 20 per cent. The quantity lost from the skin is equal to about one half of the entire loss. It also appeared that the skin lost its ability to store chlorine. The rise of the chlorine concentration in the brain is not specific for intestinal obstruction and there is no indication that it is capable of influencing the period of survival. When salt was administered to animals with high intestinal obstruction it was found that chlorine concentration in the brain was relatively higher than in the other organs. Animals treated with a 10 per cent solution of sodium chloride parenterally lost the same quantity of chlorine per unit as nontreated animals. The channels through which chlorine was lost differed however, the treated animals losing far less through the gastric secretion and excreting far more through the kidneys than the nontreated animals. The administration of a 10 per cent solution of sodium chloride had a pronounced diuretic effect. The author concluded that administration of a hypertonic salt solution sufficient to make up for its loss is manifestly important in the prolongation of the life of an animal suffering from high intestinal obstruction. No relation could be demonstrated in rats suffering from high intestinal obstruction between the quantity of fluid lost the water concentration of the tissues and the length of survival. Dehydration therefore could not

be considered the determining factor in causing death. Administration of hypertonic saline solution does not seem to dehydrate an organism suffering from ileus. High values of blood urea were observed in rats with high intestinal obstruction. This azotemia responded to the administration of hypertonic salt solution with a definite lowering. But part of the azotemia remains in spite of the saline injections and shows no relation to the total chlorine content of the organism, the serum or urine chlorine or the diuresis and must therefore be considered to be due to an increased formation of an increased loss of excreted as fast as it is produced. With intestinal obstruction an organism suffers on an average a loss of weight twice as great as during fasting, partly because of an increased loss of fluid and partly because of an increased metabolism. Examination of the organs showed that the liver and the spleen suffered a rather striking loss about 40 to 60 per cent of their original weight. Since administration of hypertonic salt solution increased diuresis and lowered the azotemia its beneficial effect is attributed to an increased excretion of toxins. He concludes that death in high intestinal obstruction is due to toxemia.

## Acta Obstet et Gynec Scandinavica, Helsingfors

14 115 211 (No 2) 1934  
 Quantitative Hormone Examinations in Urine of Castrated W. P. Drimn—p 115  
 \*Experiments with Obstetric Electrography S. Clason—p 131  
 \*Fibrinogen Content of Blood in the New Born with Especial Consideration of Conditions in Haemophilia Neonatorum Temporaria Naeslund—p 143

**Obstetric Electrography—**Since efforts to register uterine contraction on the basis of mechanical principles have evolved no satisfactory method, Clason gave his attention to the electrographic registration. He employs so-called needle puncture electrodes and the intensifier electrocardiograph constructed by Duchosal and Luthi. His experiments indicate that the registration is clearest if one electrode is attached above the symphysis of the uterus and the other one above the symphysis. The electrography revealed that, several seconds before the observer feels the labor pain and also several seconds before the difference in the electrical potential, which is present during rest, begins to decrease. This decrease continues uniformly for several seconds but after that it remains essentially the same through out the duration of the contraction. To be sure, the milliamperemeter records various deflections but these seem to be of a different size range and are probably largely due to respiratory movements pressing and so on. Because of poor damping as yet. At the end of the uterine contraction the milliamperemeter returns to the original position. The return is somewhat slower than the primary change. He is convinced now that electrometrograms of various types may occur and he thinks that this is due to the fact that there are currents of the body of the uterus and currents of the isthmus of the uterus, which seem independent of each other.

**Fibrinogen Content of Blood in the New-Born—**Naeslund found that the fibrinogen content of the blood of healthy children is low at birth. It rises rapidly, however, and at the end of the first week is approximately twice the amount at birth. This rise in the fibrinogen content cannot be caused by the loss of water alone. In infants who showed an increased tendency to bleeding this rise in fibrinogen values generally are lower than in healthy children. The low fibrinogen content and the tendency to bleeding in these children the fibrinogen values generally are lower than in healthy children. The author assumes that the low fibrinogen content and the reduced coagulability of children with haemophilia neonatorum temporaria is probably a cause of the condition, although other factors such as a change in the calcium and fluoride content of the blood and the degree of oxygenation may play a part. Following a blood transfusion the amount of fibrinogen increases and so does also the coagulability. The author thinks that these factors may possibly explain the favorable effect of blood transfusion on children with an increased tendency to bleeding.

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## THE PHARMACOLOGIST AND THE THERAPEUTIST

CHAIRMAN'S ADDRESS

JOHN H. MUSSER, M.D.  
NEW ORLEANS

The title of this section, the Section on Pharmacology and Therapeutics of the American Medical Association, is particularly appropriate. Pharmacology and therapeutics are scientific subjects closely linked the one to the other and fundamentally dependent on each other. Without the division of pharmacology, the division of therapeutics would be utterly and completely in a state of disorganization, and, without therapeutic application of pharmacologic studies, pharmacology would be a moribund or dead science.

Pharmacology is defined as a branch of science that has to do with drugs in all their relations. Therapeutics is defined as the practical branch of medicine dealing with the treatment of disease (Steadman). These definitions indicate that it would be platitudinous to remark that pharmacology could not exist without therapeutics or that therapeutics could have any reason for being or existing without pharmacology. The definition of pharmacology is a more comprehensive one than is that of therapeutics. Pharmacology presumably deals with drugs in all their relations, therapeutics merely with drugs as applied to diseased individuals. Pharmacology teaches exactly and scientifically the effects that a drug has on the systems, functions and reactions of the normal body as well as the diseased body, whereas therapeutics deals only with disease. Pharmacology may be likened to an exact science, one in which results may be predicted accurately and the anticipated effects predicated on that which has been done before. While not a science of the exactness of chemistry, mathematics or physics (and what biologic science is?) nevertheless the experimental results are definite, positive and clear cut in the majority of instances. A dose of belladonna or of its alkaloid atropine can be expected to bring about a definite effect on the heart, on the eye, on the circulation and on the secretions of the animal so injected when given in ordinary experimental doses. On the other hand, while atropine is given by the therapist for certain definite purposes, the therapeutic dose of the drug may not and probably will not occasion a clear-cut, definite picture of the action of the drug. The effect in the human being may be modified by many extraneous features and if that human being is a diseased individual it may be modified still further. These extraneous features of drug administration render therapeutics at best a quasiscientific matter.

If it is then admitted or acknowledged that pharmacology and therapeutics differ to a considerable extent and the one represents exactness, precision and accuracy, the other at least very often or all too often nebulosity, the fact remains nevertheless that the two are very closely integrated and correlated. Empirical therapeutics may exist without pharmacology. Unfortunately it has in the past, but happily nowadays pharmacology steps in to explain the *modus operandi* or the method of therapeutic action of drugs with due regard to scientific observation. The two branches of medicine exist, then, only by the grace of the one to the other. Without therapeutics there would be no purpose and no place for pharmacologic observation except as an occasional physiologic experiment or else to inform the mind of the intellectually curious. Definitely the two are interdependent.

If it is conceded that the two sciences, the one basic, the other subservient, are closely bound the one to the other, it cannot be said for one moment that the practitioners of the science of pharmacology and practitioners of therapeutics are in any way, form or manner closely allied.

The pharmacologist works in his laboratory, his scheme of procedure in an experiment is carefully planned and thought out. He can give all the time possible or needed to the experiment. The practitioner of therapeutics, the physician, labors under difficulties that the pharmacologist cannot realize or appreciate. The physician is called on to give immediate treatment in case of emergency, he must act quickly, he does not have the time and the opportunity to plan his line of attack carefully something must be done immediately. His results cannot be anticipated as can those of the pharmacologist. He is dealing with a man possibly sick unto death and must act promptly.

As a result of the variations in the character of the work that the pharmacologist and the therapist do as a result of the circumstances under which each works, because the one is often a doctor of philosophy and the other always a doctor of medicine, because the one works with the human and the other on a lower animal, necessarily considerable divergence of results will be noted by the two observers, the one in his laboratory and the other at the bedside, when a comparable or a similar drug is given. Thus there has gradually grown up, I believe, a tendency for the one man to look with skepticism on the work of the other. The pharmacologist becomes irritated or disturbed by the failure of the therapist to put into practice the results of the pharmacologist's experiments. He feels that his results could and should be confirmed always by the man who is administering drugs. He loses patience with the man who cannot always accurately control his clinical experimentation. The therapist, on the other hand, is wont to criticize the laboratorian on the basis that he does

not know under what circumstances the practitioner has to do his work. He contends that the pharmacologist's work is not practical, that unfortunate and unhappy word so often abused by the clinician, he holds that the experimental animal is a very different animal from the human animal and he maintains that a laboratory test is not comparable to the test of the efficacy of the drug in man.

Utopia would be such a close working affiliation as existed between McKenzie, the great clinician, and Cushney, the equally distinguished pharmacologist. Of course it would be almost an impossibility ever again to get such splendid men to work together and collaborate as did these two. Cushney worked in McKenzie's wards, he saw the patients and he would observe in man the pharmacologic effects of the drugs administered. Equally satisfactory is the combination, in one man, of clinical judgment and experience with laboratory training. Cushing, the surgeon, is as much at home in the laboratory as in the clinic. His revolutionary pharmacologic work was the development of his observations in the clinic and in the laboratory. A man such as Cohn is a clinician who uses the precise methods employed by the man in the laboratory. Clinicians of this type have had a laboratory training, which all therapeutists cannot have. Certainly much can be done and will be done by the therapeutist who is laboratory minded and trained, a fortunate combination which few men will be found to possess. Every therapeutist who is not trained in the laboratory should have the help and advice of a pharmacologist, and every pharmacologist should have the opportunity of working with the human sick as well as with the experimentally diseased animal.

I have dealt with the self-evident fact that pharmacology and therapeutics are close relations. I would urge that the pharmacologist and the therapeutist be brothers in fact and not in theory.

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## THE ENCEPHALITIS PROBLEM

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The encephalitis problem has many angles. It is easy enough to call attention to the points involved but practically impossible to present any satisfactory answers.

For nearly twenty years there have been outbreaks in various parts of the world of acute infections of the central nervous system, exclusive of poliomyelitis and meningitis. These have differed in seasonal incidence, in age distribution, in case fatality and in clinical manifestations. They have usually been described as some form of acute encephalitis or encephalomyelitis. In conjunction with these more or less spontaneous cases there has been a marked increase in the reports of encephalitis following vaccination, measles and other acute infections. While it is now known that encephalitis may run a mild course in the acute stage and escape recognition, the symptoms in the more severe cases are so arresting that they could hardly have passed unnoticed. It is not probable that clinical diagnosis has been any keener in the past two decades than

in the preceding years. It is safe to assume, therefore, that the encephalitis problem has reawakened during the past two decades. Historical accounts indicate that encephalitis is by no means a new disease and that doubtless outbreaks have occurred at intervals down the centuries.

The first question, then, may be stated: Why does encephalitis lie dormant for many years and then awaken to plague mankind? To this, no answer has been given.

TABLE 1—Tentative Classification of Acute Encephalitis

	Etiology
{ Epidemic encephalitis { Acute encephalomyelitis	Neutrophic herpes virus?
Australian X disease	Transmitted to rabbits, monkeys, sheep, colts, etc., virus
Japanese type B	Filtrable virus pathogenic for rabbits
Encephalitis following vaccination	?
Encephalitis following infections	?
St. Louis epidemic	Virus pathogenic for mice and somewhat for rhesus monkeys

The second question may be formulated: What relationship, if any, is there among these various outbreaks and types of acute infections of the central nervous system?

Table 1 lists the more important of these.

This question can be answered only when a more definite knowledge of the etiology has been obtained.

It should be noted that one of the earliest groups of cases to be reported was that which occurred in France in 1915-1916 on the Western front and which was described as subacute encephalomyelitis by Cruchet, Moutier and Calmettes.<sup>1</sup> Other similar groups have been reported in Ohio by McIntyre<sup>2</sup> and by Stout and Karnosh.<sup>3</sup> Scattered cases have also occurred in various places. It has been considered by many that encephalomyelitis is a type of epidemic encephalitis. So far as I know the only instance in which a virus has been isolated in this disease is the W virus isolated by Gay and Holden.<sup>4</sup>

The etiology of epidemic encephalitis has not been definitely proved. The disease is generally believed to be due to a filtrable virus, and until the studies of the St. Louis epidemic were established it was more or less taken for granted that a single virus was probably the agent responsible for the disease. Considerable weight must be attached to the evidence that a neurotropic herpes-like virus is the etiologic factor in many cases, at least, of epidemic encephalitis. Several strains of this virus have been isolated and carried on in series.

Table 2 shows the instances in which this virus has been isolated.

It should be noted that these viruses are not identical in their various reactions. Dr. Holden has worked extensively with the herpes virus and with E. L. 1, W. and J. A. These viruses all produce an encephalitis in rabbits but intradermal injections of J. A. and W. regularly produce an ascending myelitis in rabbits, while intradermal injections of the herpes virus and E. L. 1 rarely produce this reaction. W. and the herpes virus are very pathogenic for mice, while J. A. is not. A typical encephalitis in cebus monkeys has been produced

1 Cruchet, Moutier and Calmettes. Bull. et mem. Soc. med. d. hop. de Paris 41: 614, 1927.

2 McIntyre, H. D. An Unusual Encephalopathy. Probably Infectious in Origin. J. A. M. A. 100: 1097 (April 8) 1933.

3 Stout, R. E., and Karnosh, L. J. Acute Disseminated Encephalomyelitis. J. A. M. A. 101: 667 (Aug. 26) 1933.

4 Gay, F. P. and Holden, M. Tr. A. Am. Physicians 48: 16, 1933.

by W Further studies of these viruses must be made to learn their exact relationship

In table 1 there is little that needs to be discussed While experimental work in the Australian X-disease showed that it could be transmitted to rabbits, monkeys, sheep and a colt, the virus was not extensively studied in relation to other viruses There is evidence that some of the cases were poliomyelitis But others were undoubtedly encephalitis, since one child developed parkinsonism in a short time and two others had mental disorders following the illness

From the Japanese type B encephalitis of 1924 several strains of virus were isolated by Takagi<sup>5</sup> and was called by him the "virus of encephalitis japonica" This was differentiated experimentally from the various herpetic encephalitic viruses

The etiology of encephalitis following vaccination and acute infections is best expressed by a question mark Are they caused by some recent change in the properties of the vaccine virus and the virus of measles, for example? Are they caused by the activation from lowered resistance of a latent encephalitic virus? (I have seen acute encephalitis follow toxin-antitoxin administration) Or are they caused by some symbiotic reaction of an encephalitic virus and the vaccine or measles virus? After all, the diagnosis of these forms of encephalitis can be made solely on the history Their clinical symptoms and the development of the chronic stage differ in no way from epidemic encephalitis

The St Louis epidemic of 1933 has the distinction of being the only outbreak in which the etiologic agent has been definitely established This is a newly isolated virus pathogenic for mice and less so for rhesus monkeys It has been demonstrated by Muckenfuss, Armstrong and McCordock,<sup>6</sup> Webster and Fite,<sup>7</sup> and Holden At one time it was suggested that it was the

that of the cases of the meningeal type of encephalitis that has been more or less common in New York since the fall of 1918 It is probable that in the future serologic tests will need to be extensively used in making a diagnosis of acute encephalitis

A third question of interest is this What is the mechanism of the development of the chronic stage of encephalitis?

When the chronic stage of the disease was first observed it was thought to be due to the effects of the inflammatory reaction of the acute stage An occasional patient is seen with residuals only of the acute stage In these patients, however, the disability remains the same or even shows a tendency to improve at least over a period of many years But this is not, I believe, the true chronic stage of encephalitis, which is usually a progressive affair, and which develops in most instances after months or years (sometimes from ten to fourteen years) of apparently complete restoration to health It is probable that from a third to a half of the patients who recover from acute encephalitis eventually go into the chronic stage Is this phase, differing so widely in most of its signs and symptoms from the acute phase, caused by the virus, which has remained latent, beginning to smolder? Sometimes the onset of the chronic stage seems to be precipitated by an acute infection or by an accident or mental shock, but far more often no such possible contributing factor can be found

As a subheading of this question, the not infrequent occurrence of acute exacerbations may also be considered I can think of one patient who has had three acute episodes over a period of eight years All of them were quite different in their manifestations and from all three there was a complete recovery Were they due to reinfections or were they caused by the flaring up of a latent virus?

A fourth question relates to the possibility of treatment I myself am quite optimistic in regard to effective methods of treatment being developed when there is more definite knowledge in regard to the etiologic agent That one can no longer think of acute epidemic encephalitis as being caused at all times by the same virus seems definitely established But if by serologic tests the infecting virus can be identified in a particular case, it should be possible by active immunization to raise the resistance of the patient so that his chances of recovery will be increased and the possibility of the development of the chronic stage greatly lessened And even if the patient has reached the chronic stage, it may well be that its further development may be halted by active immunization, especially if the treatment is begun early If this could be brought about, I believe that many patients in the chronic stage would show a considerable regression of their symptoms I believe this because many pathologists state that the symptoms are often out of all proportion to the lesions that are shown at necropsy Furthermore, several of our patients in a fairly well advanced stage of parkinsonism have been restored almost completely to normal, whether as a result of treatment or of spontaneous improvement, I cannot say And also the great majority of patients tell me that after awakening from a restless night's sleep there is a varying period in which they are completely free from any disability

For the past five years the Matheson Commission has been treating patients in both the acute and the chronic stage of encephalitis The method of treatment that has given the best results is that of attempting to immunize patients actively against the neurotropic her-

TABLE 2—Herpes-Like Viruses Isolated from Material from Cases of Epidemic Encephalitis

Investigator*	Date	Name of Virus	Material Used
1 Levaditi and Hurvler	1920	C	Brain
2 Levaditi and Hurvler	1920(?)	Ch	Nasopharynx
3 Netter, Césari and Durand	1921		Brain
4 Doerr and Schnabel	1921	Bâle I	Cerebrospinal fluid
5 Doerr and Berger	1922	Bâle II	Brain
6 Berger	1922	Bâle III	Brain
7 Schnabel	1923	Berlin	Cerebrospinal fluid
8 Luger and Landau	1923	Wien	Cerebrospinal fluid
9 Doerr and Zdansky	1923	Hogander	Brain sent by Kling
10 Perdrau	1925	E L I	Brain
11 Perdrau	1925		Brain
12 Gay and Holden	1932	W	Brain and cord
13 Gay and Holden	1933	J A	Brain

\* The references for all the investigators cited except Gay and Holden are Matheson Commission Epidemic Encephalitis New York 1929 p 90 and Neal Josephine C The Present Status of the Etiology of Epidemic Encephalitis J A M A 91 231 (July 28) 1928

same as the Japanese type B on account of the seasonal occurrence and age distribution Recently Webster and Fite<sup>8</sup> have been so fortunate as to obtain serum from convalescent patients in Japan and have demonstrated serologic differences

The problem of the etiology of acute encephalitis and, in consequence, of the classification and nomenclature of cases becomes, if possible, more confused than ever I have stated before and still maintain that the symptomatology of the cases in St Louis did not differ from

5 Takagi I Japan M World 5 147 (June) 1925 Ztschr f Immunitätsforsch u exper Therap 47 431 456 1926  
6 Muckenfuss R S Armstrong C and McCordock H A Pub Health Rep 48 1341 1933  
7 Webster L T and Fite G L Science 78 463 (Nov 17) 1933  
8 Webster L T and Fite G L Science 79 254 (March 16) 1934



petic virus. A few patients in the acute stage have also received intramuscularly rabbit serum hyperimmune to this virus. While quite spectacular recoveries have followed the use of this serum, our series of cases thus treated is too small to permit definite conclusions to be drawn. The patients treated in the acute stage by serum or vaccine or both are being followed and eventually the effect if any on the development of the chronic stage will be known. Up to the present time no patients have begun to show signs of going into the chronic stage. In a few instances there are still residuals of the acute stage.

During the past year Gay and Holden have been preparing a vaccine consisting of the formalized virus, and so far the results with this vaccine seem to be particularly good. Our efforts at treatment are described in more detail elsewhere,<sup>9</sup> and time does not permit a more extended discussion here, but I may state that my associates and I are working with open minds and with an attempt to keep adequate controls.

A fifth question deserves serious consideration: What provision can be made for the hospitalization of patients in the chronic stage of encephalitis? There are tens of thousands of these patients in the United States most of them without the means to provide themselves with adequate care. Some are in state hospitals, some are in institutions for the care of the financially dependent, many are at home. Very few are enjoying the benefit they might derive from proper physical therapy, occupational therapy and symptomatic treatment. Hospitals especially designed for these patients are urgently needed. They are needed not only for the sake of the patients and their families but also because studies carried out in such hospitals would, in time, add greatly to the knowledge of this baffling disease.

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## EPIDEMIOLOGY OF EPIDEMIC ENCEPHALITIS, ST LOUIS TYPE

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Final opinion regarding the exact nature of the encephalitis epidemic in St Louis City and County in the late summer of 1933 and regarding its pathogenesis and spread must await further study, although some information has been obtained that may give more definite trends to the estimation on these points.

### TYPE OF DISEASE

In recent years, encephalitis, like poliomyelitis, has been always present, and at every season, in communities of large size. A survey of the more important cities of the United States reveals that many of the cases currently being reported as epidemic or lethargic encephalitis lack the characteristics either of the disease as seen in St Louis in 1933 or of the disease as originally called lethargic encephalitis by von Economo or epidemic

encephalitis since Economo's first description. Some of these current cases prove to be some other condition in their further course, in others, on account of early fatality after being first brought to clinical attention or for some other reason, observation has been too limited to point definitely toward the diagnosis of encephalitis, while still other cases are diagnosed epidemic encephalitis on the basis of behavior disorders or juvenile parkinsonism without any clear history of an attack of encephalitis itself.

It would perhaps be well if all forms of infectious encephalitis were reported under item 17 in the International List of Causes of Death, without regard to whether they were lethargic or epidemic, leaving item 78, in diseases of the nervous system, only to infectious encephalitis, such as purulent encephalitis. The Economo disease though labeled "epidemic encephalitis" is not now, and never has been, epidemic at least as compared with the Japanese and St Louis outbreak of encephalitis.

Of the forms of infectious encephalitis that come into consideration in connection with this epidemic there may be considered first, and dismissed, the encephalitis due to the virus of acute anterior poliomyelitis. This is an exceedingly rare form of poliomyelitic infection when not combined clinically with a myelitis, so far as known, with the very questionable exception of the Australian epidemic of 1917 and 1918, it has never appeared by itself with epidemic prevalence.

The postinfection encephalomyelitis, which is characterized, as Perdrau has shown, by a patchy demyelination, occurs typically (but rarely) after measles, vaccinia, variola and varicella, and at a fairly definite period in the evolution of these diseases. Individual cases of postinfection encephalitis might be confused with the disease in St Louis.

In comparing this epidemic with the form of infectious encephalitis chiefly prevalent from 1917 to 1923, which goes by Economo's name (lethargic or "epidemic" encephalitis), and in comparing it with the Japanese type B, epidemics of 1924 and 1929 it will be shown elsewhere that there are distinct differences between the usual manner in which von Economo's encephalitis appears and the St Louis epidemic, but between the Japanese type of the disease and the St Louis type no clear distinction can be made. Even with the Economo disease, however, one might not be able to differentiate an individual case from the disease as it occurred in St Louis.

The outbreak that occurred in the summer of 1932 in Paris, Ill. is the closest precedent for the St Louis outbreak, clinically and epidemiologically they might be regarded as identical. Through the courtesy of the Illinois State Department of Health, the Paris physician, and particularly the local health officer, Dr W E Conklin, a search was made for cases in that city. Thirty-eight cases, similar in all respects to the St Louis cases occurred during the summer of 1932, 75 per cent of them during the three weeks from August 2 to August 22. This was an incidence of 433 per hundred thousand of population, over four times the rate in St Louis City and County in the following year, greater than the rate in any subdivision of the St Louis area of comparable size, and 60 per cent more than the rate in Kagawa the most severely affected province of Japan in the heaviest epidemic year 1924. Thirty-seven per cent of the Paris cases were fatal as compared with 20 per cent in the St

<sup>9</sup> Neal Josephine B. and Bentley I. A. Treatment for Epidemic Encephalitis. Arch. Neurol. & Psychiat. 28: 897 (Oct.) 1932. Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 15, 1934.

Louis epidemic, 60 per cent in the Japanese 1924 epidemic, and 63 per cent in the 1929 Japanese outbreak of 2,000 cases. As in St Louis and Japan, there was a great preponderance of cases in the older age groups in Paris, 82 per cent being in persons over 50 years of age. As to sequelae, also there was a notable lack of the distressing after-effects, which so frequently follow the Economo type of the disease that their occurrence in a considerable proportion of the cases is almost characteristic. In spite of the advanced age of many of the patients who had had a severe febrile attack with temperature exceeding 104 F and with marked cerebral involvement, very little increase of the deterioration to be expected with age was found in the Paris patients fifteen months afterward. In less than 2 per cent of the Japanese cases were after-effects detectable one year following the 1924 epidemic.

#### THE ST LOUIS OUTBREAK

It is believed that the basic epidemiologic data of the St Louis epidemic are fairly reliable. A check up, at the close of the epidemic, of homes not known to have been infected, covering sample neighborhoods in all parts of the city and suburbs, revealed practically no unreported cases.

There are two questions that occur in this connection. Did many mild cases occur that could not be diagnosed as encephalitis by any of the ordinary standards? From the random fashion in which the frank cases of the disease occurred in the community, this might be reasonable, yet actual search failed to reveal them in any significant numbers, either in other members of households where a frank case existed, or in households in which no case had been reported. Several of the St Louis physicians whose practice carried them into homes of the well-to-do believed that they saw during the summer an unusual number of mild, indeterminate illnesses, particularly among children, but the total number of such reports was not great.

It was noted that the cases in this epidemic, while lacking a single definite and unifying pathognomonic sign, were in general less varied in their symptomatology than the cases previously described under the term "epidemic encephalitis." The fact that hospitalization was the rule also made for more uniform and more accurate diagnoses. But a further question arises. Did the practice of using an increased cell count in the spinal fluid to determine the diagnosis tend to cause the inclusion of illnesses due to other causes or to exclude cases that should have been called part of the epidemic? It is not believed that any notable error crept in from this practice, in spite of the errors in sampling involved in the count of a small number of cells. The cases that responded to the disease in general symptomatology did show an increase in cell count at some stage of their course in almost all instances, and there was no considerable group of cases failing to fall in with the clinical picture of some one of the types of the disease that were called encephalitis merely on the basis of the spinal cell count. Cell counts higher than normal were much more uniformly found in this epidemic than in "epidemic encephalitis" in general. It is none the less to be recognized that the spinal fluid in typhoid, for example, and in some other diseases with pronounced cerebral symptoms may show pleocytosis independent of any idiopathic encephalitis.

The very first cases in the epidemic had their onset late in July and the epidemic practically ended with

October. A few straggling cases were reported from time to time during the winter months, none during the spring months. The outbreak began in St Louis County and subsided there first. Five hundred and seventy-seven cases occurred in St Louis city and 520 in the county, making a rate of approximately 100 cases per hundred thousand of population for the entire area, or 69 per hundred thousand for the city and 212 per hundred thousand for the county. Although this disease was new to all of us as a type distinct from Economo's encephalitis, its general epidemiology was so similar to that of poliomyelitis that we were able to predict, when the epidemic was only three fifths over<sup>1</sup> (656 cases having occurred out of a final total of 1,100) to a fraction of a per cent what the total incidence per hundred thousand of population would be (100), and with the same grade of accuracy the total case fatality (20 per cent). The fact that the final figures did coincide so exactly with round numbers was of course fortuitous.

Taking the city and county together, the proportion of cases that occurred in males was the same, 50.9 per cent, as the proportion of males in the total population. As to color, 9.9 per cent of the cases were reported in colored persons, who form 10.1 per cent of the total population. The disease apparently showed no preference as to sex, color or economic status.

The accompanying table shows the specific case incidence, the death rate per hundred thousand, and the case mortality rate for decennial age groups in city and county together.

*Case Incidence and Death Rates by Age Groups in the St Louis City and County Encephalitis Epidemic of 1933*

Age Group	Cases per 100 000 of Population in Each Decade	Deaths per 100 000 of Population in Each Decade	Case Fatality per Cent
0-9 years	54	4	8
10-19 years	64	3	5
20-29 years	68	3	4
30-39 years	73	6	8
40-49 years	119	14	12
50-59 years	169	36	21
60-69 years	280	109	38
70-79 years	364	204	56
80-89 years	419	330	80

This table shows a striking increase in the incidence of the disease with age, and an even more notable increase in the fatality with age. The latter tendency is not extraordinary in an infectious disease but is unusual to this marked extent, and the former tendency is practically unknown in infectious diseases except for the Japanese epidemics and the Paris, Ill., prototype of the St Louis epidemic. The combination of increasing mildness of the disease and less frequent recognition with descent in the scale of years from old age toward childhood suggests strongly the possible presence of very many cases of the disease in unrecognized forms among persons in the younger age groups, previously discussed.

No noteworthy difference was observed in case fatality (mortality per hundred cases) between cases occurring during the first part of the epidemic and those during the latter part. The fatality rate in the county was 17.5 per cent, as compared with 22.5 per cent in the city, a difference that was evident throughout all age groups in which the numbers were large enough to have any significance. This might be attributed to

<sup>1</sup> Leake, J. P. Encephalitis in St Louis, J. A. M. A. 101: 928 (Sept. 16) 1913.

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slightly milder strains of the disease predominating in the suburbs in spite of a heavier incidence, to better resistance against lethality on the part of suburban dwellers, or to their securing medical attention and recognition in illnesses milder than would generally secure such attention in the city.

In fatal cases death came oftenest six days after onset, and in more than half within the first week.

Reliable data on the incubation period of a prevalent disease in urban communities are difficult to obtain. The many possible opportunities for infection make uncertain any conclusion from apparently connected cases. In this epidemic, however, only cities in the St. Louis section of the country showed any appreciable amount of infection with this form of encephalitis, and it was thus possible to assign boundaries to the infected region. Persons entering this region without previous contact with infected territory and later contracting the disease might reasonably be assumed to have had an incubation period no longer than the interval between their coming into the infected area and the onset of the disease. In the six cases of this sort that were recorded, the maximum incubation period thus ascertained was nine, twelve, fourteen, fourteen, fourteen, and twenty-one days, respectively. Other persons would have their first symptoms at some time after going from the St. Louis area into presumably uninfected surroundings. Here the incubation period we should suppose to be not less than the interval between the date of entering the infected area and the date of onset. In the seven cases of this kind, the presumed minimum incubation period was four, seven, eight, nine, eleven, thirteen and fourteen days, respectively. According to this, one would expect about half a dozen cases to have incubation periods ranging at least from nine to fourteen days, and possibly from four to twenty-one days. Among a thousand cases a somewhat wider range might be expected.

The epidemic centered in St. Louis County and did not radiate far. About 150 cases occurred in Illinois, including the nearby cities across the Mississippi River from St. Louis, but the disease did not spread to Chicago, 250 miles away. Two definite Illinois foci did occur 75 and 100 miles from St. Louis and about twice as far from the Paris focus of 1932. Louisville, 250 miles from St. Louis, was the only other locality to the east to have any considerable number of cases.

To the west, scattered cases in excess of the normal occurred in Missouri and Kansas, with foci in Columbia, in and around Kansas City, and in St. Joseph, respectively 100, 230 and 250 miles from St. Louis. In the largest three of these foci, that is, the Kansas City area, Louisville and St. Joseph, a tendency was evident that was noted in St. Louis for the cases to be more numerous in the outlying sections than toward the center of the cities. In the Kansas City area there were 181 cases and in St. Joseph 45, with fatality rates of 23 and 30 per cent, respectively. The tendency toward selecting the older persons was noticeable, and the curve of the Kansas City outbreak, as to dates, was similar to that of the St. Louis cases.

In all places where the disease has appeared there has been a notable freedom from multiple cases in the same family or from other obvious contagion between cases. This is even more striking than in outbreaks of poliomyelitis, and some difference in that direction would be expected between a disease primarily of children and one of old people. As regards communi-

ties, the spread by contagion, presumably by human transfer, is obvious, but as regards individuals, the reverse is true with the disease established in a community, the matter of individual susceptibility, in which age played a part, appeared to be a much more important determining factor in contracting the disease than did contagion. In many of the households affected, the least mobile member, and the one stricken in contact with the outside world, was the one least in contact with the limitation of the disease in its typical form is also noteworthy. In none of the places to which the disease order spread did the outbreak prolong itself beyond the season during which it prevailed in St. Louis.

There were no instances of two attacks in the same individual, but persons who had had an attack of poliomyelitis, even within a few years, were not spared from this disease.

The possibility of spread by drinking water was considered early in the outbreak. The fact that the city and the county municipalities received their water supplies from different pumping stations suggested a possible reason for the outbreak being largely a county affair. This possibility was promptly eliminated. There was no selective distribution of cases throughout city and county on the basis of milk supply, no dealer or dealers having a disproportionate number of cases among patrons.

The sharp limitation of the epidemic to the warm season of the year, and the lack of obvious connection between the cases as to contagion, water supply, food supply or milk supply, suggested at once one of the major objectives of the epidemiologic inquiry, namely, the possibility of transmission by insects. Entomologic investigation pointed to mosquitoes as being the most probable vector if there was an insect vector. No other biting insect, not even Stomoxys calcitrans, the biting stable fly, was likely to have a flight range long enough and breeding places so situated as to account for the wide and fairly rapid spread of the disease. The summer was an exceptionally dry one, and though replies to specific inquiries varied, it was generally believed that mosquitoes were worse than usual.

Aside from the studies on the virus and clinical studies, entomologic investigation was the first laboratory phase of the joint inquiry. It was conducted by a corps of workers of the United States Public Health Service. Laboratory facilities were provided by the Oscar Johnson Institute of Washington University, and special humidity and temperature rooms were placed at their disposal by the Missouri Botanical Gardens. Later these investigators were joined by a group from the United States Army with special facilities for Aedes experiments.

Attempts were made to inoculate monkeys and mice by the bite of mosquitoes that had been allowed to feed on encephalitis patients at various stages of the disease and allowed to bite the experimental animals at various periods after the initial feedings. Initial feedings were also made on inoculated monkeys and mice. Parts of the lots of presumably infected insects were also ground up at various times and inoculated into monkeys and mice. The three species of mosquitoes on which chief stress was laid in the experiments were Aedes aegypti, on account of the ease with which this insect may be handled experimentally, Anopheles quadrimaculatus, on account of the presence of malaria clinically and this host having been found in the district concerned, and Culex pipiens, which was the common mosquito of

the region and, in spite of the difficulty in handling for experimental purposes, was the only species that could reasonably be incriminated as the possible vector in nature for this outbreak

All the tests were negative

On account of the relatively low percentage of success with monkey intracerebral inoculations (only 40 per cent) under the most favorable experimental conditions, it was believed that only human experiments would show the possibility of contracting the disease through the bite of a mosquito under natural conditions. For this purpose the governors and the health commissioners of the states of Mississippi and Virginia allowed certain of the convicts in the state penitentiaries to volunteer to submit themselves to the bites of presumably infected mosquitoes. All three species of mosquitoes were used, and various periods of the disease were used for the initial feedings and various intervals for the attempted human inoculations.

Here again all tests were negative

In spite of entire failure under a wide variety of experimental conditions, we cannot say that the possibility of transmission of encephalitis by mosquitoes in nature is finally disproved. It would be extremely difficult, however, to account for the somewhat uniform diffusion of the disease over a wide metropolitan area on the basis of such transmission being the major factor in the spread of the disease.

In the 1878 yellow fever epidemic in St. Louis, there were 151 cases with 71 deaths, of which 31 (23 fatal) were of indigenous origin, and in general these cases were in groups closely connected geographically, without any diffusion over the city.

In view of the negative results of the insect experiments, the diffuse fashion in which poliomyelitis, except in the most intense epidemics, spreads through a community, without apparent contagion between cases, and the radial spread of this epidemic of encephalitis by communities, but not by individual cases, it appears likely that human contagion, chiefly by unrecognized carriers, is the method of infection here, but that susceptibility, in which age is an important factor, determines who will contract the disease in an infected community.

#### SUMMARY

1 The type of disease in the St. Louis outbreak was unlike that in the sporadic cases of the Economo disease but very much like type B of the Japanese outbreak in 1924, and almost exactly like the Paris, III, outbreak of 1933.

2 The cases were fairly accurately and completely reported.

3 The case rate for the entire area was 100 per hundred thousand—69 per hundred thousand for the city and 212 per hundred thousand for the county.

4 There was no predilection by sex or color.

5 There was a striking increase in both incidence and fatality rates with age.

6 The fatality rate was higher in the city than in the county.

7 The incubation period in different cases showed a variation between nine and fourteen days, with possibly wider limits.

8 There was a notable rarity of multiple cases in the same family and of obvious contagion between cases.

9 Between communities the spread was obviously by human contagion, but as regards individuals, individual

susceptibility, in which age played a part, appears to be more important than contagion.

10 The disease appears to be limited seasonally in its typical form.

11 Water supply and milk supply were eliminated as possible mediums of transmission.

12 Entomologic experiments with the mosquito as a possible vector were negative.

#### ETIOLOGY OF THE 1933 EPIDEMIC OF ENCEPHALITIS

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The epidemic of encephalitis occurring in St. Louis and Kansas City during the summer of 1933 differed in a number of clinical and epidemiologic characteristics from the majority of previously reported epidemics. Since it is probable that these differences may be the result of different causative agents, no attempt will be made to review the voluminous and conflicting literature on the etiology of encephalitis, and this paper will be limited strictly to studies on the disease occurring in epidemic form in the recent outbreak.

Investigations into the etiology of the 1933 outbreak of encephalitis may be said to have begun before the nature of the disease was recognized or the onset of an epidemic was suspected. When the first few cases were admitted to the St. Louis County Hospital, the nature of the febrile illness was not immediately appreciated, and many cultures of blood and spinal fluid were made, as well as many examinations of blood films for malaria plasmodia. These were all negative, and it was only after the first autopsy that the nature of the disease was definitely established. As the outbreak continued, similar studies were made on patients in hospitals with continued negative results.

This much negative information was available, therefore, when the investigation was centralized by the Metropolitan Health Council in the laboratories of the Departments of Medicine and Pathology of Washington University School of Medicine. At this time the investigation was planned on a more extensive scale, and cultures of brain tissue were also made on autopsies, and in addition a variety of animals were inoculated. Brain tissue was removed aseptically by removing the skull plate without touching the dura, wiping off the dura with alcohol, opening it with sterile instruments, and removing bits of brain with a second set of sterile instruments. For culture, this material was transported to the laboratory in petri dishes and emulsified in a mortar under a hood. It was obviously impossible, with this amount of manipulation, to avoid occasional contamination, but in spite of this difficulty no growth occurred in about half of the material studied, and bacteria, when present, were few in number and of such variety that no one organism could be suspected of having etiologic significance. Furthermore, no bac-

teria were demonstrated in stained sections of tissue. It seems obvious, from the outcome of this work, that the presence of ordinary bacteria in the blood, brain or spinal fluid can be excluded from any etiologic rôle in this disease.

A number of animals were inoculated by various routes, but intracranial inoculation of brain tissue was practiced most frequently, the emulsions prepared as for culture and diluted to about 10 or 15 per cent being commonly used. Since most of these inoculations gave negative results, they will not be described.

The negative results in rabbits, while not on a very large scale, comprised the use of over thirty animals by various routes of inoculation, and seem significant in excluding herpes virus from an etiologic rôle, since from a number of these samples of tissue, another virus that appears to be the etiologic agent of the disease was isolated.

Glycerinated brain tissue from fatal cases was made available, so far as possible, to laboratories outside St. Louis that were interested in studying the disease.

The virus that appears to be the etiologic agent was isolated almost simultaneously by Muckenfuss, Armstrong and McCordock,<sup>1</sup> using a strain of mice bred at the Rockefeller Institute, and peculiarly susceptible to the action of neurotropic viruses. Strains of virus isolated in these two laboratories were exchanged and found to be similar in their characteristics.

The disease in the two known susceptible animals will be briefly described.

**Mice**—After the disease has been established in mice, passage in this animal is readily accomplished. In addition to the susceptible strain of Webster, Swiss mice and the stock strains of white mice available in the St. Louis area have been found to be uniformly susceptible.

Following intracerebral inoculation, the incubation period ordinarily varies between four and eight days and is most commonly five days. The animals then have ruffled fur, convulsions are common, and in a

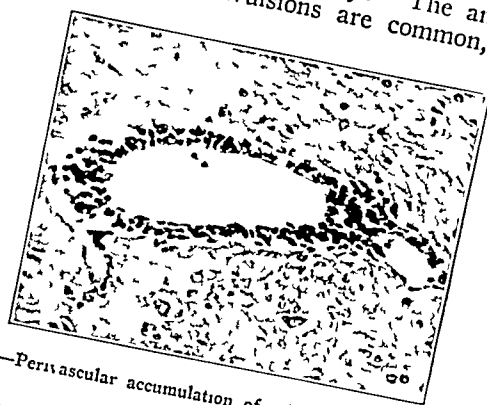


Fig. 1—Perivascular accumulation of cells in brain of monkey

short time they become prostrate and respiration is barely perceptible. Death may occur rapidly, or the animals may remain in this state for several hours, and it is exceptional for an animal to recover after developing definite signs of illness.

Histologically there are accumulations of round cells around the blood vessels of the brain, and there is destruction of nerve cells, most marked in the hippo-

campus and cornu ammonis. These changes are also observed in parts of the spinal cord.

**Monkeys**—These animals are less susceptible than white mice, and maintaining the virus in them is difficult. Following the intracranial inoculation of brain emulsions from fatal human cases of encephalitis (these inoculations were usually repeated on the fifth

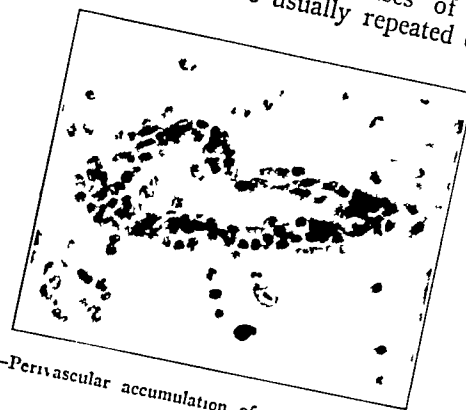


Fig. 2—Perivascular accumulation of cells in brain of mouse

day), the incubation period was ordinarily between eight and fourteen days. At this time the temperature gradually rose, and at the same time the monkeys became weak, and tremors appeared. The tremors were particularly noticeable when the animals climbed the sides of the cage, and some incoordination was usually evident. The majority of the animals were killed for passage while symptoms were present, so it is impossible to state the usual outcome of the disease in monkeys. Since some monkeys were permitted to recover, it is possible to say that the disease is not necessarily fatal.

At autopsy, the brains were usually markedly congested, and histologic study revealed changes consistent with those observed in the human disease, namely, perivascular cuffing, nerve cell degeneration, and focal collections of cells. These changes were present in the brain and upper portions of the cord.

#### CHARACTERISTICS OF THE VIRUS

Since mice are much more susceptible than monkeys, and since they are much more easily handled, the studies on the characteristics of the virus have been made with the use of mice. The virus is ordinarily active on intracranial inoculation in mice in a dilution of 1:1,000,000 of the mouse brain. Following intranasal instillation a somewhat larger dose is necessary for the disease to develop regularly. These two methods of inoculation are the only ones that have been found satisfactory for the production of the disease in these animals. The different strains of virus that have been isolated have been found to be similar in all essential respects so far as comparative studies have been made.

The virus has been reported by Webster and Fite<sup>2</sup> to be readily filtrable. Bauer, Fite and Webster<sup>3</sup> have filtered the virus through graded collodion membranes according to the method of Elford and have estimated the diameter of the virus particles to lie somewhere between 22 and 33 millimicrons.

The virus is neutralized by the serum of individuals convalescent from encephalitis in the 1933 outbreak and is not neutralized by the serum of normal individuals from uninfected areas.<sup>2</sup>

<sup>1</sup> Muckenfuss R S, Armstrong Charles and McCordock H A  
Pub Health Rep 48 1341 (Nov 3) 1933  
<sup>2</sup> Webster L T and Fite G L Science 78 463 (Nov 17) 1933  
<sup>3</sup> Bauer J H, Fite G L and Webster L T Proc Soc Exper Biol & Med 31 696 (March) 1934

This test is carried out by incubating serial dilutions of the virus with undiluted serum and inoculating the serum-virus mixtures intracranially into mice. Evidence of protection is then detected by comparing the number of mice dying in the lots inoculated with virus incubated with normal serum with those inoculated with virus incubated with immune serum.

The virus is also neutralized by the serum of recovered monkeys or mice.

Webster and Fite<sup>4</sup> have also reported that mice which have been inoculated subcutaneously or intraperitoneally do not develop encephalitis but become immune as tested by intranasal or intracranial inoculation.

Comparison with other viruses has been reported by Webster and Fite<sup>2</sup> and by Cox and Fite<sup>5</sup>. They have reported absence of cross immunization with the viruses of herpes, vesicular stomatitis and equine encephalomyelitis.

Furthermore, serum collected from individuals recovered from epidemic (lethargic) encephalitis from one to ten years after the acute attack, poliomyelitis, Japanese encephalitis, and Australian-X disease did not neutralize this virus in the hands of Webster and Fite<sup>6</sup>.

#### SUMMARY

A number of strains of a virus that seems to be the etiologic agent of the 1933 epidemic of encephalitis were isolated in two different laboratories. This virus acts on monkeys and white mice and is distinct from other previously known viruses. The number of strains of similar characteristics isolated, and the neutralization of the virus by serum of individuals convalescent from encephalitis in this epidemic, but not by the serum of individuals recovered from other diseases, justify the conclusion that it is the etiologic agent of the recent epidemic.

### THE SYMPTOMS AND DIAGNOSIS OF ENCEPHALITIS

(1933 ST LOUIS EPIDEMIC)

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The type of encephalitis that was epidemic in St. Louis during the summer of 1933 differed materially from the popular conception of epidemic, or lethargic, encephalitis as heretofore observed in this country. Not only was there an unprecedented number of cases occurring within a short period of time and in a restricted geographic area, but the course and symptomatology of the disease were unlike those commonly observed in the older variety of encephalitis. In brief, the St. Louis cases were characterized by a rather sudden onset, with headache, high fever, stiff neck, mental confusion, tremors and other neurologic symptoms, but only occasional transient ocular manifestations. Following a stormy course, in most instances rapid improvement occurred, leading to apparently complete recovery.

within two or three weeks and leaving no residual effects. The present report is based on a study of the records of 786 hospitalized patients, and personal observation of approximately 400 such cases.

As the proportions of the epidemic grew, it soon became evident that there were apparently two distinct phases to the infection. The first consisted of symptoms of a general or systemic nature, and the second was characterized by evidences of invasion of the central nervous system. Among the systemic manifestations may be mentioned such complaints as extreme lassitude, malaise, chills or chilly sensations, grippe pains in the back or limbs, nausea or vomiting, and abdominal pains. Somewhat less frequently there were also photophobia, catarrhal conjunctivitis, sore throat and rarely other signs of a mild infection of the upper respiratory tract. As involvement of the nervous system became apparent there was usually fever, severe headache, stiff neck, mental confusion and tremors, with a host of irregular neurologic signs and symptoms depending on the localization of the pathologic lesions. Moreover, since the disease affected by preference the older adults, the symptoms were often modified, or partially masked by preexisting pathologic conditions in these individuals such as senility, arteriosclerosis, chronic heart or kidney disease, or hypertension. Complications of this nature proved important factors in the prognosis, since the death rate was noticeably lower in children and in the younger, healthy adults.

Three distinct types of the disease were observed. In the purely encephalitic variety the symptoms referable to the central nervous system were evident from the very outset, often accompanied by certain of the systemic manifestations as well. In the second group the signs of a general infection without neurologic localization were present from one to four days or even longer before the encephalitic symptoms developed, suggesting a definite period of invasion of the disease. The third type was made up of the very mild and abortive cases, in which the symptoms were so indefinite that only the presence of an epidemic and the absence of any other explanation for the fever justified the lumbar puncture that was one of the chief diagnostic aids.

In the purely encephalitic or meningeal type of the disease, which was the commonest form observed, it was apparent at once that the infection involved the central nervous system. The onset was abrupt, with high fever, severe headache, neck rigidity, nausea and occasional vomiting, and usually somnolence, mental confusion, tremors, and difficulty in speaking. As a rule, the height of the disease was reached within the first twenty-four to forty-eight hours of the illness, but less frequently the onset was somewhat more gradual. During the same period, certain of the systemic manifestations were complained of as well and in a few patients, especially in children, convulsions occurred.

On physical examination, the commonest objective finding was rigidity of the neck or spine, and perhaps next in frequency was an absence of the abdominal reflexes, the latter vanishing early in the disease and returning with convalescence. In the majority of instances the Kernig sign was positive at some time during the course of the illness, but not always in the earliest phases of the disease nor in proportion to the amount of head retraction present. The tendon reflexes, such as the achilles and knee jerks, were inconstant, being oftener exaggerated than diminished. The

<sup>4</sup> Webster L. T. and Fite G. L. Science 79: 254 (March 16) 1934.

<sup>5</sup> Cox H. R. and Fite G. L. Proc. Soc. Exper. Biol. & Med. 31: 499 (Jan.) 1934.

<sup>6</sup> Webster L. T. and Fite G. L. Proc. Soc. Exper. Biol. & Med. 31: 344 (Dec.) 1933; also references given in footnotes 2 and 4.

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Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 15, 1934.



plantar reflexes (Babinski, Gordon and Oppenheim) were extremely irregular and varied at different examinations in the same patient, but as a matter of fact almost all combination of pathologic reflexes were occasionally observed. The pupils, however, were usually small and equal, and they reacted well to

accommodation although there was an occasional sluggish response to light.

In conjunction with the development of the meningeal symptoms, many patients showed definite evidences of a rapid impairment of the mental faculties. Some were completely disoriented as to time and place, others remembered their own names and ages but could

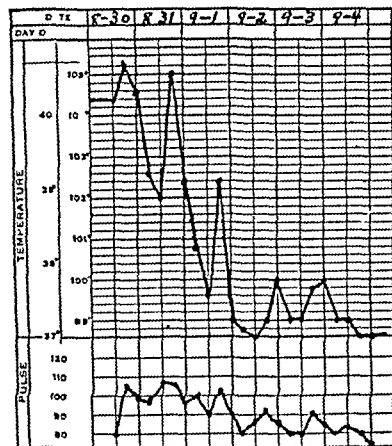


Chart 1—Temperature of patient A M showing a typical curve

not recall where they lived, many during convalescence had no recollection of lumbar punctures, the early part of their illness or how they had come to the hospital. Moreover, the majority of patients showed a tendency to drowsiness or mental apathy, but rarely was coma so deep that the patient could not be aroused at least momentarily. In some instances, however, instead of lethargy there was excitement or mild delirium, and insomnia. At the height of the disease speech was often markedly affected, the impairment ranging from complete aphasia in a few to thick or slurred speech in others. Of equal significance was the appearance of moderately coarse or fine tremors, involving chiefly the hands, tongue and lips and persisting until well into the second or even the third week.

It is interesting to note that the striking ocular manifestations commonly observed in the ordinary epidemic, or *lethargic encephalitis* were very rare. The most frequent complaint of this nature (present in about 14 per cent of the cases) was mild blurring of vision during the first day or two of the illness. Occasional instances of transient double vision, mild strabismus and nystagmus were observed, but ptosis was noticed only two or three times in this tabulation of 786 cases. Ophthalmoscopic examinations revealed no striking abnormality in the fundus.

Among the other symptoms noted were mild, transient vertigo in about one fourth of the cases, and more rarely definite ataxia. Slight degrees of exophthalmos were also observed a number of times, and in one patient this was most extreme. Deafness and ringing in the ears were infrequent complaints, disappearing within a few days. Hyperesthesias were common during the early phases and a few patients developed facial paralysis or a spastic paralysis of one or more extremities, these more serious manifestations as a rule disappearing by the end of the third or fourth week. Retention of urine or incontinence of urine and feces were common and at times suggested a possible spinal cord lesion. Vomiting was rarely ever forcible or persistent.

In the typical case of encephalitis, the fever was highest in the first two or three days of the infection and then in most instances fell by rapid lysis, so that the normal was reached within a week or ten days of the onset. Occasionally, however, the fever persisted for a much longer period, even up to a month or six weeks, with an irregular pattern. Improvement in the general condition was noted as the fever subsided. The pulse was ordinarily proportional to the temperature, but it was not at all unusual to find a marked bradycardia and less commonly a tachycardia present.

Examination of the blood as a rule revealed a moderate degree of leukocytosis, usually between 12,000 and 20,000, but a number of exceptions to this were observed with normal counts and occasionally even pronounced leukopenia. The Schilling hemogram was also variable, the most frequent finding being a slight shift to the left. There was no apparent relation between the severity of the infection and the leukocyte count.

In all cases of suspected encephalitis the spinal fluid yielded valuable information. In encephalitis the fluid was clear, under slightly or moderately increased pressure, and showed an increase of cells, most of which were of the mononuclear variety. The average cell count was perhaps between 50 and 250 cells, but occasional counts of 500 or 600 were observed, and in one of our cases up to 1,100. In a few instances early in the disease the first cell count was normal and subsequent punctures showed the typical increase. Rarely, the first counts showed one-third or even one-half the cells to be polymorphonuclears, but later punctures usually exhibited the typical mononuclear preponderance. The spinal fluid sugar was normal or slightly elevated, and the globulin only moderately increased.

With regard to the type of encephalitis in which there was a definite stage of invasion, the chief interest lies in a study of these prodromal manifestations, since once the neurologic symptoms developed the clinical course was indistinguishable from that which has just been described. Such premonitory symptoms were almost entirely of a systemic nature—chills or rigors, neuromuscular pains, headache, nausea, photophobia, sore throat. The temperature was often quite high at the outset, perhaps 103 or 104 F, but within the next few days there was usually a marked amelioration of the symptoms and the temperature tended toward normal, so that the patient seemed to be definitely convalescing. This stage lasted as a rule from one to four days, or occasionally even a week or more when suddenly the temperature rose rapidly, to 104 or 105 F, the headache became much more intense, and the typical picture of encephalitis developed, with neck rigidity, tremors, mental confusion, and so on. Cases of this nature were rather frequent, but no particular influence on prognosis was noted in patients exhibiting this variation from the usual picture.

Finally mild or abortive cases occurred, the chief symptoms being fever, moderate headache and perhaps

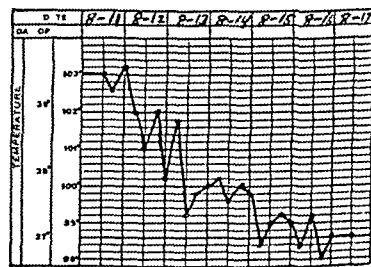


Chart 2—Temperature of patient P R note bradycardia

mild systemic manifestations Occasionally, careful examination might reveal a suspicion of neck rigidity or slight tremors, but as a rule mental symptoms and abnormal neurologic signs were entirely absent In the presence of an epidemic of encephalitis, with no explanation being found for the fever, diagnostic lumbar puncture was regarded as warranted, and the typical increase in mononuclear cells then revealed in the spinal

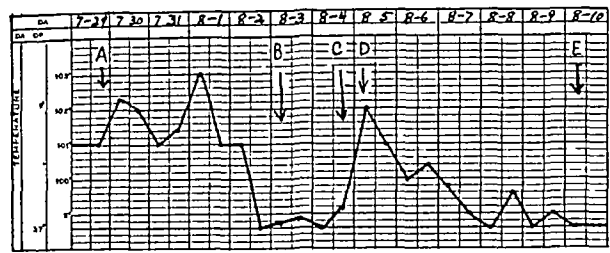


Chart 3—Temperature of Mrs M S during period of invasion  
A headache myalgia B apparent recovery, C mental confusion  
D coma E recovery

fluid, thus substantiating the diagnosis of encephalitis The course in such cases was usually brief, rarely lasting as long as a week

### DIFFERENTIAL DIAGNOSIS

During the period of invasion, before neurologic signs had developed, the illness was often diagnosed influenza, until the subsequent course and lumbar puncture corrected the error Cases presenting chills, fever and no leukocytosis suggested the possibility of malaria, which was ultimately ruled out by the absence of the characteristic splenic enlargement, and of plasmodia in the blood smear, and the further development of the symptoms in encephalitis Typhoid was simulated very closely at times, especially when the patient had a leukopenia and bradycardia In typhoid, however, the onset is usually more gradual, the spleen is enlarged and soft, rose spots occur, and the blood culture and Widal test are valuable diagnostic aids Moreover, there is an absence of stiff neck, the Kernig sign, and spinal fluid changes in typhoid Delirium tremens may be much harder to rule out in patients with excitement and delirium Hallucinations are much less frequent and somnolence commoner in encephalitis, and the fever in association with the neurologic signs in the latter usually prompts lumbar puncture, which reveals the typical increase in mononuclear cells The two diseases may, however, be associated and produce a very puzzling picture Encephalitis and tuberculous meningitis may at times be indistinguishable in the early stages In tuberculous meningitis, however, the onset is ordinarily slower, the breathing often irregular, the course progressively downward to a fatal termination, and the tuberculin tests and roentgenograms of the chest may be suggestive Moreover, the spinal fluid in tuberculous meningitis shows pellicle formation, marked increase in globulin, diminished or absent sugar content, and tubercle bacilli Acute anterior poliomyelitis may exhibit symptoms and spinal fluid changes similar to encephalitis, but in poliomyelitis the sensorium is usually clear, speech is unaffected, and blurred vision, vertigo and pathologic plantar reflexes are rare, whereas they are relatively frequent in encephalitis The characteristic flaccid paralysis of various muscle groups that occurs in poliomyelitis is also quite different from the spastic extremities occasionally observed in encephalitis

Finally, differentiation from other forms of encephalitis may present difficulties In the so-called lethargic type there is no fever, ordinarily a more gradual onset, ophthalmoplegias, parkinsonism, and a chronic course, new symptoms appearing months after the onset, and often leaving residual manifestations But in the acute disseminated encephalomyelitis or so-called postinfectious encephalitis associated with measles, mumps, vaccinia, varicella, and the like, the symptoms may be so similar as to make differentiation impossible except by the history or, in fatal cases, by autopsy It seems probable from the preliminary studies on the blood of recovered patients in St Louis that the presence of neutralizing substances for the encephalitis virus may be utilized for differential diagnosis in such cases, at least after recovery has taken place

3720 Washington Boulevard.

[EDITORIAL NOTE.—The four preceding papers, together with the four papers by Drs McCordock, Collier and Gray, Dr Eschenbrenner, Drs Bredeck and Zentay and Dr Jones, to appear next week, constitute a symposium on epidemic encephalitis, with particular reference to the St Louis epidemic of 1933 The discussion will follow the papers to be published in the next issue ]

### BREAST AND ARTIFICIAL FEEDING

#### INFLUENCE ON MORBIDITY AND MORTALITY OF TWENTY THOUSAND INFANTS

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There is no question that the artificial feeding of infants has taken remarkable strides in the past few years It has had such success that in the minds of many physicians and perhaps a large proportion of the public there has grown up the idea that artificial formulas can safely replace breast milk without any detrimental results to the child So far as we know, this has been based on empirical observations and has not been supported by sufficient evidence to be regarded as in any way proof Although in the past few years many accessory foodstuffs have unquestionably been discovered, notably vitamins, which are necessary for life, and it has been discovered also that in many instances the inorganic materials were of far greater importance than had been suspected, one cannot be at all certain that all the elements which go to make up a perfect food have been discovered More than likely many are not known Nor can one be sure, from present knowledge, of the quantity of each of the known elements necessary for an ideal food for an individual

Some may state that breast milk is not an ideal food, and this will have to be admitted to be the case in a few instances, but these cases may be regarded as pathologic rather than physiologic One has no right to assume, however, that one food is better than another simply because it is nature's own food, because in the individual instance there may be a reason why this pabulum is not ideal

Read before the Section on Pediatrics at the Eighty-Fifth Annual Session of the American Medical Association Cleveland June 13 1934

# INFANT FEEDING—GRULEE ET AL

JOUR A M A  
SEPT 8 1931

There are probably many standards by which one may judge the effect on the organism of the food offered it. It may certainly be said that weight alone is by no means the only criterion by which a food's value may be judged. Other physical qualities such as blood, tissue turgor or bone development, may be regarded as of importance. The child's resistance to infection may also be looked on as one of the chief

child's physical condition, the nurse, of course, is witness to its care.

As to the feeding of these children, the following were in general the methods used. Very rarely was there much deviation. In the first place, every attempt was made to keep the child on the breast for the first ten months. When this was not possible, complementary feeding was resorted to. The formula here was very much the same as that used for artificial feeding. The artificial feeding that was recommended in all instances was cow's milk (boiled five minutes) added to make a fluid content of from 2½ to 3 ounces to the pound weight, and one-tenth ounce of cane sugar to the pound weight was then added. The latter was restricted to not more than six teaspoonfuls in twenty-four hours. Accessory foods were added as follows: Orange juice, beginning with a half teaspoonful in twenty-four hours at 4 weeks, increasing to eight teaspoonfuls at 5 months. Cod liver oil, beginning with ten drops in twenty-four hours at 6 weeks, increasing to three teaspoonfuls at 5 months. Cereal was added at 5 months, vegetable at 6 months and the second cereal at 8 months.

There were 20,061 cases studied for nine months in this group. There were 9,749, or 48.5 per cent, infants entirely breast fed, with accessory feedings added. There were 8,605, or 43 per cent, that were partially breast fed with accessory feedings added and 1,707, or 8.5 per cent that were artificially fed (chart 2).

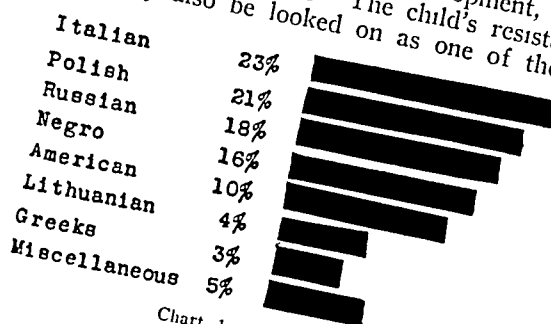


Chart 1—Nationality

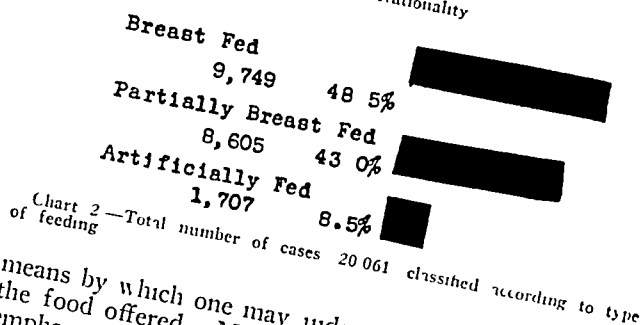


Chart 2—Total number of cases 20,061 classified according to type of feeding

means by which one may judge of the effectiveness of the food offered. Many years ago Czerny and Keller emphasized this point, and in experiments with vitamins of recent date this point has again been brought out. It seemed to us, therefore, that it would be of value to survey a large number of infants as to the incidence of infection and other disturbances allied to it with respect to whether they were fed with breast milk or artificially.

## MATERIAL

The material contained in this series of cases consists of records taken from 20,061 babies who were under the care of the Infant Welfare Society of Chicago for as long as nine months during the years 1924-1929 inclusive. These represent all such babies that were under the care of the welfare society for that length of time. The Infant Welfare Society of Chicago has been in existence for nearly twenty-five years. It has stations in the poorest sections of the city and shares with the city health department the care of indigent infants and children of the city so far as infant feeding and care are concerned. The nationality of the group studied is shown in chart 1. The medical supervision of these children consisted in a visit to the clinic station and an examination and feeding instruction by the station doctor at least once a month. Infants suffering from any disorder or disease are seen as frequently as the station doctor thinks advisable. The nurse visits the home within a week after the child is first brought to the station and gives the mother advice regarding the nursing of her child or the preparation of the formula. Thereafter the nurse makes home calls as often as is deemed necessary. During the period under discussion this was at least once a month. Whenever the child is sick the parents notify the station and the nurse visits the child. If the situation warrants it the child is referred for medical attention. Thus a very close check is kept on the

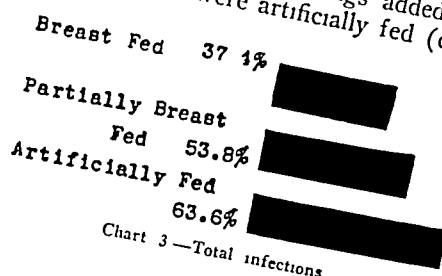


Chart 3—Total infections

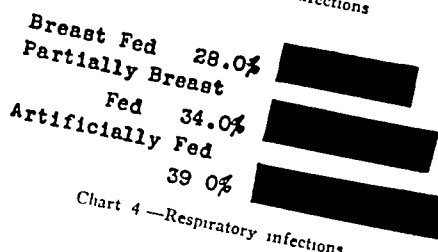


Chart 4—Respiratory infections

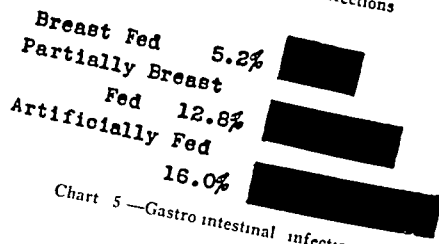


Chart 5—Gastro intestinal infections

## MORBIDITY

In the study of morbidity, any note on the chart that indicated any feeding disturbance, cold or respiratory infection or other infection, is classified as an infection. These were divided into three main groups: respiratory, gastro-intestinal and unclassified infections. There were 3,646 infants in the breast fed group with infections, or 37.4 per cent. There were 4,629 infants with infections in the partially breast fed group or

53.8 per cent and 1,085 infants with infections in the artificially fed group, or 63.6 per cent (chart 3)

There were 2,729, or 28 per cent, of the breast fed infants that suffered from a respiratory infection of some type. In the partially breast fed group there were 2,925 infants, or 34 per cent, that had respiratory infections, and 665 infants, or 39 per cent, of the artificially fed (chart 4)

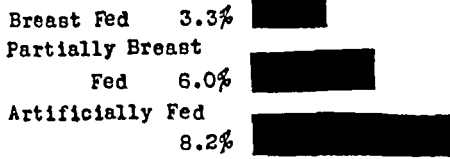


Chart 6—Unclassified infections

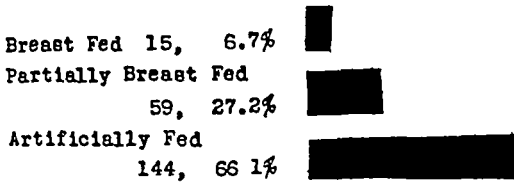


Chart 7—Total deaths (218 or 11 per cent)

In the gastro-intestinal disorders there were 505 infants in the breast fed group, or 5.2 per cent. In the partially breast fed 1,101 infants were affected, or 12.8 per cent, and in the artificially fed 273 infants, or 16 per cent (chart 5)

In the unclassified infections there were 322 infants in the breast fed group, or 3.3 per cent, 516 infants in the partially breast fed, or 6 per cent, and 139 infants in the artificially fed, or 8.2 per cent (chart 6)

#### MORTALITY

There were 218 deaths during the five year period, giving a total mortality of 1.1 per cent, or eleven deaths per thousand. Of the infants that died, there were 15, or 6.7 per cent, in the breast fed group, 59, or 27.2 per cent, in the partially breast fed group, and 144, or 66.1 per cent, among the artificially fed (chart 7)

There were 130 of the infants, or 60 per cent, that died from respiratory infections. Of this number four, or 3.3 per cent, were in the breast fed group, forty-four, or 34.6 per cent, in the partially breast fed group, and eighty-two, or 62.1 per cent, among the artificially fed (chart 8)

Twenty-two of the infants, or 10 per cent, died from gastro-intestinal disturbances. Of these two, or 9 per cent, were in the breast fed group, six, or 27.3 per cent, in the partially breast fed group, and fourteen, or 63.7 per cent, among the artificially fed (chart 9)

Sixty-five of the infants, or 30 per cent, died from unclassified infections. Of these seven, or 12 per cent, were in the breast fed group, twenty-five, or 36.8 per cent, were in the partially breast fed group, and thirty-three, or 51.2 per cent, were in the artificially fed group (chart 10)

#### RESULTS

These figures do not need any particular explanation or discussion. It will be observed that in every instance, from the point of view of feeding, breast feeding gives a much greater immunity to infections than artificial feeding. It is shown that even a partial breast feeding gives considerable immunity

Roughly it shows that, baby for baby, the breast fed infant will have a 50 per cent better immunity than one that is artificially fed

Among the gastro-intestinal disturbances there were twice as many disturbances in the partially breast fed as in the totally breast fed, and three times as many in the artificially fed as in the totally breast fed. The same proportion is true in the unclassified infections, while in the respiratory infections the discrepancy was not so marked. Still, there is a distinct difference between the breast and the artificially fed infants. These differences, however, in the three classifications are not nearly of the same significance as the difference shown in the mortality statistics. The general mortality was ten times greater in the artificially fed than in the breast fed. The partially breast fed had four times the mortality of the totally breast fed and only one-third that of the artificially fed

In the respiratory disturbances it is shown that, while the breast fed baby has a morbidity of 10 per cent less than the one artificially fed, the mortality is only one-twentieth as high, while even the partially breast fed infant has ten times the breast fed mortality and only half that of the artificially fed. In the gastro-intestinal disturbances the breast fed mortality was 9 per cent, while the artificially fed baby had seven times the mortality and the partially breast fed three times. In the unclassified infections the mortality of the partially breast fed was three times that of the breast fed and the artificially fed four times

It must be remembered that the years 1924 to 1929 were the years of plenty. Undernutrition does not enter into the picture. Here are 20,000 infants that

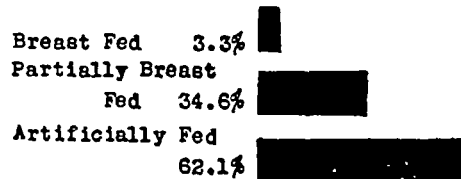


Chart 8—Deaths from respiratory infections 60 per cent

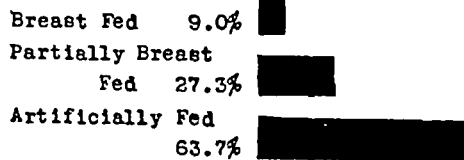


Chart 9—Deaths from gastro-intestinal infections 10 per cent

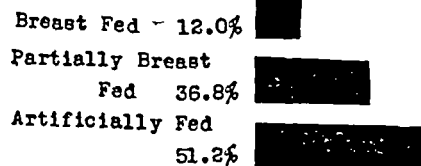


Chart 10—Deaths from unclassified infections 30 per cent

represent a true cross section of the national urban life. It cannot be said that these are uncared for slum babies, because the general mortality was only 11 per thousand, or less than one fourth of the infant mortality of the same region, yet in 85 per cent of these 20,000 babies was 66 per cent of the total mortality. If the artificially fed babies are taken from the total, the mortality is only 4 per thousand, and if only the breast fed are considered it is only 1.6 per thousand

Obviously, therefore, if one hopes to decrease further the infant mortality of this country it must be done by encouraging breast feeding

CONCLUSION

In a study covering 20,061 infants from birth to 9 months during the years 1924-1929 inclusive, 48.5 per cent were totally breast fed, 43.0 per cent were partially breast fed, and 8.5 per cent were artificially fed. The total morbidity of the breast fed group was 37.4 per cent, of the partially breast fed group 53.8 per cent, and of the artificially fed group 63.6 per cent. The average mortality of these infants per year was 11 per cent. Of this mortality 67 per cent were in the breast fed group, 27.2 per cent in the partially breast fed group, and 66.1 per cent among the artificially fed.

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ABSTRACT OF DISCUSSION

DR FRANK C NEFF Kansas City Mo From the results of this survey it is evident that breast-fed babies have a better chance against infection. Therefore it is advisable to make every effort to maintain breast feeding from the first days of life. Dr Dwyer and I presented a joint paper two years ago on the subject of feeding in the obstetric nursery. For a period of two years at the University of Kansas Hospital we had followed the usual custom of trying to make the baby regain its birth weight by the time it was 10 days old. To do this the child was bottle fed in addition to breast feeding. That is the custom in most nurseries of private hospitals. It is difficult to insist on breast feeding because nurses and physicians are eager to have the infant show the greatest possible gain. In the last two years we have undertaken an experiment, while measuring all the breast milk that every infant gets during the stay in the nursery, to see how many infants can be sent home on the breast alone. In our hospital the control of the nursery feeding is centralized. A much greater percentage are being breast fed the next best thing to do is to keep infants on mixed feeding and to see that complete mental food does not displace the breast feedings. We have found that it is possible for the baby to have mixed feeding without any great diminution in the amount taken from the mother's breasts, if it is assumed that the mother will be given every chance to maintain her supply.

DR PAUL H HERRON, Spokane Wash In compiling these statistics it took three of us between two and three years' time. This paper is not based on a selected group of cases but represents every case seen by the infant welfare doctor for a period of nine months. No case is included in the report that was not seen for this length of time. The nationalities as shown were varied. Some of the infant welfare stations represented Italians almost entirely, others Russians and so on. I wish to reemphasize the fact that this is probably the reason we found such a high incidence in our breast-fed infants. In private practice we do not get 48 per cent of breast-fed infants. All breast-fed infants are fed five times a day every four hours after they reach about 8 pounds (3.6 Kg). They are fed this way until they attain the age of 10 months. They are artificially fed and partially breast-fed infants receive as complete feedings milk water and sugar. Very few of the earlier infants received dextrose or other carbohydrate additions and were almost negative. I hope that we can present the factual evidence that after all breast milk is the ideal food to be used in the feeding of infants.

DR JAY I DURAND Seattle There is no question that breast milk is as good a food or is the best food that has ever been devised, but I doubt whether the statistics presented represent the state of affairs that would be obtained if artificial feeding was properly carried on and if one had an intelligent mother and nurse to prepare the feedings. In the first place these are statistics of 1924 to 1929 and artificial feeding today

is a very much more successful procedure than the artificial feeding of ten years ago. In the second place, I have statistics from another source quite as valuable as the ones presented today. Twenty years ago I worked for six months with Finkelstein and Meyer in the orphanage in Berlin. Three years ago I went back and spent considerable time there. In the institution there are 600 infants admitted a year, most of them in all of the bad cases, and thirty or more wetnurses who fed 100 babies were kept in the institution. Three years ago all the wetnurses were dismissed and all babies were fed artificially. Twenty years ago the mortality in the Waisenhaus was about 14 per cent, three years ago the mortality was 25 per cent, and during that time breast milk feeding had been discontinued. Breast milk is the safest food and the most fool proof mothers are from the slum districts, only 10 per cent American, the statistics will show a great advantage for feeding but with intelligent mothers and capable direction pediatricians as to the food, I do not think that the mortality is higher on artificial food than it is on breast. Dr Faber of San Francisco compared the mortality and morbidity for several years in a group of cases cared for in Stanford outpatient department. He tried to get 100 breast fed babies and 100 artificially fed but never could get quite over a three year period and found that the bottle fed children had as little illness and grew quite as well as those fed by their mothers.

DR BERTHOID FLEISCHMANN, New York I want to agree with almost everything that Dr Durand has said. I too have been fortunate as he, in having been to the Finkelstein asylum. At the time I was there, some eight years ago, they also had a system of wetnurses, and it still was being continued in some cases but not in all as previously. I want to make one remark regarding the cases presented here. In private practice the morbidity is less than in dispensary practice, for the reason that the level of intelligence in the home is greater, and often the question of the size of the family is important, as to the amount of care the child gets.

DR CLIFFORD G GRULEE Chicago There are several ways in which one can look on such statistics. It seems to me that one must gage them largely from the question of the general good. It is much simpler both for a well-to-do patient and for an indigent patient to nurse the baby at the breast. The propaganda that has gone out in the last few years by radio, has tended to belittle the good that one gets from breast feeding. Dr Neff's point is that the determination of breast feeding is made largely in the first two weeks of life. If the child goes out of the hospital artificially fed it never gets breast milk, again and the most that can be said is that it has lost a definite advantage in the fight for life because it is extremely hard to feed a baby properly in the first two weeks of life. Some of them go along beautifully a great many of them do not. Dr Durand's idea that these statistics cannot be carried into private practice is perfectly correct. There is nothing like the same morbidity or mortality in private practice that there was among these cases. The mortality among these infants was just about one fourth of the general mortality in the same region so that we did not have an excessive mortality. The difference in mortality in Finkelstein's Orphan Asylum would probably have been more marked had it been made on the infections that occurred from gastro-intestinal disturbances in the last few years especially of respiratory infections, has been far above anything that occurred from gastro-intestinal disturbance. Such statistics as he offers in regard to infants in an orphan asylum are not comparable to those which we have had here. A point has been reached in combating infant mortality which compels one to take a somewhat different standpoint. No inroads to amount to anything have been made on the infections that occur in children and cause so many deaths especially respiratory infection. That peak still holds and is not much reduced. It has not been possible to carry by direct assault and so indirect methods must be resorted to. This group is of importance because these children

dren were exposed to infections far more than the average group in better households. They were members of families of five or six children attending school and likely to bring back infections. To reduce infant mortality, that group must be protected. I do not know at the present time of a better method than by promoting breast feeding. In the last five or ten years quite a little has been learned about infant feeding, but I do not believe that there is any food for artificially feeding infants comparable to breast milk, and I have yet to be shown by statistics that that is true. I want to call attention to the fact that one cannot draw conclusions from 100 or 200 cases

## ALCOHOL AND AUTOMOBILE ACCIDENTS

HERMAN A. HEISE, M.D.  
MILWAUKEE

That the problem of controlling the drinking driver and pedestrian is far from being solved may be due, in part, to the fact that no accurate statistics are available regarding the relationship of alcohol to automobile accidents, as well as to the fact that the diagnosis of drunkenness is, to a great extent, still made through unreliable physical observations.

TABLE 1—Analysis of 119 Consecutive Automobile Accidents

	Number of Accidents	Injured	Killed
Alcohol	74	155	10
Alcohol less than 0.02 per cent	45	44	7

TABLE 2—Sex of Driver

	Male Drivers	Female Drivers
Alcohol	73	1
Alcohol less than 0.02 per cent	41	4

TABLE 3—Type of Accident

Type of Accident	Number of Accidents		Number Injured		Number Killed	
	Alcohol Less Than 0.02%	Alcohol 0.02%	Alcohol Less Than 0.02%	Alcohol 0.02%	Alcohol Less Than 0.02%	Alcohol 0.02%
Ran off road or upset	31	15	60	24	7	1
Collision	21	9	64	14	1	1
Pedestrian struck	23	19	20	17	2	5
Miscellaneous	1		1			

In a previous paper<sup>1</sup> the chemical test for alcohol in body fluids has been shown to be specific and a practical method for confirming a diagnosis of drunkenness, thus aiding in the conviction of drunken drivers.

In the present paper a further study has been made of the subjective and objective symptoms due to a consumption of alcohol correlated with the chemical examinations, and an analysis of 119 automobile accidents involving injury or death to 216 persons has been made in an effort to obtain a closer estimate of the role that alcohol plays in these accidents.

In order to demonstrate the effect of small amounts of alcohol, subjects were each given 30 cc of whisky and both subjective and objective symptoms were

recorded. Controlled typewriting experiments were used as a measure of efficiency. All subjects in this group suffered a measurable loss of efficiency, generally gaining increased speed at the expense of accuracy, although the alcohol in the urine did not exceed 0.02 per cent. It should be borne in mind that 0.02 per cent alcohol in the urine or blood was the limiting value

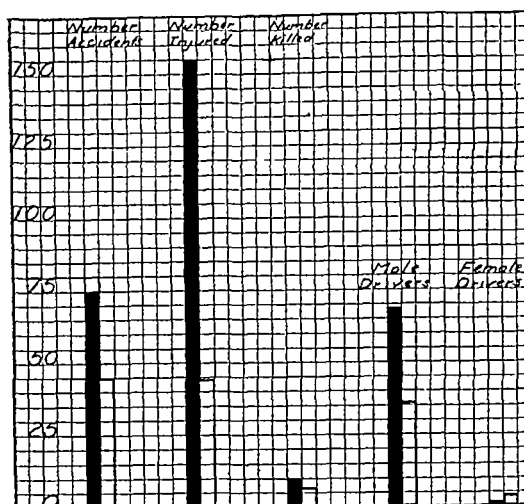


Chart 1—Analysis of 119 automobile accidents. In the charts black represents alcohol; white, less than 0.02 per cent.

used in the "alcohol accidents" in the analysis given later.

A second series of experiments was performed under actual driving conditions, incidentally making use of the device to measure the time elapsing between a signal and the application of the brakes that has been described in a previous paper.<sup>2</sup> In these experiments a larger amount of whisky, namely, 150 cc, was given. With no exceptions these subjects were able to pass creditably the ordinary tests used to determine drunkenness and were able to perform adequately the routine actions

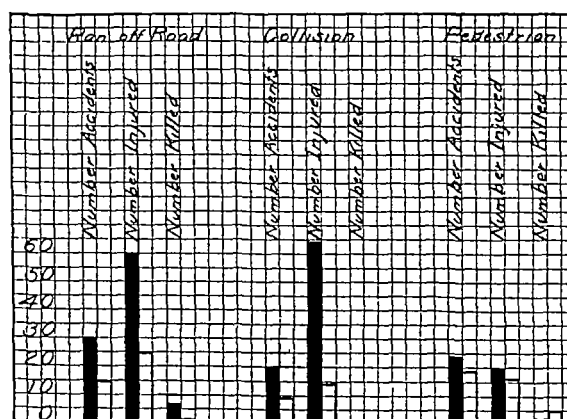


Chart 2—Type of accident

involved in driving. However, there was a definite variation from the normal in actions that had not become a habit, such as avoidance of obstacles placed in the road, backing the car, which was poorly and inaccurately accomplished, and the substitution of an unusual action for one that was normally used (such as using the hand brake rather than the foot pedal).

From the Columbia Hospital.  
Read before the Section on Miscellaneous Topics, Session on Forensic Medicine, at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.  
1. Heise, H. A. The Specificity of the Test for Alcohol in Body Fluids. *Am J Clin Path* 4: 182 (March) 1934.

2. Heise, H. A. and Halporn, Benjamin. *Medicolegal Aspects of Drunkenness*. Pennsylvania M J 36: 190 (Dec) 1932.



All subjects admitted disorientation and either depression or exhilaration. Reaction times were somewhat increased and all subjects displayed a lack of appreciation of changes in judgment and motor control. The alcohol percentage in these individuals did not exceed 0.10.

These experiments are cited to illustrate the lowered efficiency of the alcohol consumer and, incidentally, offer added evidence that it is not primarily the obvious "drunk" who constitutes a major road menace but the man I have termed the "drinking driver" and with whom this series of cases is largely concerned.

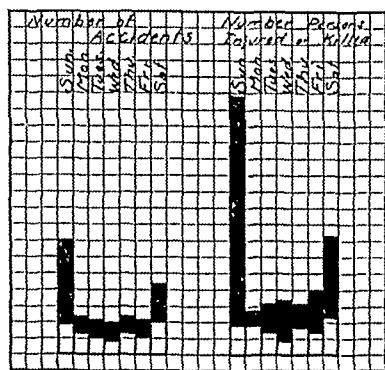


Chart 1—Accidents according to the day of the week

Table 1 is an analysis of 119 consecutive automobile accidents in all of which the victims required hospital treatment. All but two were treated in the Uniontown Hospital. As Uniontown is a city of 20,000 population, situated on the National Highway in southwestern Pennsylvania, this survey comprises a fair distribution of urban, rural and tourist traffic accidents.

Not only were the "alcohol accidents" more numerous than those not involving alcohol, but they were responsible for injury or death to more than two people per accident, while the nonalcohol accidents involved slightly more than one person per accident.

Further investigation along this line may furnish the explanation for the fact that women drivers are involved in fewer accidents than would be expected from the known ratio of the number of women drivers to men drivers. A surprising fact, however, is that the five women drivers were involved in three fatal accidents. The most important observations expressed in tables 1 and 2 are shown graphically in chart 1.

The data in table 3 are shown graphically in chart 2.

In cases in which the car ran off the road or was upset, the average percentage of alcohol in the blood

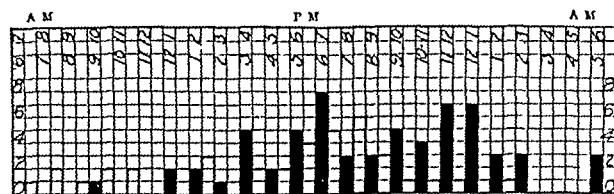


Chart 2—Accidents according to the time of the day

or urine in the alcohol cases involving injury was 0.15 while the average alcohol percentage in the fatal cases was 0.24.

In cases of collision, the average percentage of alcohol was 0.21.

In accidents to pedestrians the alcohol average for drinking drivers was 0.14 per cent and for drinking pedestrians was 0.20 per cent.

There is a direct relationship between the severity of the accident and the amount of alcohol.

Three of the pedestrians in the age group from 16 to 60 years (table 4) were hit by unapprehended "hit and run" drivers.

In this series the drivers who struck children or old people were in most cases sober. The largest number of accidents in this group involves the drinking pedestrian.

Table 5 shows that in this series a driver with normal alcohol in the blood and urine usually had sober people in his car and that those who had a high percentage of alcohol had passengers who were about equally

TABLE 4—Analysis of Pedestrian Accidents with Reference to Age

Age Group of Pedestrian	Alcohol Less Than 0.02%	Driver Alcohol	Pedestrian Alcohol	Both Alcohol
4 to 15 years	8	1	0	0
16 to 60 years	5	3	15	1
61 to 81 years	6	0	2	2

TABLE 5—Alcohol Found in Drivers and Passengers

Amount of Alcohol in Driver per Cent	Amount of Alcohol in Passenger per Cent
0.32	0.22
0.017	0.027 0.012
Drunk no specimen	0.23
0.02	0.09
0.004	0.011
0.004	0.003
0.005	0.004
0.020	0.017
0.018	0.013 0.01 (♀)
0.16	0.24
0.25	0.25 0.10 0.01 0.18
	0.003 (♀) 0.01 (♀)
0.23	0.03 (♀)
0.23	0.013 0.012 (♀)
0.23	0.21
0.003	0.003
0.003	0.005
0.020	0.012
0.02	0.00 0.03 0.01
0.16	0.13 0.03
0.003	0.003 0.003
0.14	0.13
0.20	0.26
0.17	0.40
0.003	0.003 (♀)
0.003	0.003
0.04	0.13 0.07 (♀)
0.35	0.36
0.004	0.004 (♀) 0.010 (♀)

TABLE 6—"Hit and Run" Drivers Showing Incidence of Alcohol

Case	Driver	Alcohol per Cent
1	Not caught	
2	Caught	0.23
3	Caught	0.29
4	Not caught	
5	Caught	0.21
6	Caught	0.33
7	Caught	0.37
8	Caught	0.23
9	Not caught	

"high." Possibly a sober man will not be a passenger when his host is intoxicated.

Chart 3 reveals that increased traffic alone is not the chief cause of week-end accidents. The unmistakable role of alcohol is demonstrated by the tremendous week-end peak in the "alcohol accidents," while the others increase but slightly. It will be noticed that while the ratio of "alcohol" to "nonalcohol" accidents on Sunday is almost three to one, the number of persons injured or killed is almost eight to one. On week days no such disproportion is noted.

That darkness is associated with a definite driving hazard is shown by the increase of "nonalcohol" accidents during the early evening hours. An additional

factor may be fatigue, the effects of which are very similar to alcoholic intoxication. The imbibor, however, reaches a much higher peak between 6 and 7 p. m., which is probably the result of the "cocktail hour," and another peak at midnight. In the daylight morning hours almost all accidents are of the nonalcoholic type.

Table 6 shows nine consecutive accidents involving "hit and run" drivers and all are remarkable for the high percentages of alcohol. It is possible that alcoholic intoxication adds an additional factor of fear of apprehension, or the alcohol may make capture easier, as in one case in which zigzag tracks in the snow made by the car wheels led from the scene of the accident.

#### SUMMARY AND CONCLUSIONS

1 Experiments indicate a measurable loss of efficiency and judgment, even when small amounts of alcohol are accumulated in the blood or urine.

2 Considering a person sober as long as he can still walk and talk is responsible for the small value of present day statistics regarding the relationship of alcohol to automobile accidents.

3 By analyzing consecutive accident cases involving injury and death, it is possible to throw light on the high incidence of week-end accidents and night accidents, and the surprising preponderance of accidents in which male drivers are concerned.

4 In this series the drinking pedestrian was concerned with many accidents, in most cases a child or old person was struck by a sober driver.

5 It is recommended that the chemical test for alcohol, which has been proved to be practical in confirming drunkenness and thus aiding in the conviction of drunken drivers, be adopted universally, at least to confirm the observations obtained by physical examination.

#### ABSTRACT OF DISCUSSION

DR ALEXANDER O GETTLER, New York. I was interested to hear Dr Heise say he gave alcohol to individuals, put them in automobiles and watched them drive very interesting experiments. In New York we are not permitted to conduct such experiments. I should like to ask Dr Heise how he obtains permission for experiments of this kind.

DR WILLIAM D McNALLY, Chicago. I should like to ask Dr Heise if he has any statistics on how many accidents occurred before prohibition, during prohibition and after prohibition. As an observer of drunkenness, I find that more drunkenness has existed since prohibition has been repealed. I wonder if we have more accidents.

PROF R N HARGER, Indianapolis. I should like to ask Dr Heise what he called an alcoholic person, whether he used any quantitative figures. I consider this a very important paper and I believe more data are needed on the correlation between the level of alcohol in the body and the degree of intoxication. I am interested that he has confirmed the work of Miles and others to the effect that low blood alcohol figures varying say from 0.5 to 1.5 parts per thousand which were previously felt not to be dangerous, may really be a menace to the public.

DR H A ROTHROCK JR, Bethlehem, Pa. I should like to ask Dr Heise if he has any data in relation to the hit and run driver and also as to the condition of the alcoholic state of the other passengers in the automobile.

DR CHARLES NORRIS, New York. In 1926 a compilation of statistics revealed that the alcoholic deaths of pedestrians who were run over (the cases were all taken from Manhattan) represented about half the number of automobile deaths in the greater city. Between 22 and 25 per cent of those who were run over and died were 3 or 4 plus, namely, they were intoxicated at the time of death.

DR W C WOODWARD, Chicago. I should like to call attention to the importance of maintaining the differentiation between the meanings of the term "intoxication" and the term "drunkenness." There is danger of falling into the confusion that has existed with respect to the meaning of the term "insanity." Drunkenness is distinctly a social and legal condition. Intoxication is not, it is a biologic or physiologic or pathologic condition. While chemical tests can prove that a man is intoxicated they cannot prove that a man is drunk. They are, as Dr Heise has pointed out, only valuable confirmatory evidence.

DR HERMAN A HEISE, Milwaukee. Regarding Dr Gettler's inquiry as to how consent is obtained to experiment on drunken drivers using city streets. The mayor set aside a certain part of the city of Uniontown and had it patrolled by police. We could drive back and forth to our hearts' content and shoot the guns in the city limits, the guns marking the length of time between the impulse and the application of the brakes. Regarding the number of accidents before and after repeal there seems to be a slight increase in the number of accidents after repeal over the number before. No definite amount of alcohol in body fluids has been officially designated above which a person is intoxicated and below which he is sober. For this survey I have arbitrarily chosen 0.02 per cent as the dividing line, since it clearly designated the drinking driver, and experimental evidence indicated psychologic inferiority. As to intoxication and drunkenness. I wouldn't use the term "drunkenness" in court. It simply causes trouble. Alcoholic intoxication means "under the influence of alcohol." If a certain amount of alcohol is found and that person has acted abnormally because of alcohol, I think one can state definitely that this person is "under the influence."

#### SOME NEWER CONCEPTIONS OF URINARY STONE FORMATION

J DELLINGER BARNEY, MD

AND

E ROSS MINTZ, MD

BOSTON

This communication concerns itself primarily with a discussion of hyperparathyroidism as a cause of urinary calculi. In the course of our remarks, certain other possible etiologic factors will be dealt with.

Next perhaps to malignant disease, urinary lithiasis presents one of the most difficult problems confronting the urologist. Until this question is answered he finds himself occupied in the more or less unproductive occupation of discovering and removing stones from the kidney, ureter or bladder. We do not hesitate to say that no hypothesis as to etiology yet presented can be defended from every line of attack, nor does it matter that certain experimental studies have resulted in stone formation. What may be true in the laboratory does not necessarily follow in the clinic. Even parathyroid disease, which is found to be the apparent etiologic factor in at least 10 per cent of cases, brings up questions that in the present state of knowledge cannot be answered.

It will be impossible for us to discuss and summarize the vast literature of urinary lithiasis. Until recently it was based only on clinical observation, theorization and empiricism. Only in the past ten or even five years has anything been done by investigators with the lamp of modern biochemistry and physiology to light their path. Even with the progress that has now been made it is obvious that the knowledge of neither the biochemist nor the physiologist is such that he can explore

From the Urological Department, Massachusetts General Hospital.  
Read before the American Association of Genito-Urinary Surgeons,  
Hot Springs, Va., May 15, 1934.

the even more complicated problems that have already arisen

In the light of the work of Keyser, Joly, Higgins, Hinman, McCarrison, Randall, Holmes, Coplan and others, to mention only a few, we have nothing new to add except our experience with hyperparathyroidism. We do feel, however, that long continued and intensive clinical observation, careful reading of the literature, and intimate contact with our colleague Albright, who has done epochal work, enable us to express views that will at least provoke further discussion.

Before going on to a consideration of the etiologic importance of the parathyroid gland, we wish briefly to touch on other possible factors in the production of stone. We believe with others that the colloids of the urine play an important role and that whatever "brings about imbalance in the solvent capacity of the protective colloids"<sup>1</sup> may result in crystalline deposits. Keyser seems to feel that, at least in the formation of the so-called primary stones without infection, "some error of metabolism" occurs. In addition to this there would appear to be some disturbance of the normal physiologic function of the kidney that induces the formation of stones in one organ rather than in both. If infection occurs in the presence of a stone in an acid urine, especially by a urea-splitting organism, changes may be expected in the character of the stone, one layer or the nucleus itself being that deposited in the presence of the acid sterile urine, and another being laid down by the infected alkaline urine. It seems to be a fact that the chemical character of the stone which occurs in or as a result of infection is very different from that in a clean and acid urine. Yet one must not forget that in various reported series of renal stones, some of them of the so-called secondary variety, investigators have found a persistently normal uninfected urine in from 10 to 20 per cent of cases.

When the various dietary and vitamin deficiencies are considered, so much contradictory evidence is found, both clinical and experimental, that in the present state of knowledge it is impossible to draw any accurate conclusions. That these deficiencies are of some, if not great, importance, no one can deny, nor can it be denied that their geographic distribution is of significance. A great deal of most intensive study must yet be brought to bear on these phases of the situation before it will be known how to interpret their meaning.

While infection plays its part, comparatively little is known about it. There is also much conflicting evidence as to whether it is a primary or secondary occurrence. It seems to be clear, however, that it may alter the composition of the stone in a variety of ways, but just what goes on still remains to be discovered. Under the same caption faulty drainage can be included, but rather quickly dismissed, as an item of importance. While it may induce or increase infection, every one knows that it may continue almost indefinitely without resulting in stone formation. Yet neither of these factors, especially infection, can be allowed to continue if the chance of calculus deposits is to be lessened.

It is obvious from all this that many factors are undoubtedly at work and that each must be evaluated. As Randall has wisely said, "The cause of stone must vary, for the effect is known to be a variant."

When the answer to all these questions has been discovered it will be known why stones form, why they vary in their composition, why they occur in one kidney

and not in the other, why after removal they may recur in some instances (variously estimated as from 5 to 20 per cent) and not in others. It may also explain why children are for the most part so free from stones.

Having dealt with the negative side of the question, we shall now take up the positive side and narrate some of our experiences with parathyroid disease in its relation to stone. Various communications, especially those of Albright, Aub and Bauer, have shown that disturbance of the parathyroid has a far-reaching clinical effect. In their most recent article<sup>2</sup> they have discussed at length the extraordinary variety of symptoms to which hyperparathyroidism may give rise.

As knowledge of and interest in this disease extends over only a comparatively brief period, the material we have used dates back only to 1933. During this time 104 patients with urinary calculi, having a complete blood examination for calcium and phosphorus, in some instances more than once, have been operated on and stones have been removed. This number does not include a similar number in whom the blood was not investigated. In twenty marked for rechecking, the results proved to be negative in seven. Four of the remaining thirteen cases not yet reexamined would appear to be definitely instances of parathyroid disease if the blood examinations are to be depended on.

Our interest lies, however, in a group of eighteen cases of hyperparathyroidism, so proved by operation, eleven, or 61.1 per cent, of which presented not only parathyroid tumor but also urinary calculi. These eleven cases are included in the 104 previously mentioned, giving a total percentage of 10.5. As already stated, there are other cases in this group which may prove to be positive, thus increasing this percentage very appreciably.

These eleven patients, all bearing stones, together with seven others, having not stones but cystic degeneration of the bones, have all been operated on by Drs. E. D. Churchill and Oliver Cope at the Massachusetts General Hospital, creating, we believe, a unique experience for all concerned. A report of some of this work has already been made.<sup>3</sup> In most cases of lithiasis the parathyroidectomy followed the lithotomy.

It is interesting to note that of the eighteen patients twelve, or 70 per cent, were females and that the youngest patient was 13 and the oldest 62, with an average age of 43. The calcium blood content varied from 11.5 to 16.8, with an average of 13.78, the phosphorus content averaged 2.55, ranging from 1.4 to 4.7. It may be remarked that a serum calcium above 11 mg per hundred cubic centimeters and a serum phosphorus below 3.5 mg should always arouse suspicion. Bone involvement, ranging all the way from large multiple cysts to simple decalcification, was found in twelve, or 70.5 per cent, of cases. In six cases, stones and bony changes were found together. The stones were bilateral in four, or 36 per cent, of the eleven cases, and the urine was negative in 35 per cent. There has been no operative mortality. One patient, however, died in the hospital about one month after his seventh operation, at which time the parathyroid tumor was discovered behind the sternum and removed by Dr. Churchill. The cause of death was uremia, the direct result of parathyroid disease. The urologic surgery in these cases was done by various members of the staff.

<sup>2</sup> Albright, Fuller, Aub, J. C. and Bauer, Walter. Hyperparathyroidism. J. A. M. A. 102: 1276 (April 21) 1934.  
<sup>3</sup> Churchill, E. D. and Cope, Oliver. Surg. Gynec. & Obst. 58: 255 (Feb.) 1934.

We have given the details of these cases, not because, so far as the urologist is concerned, they differed in any way from other cases of urinary lithiasis but because they were associated with parathyroid disease and because of this are highly interesting and important Papers by Albright and by Churchill and Cope which have already been published or are to appear later describe in detail the medical and surgical problems encountered

Our interest in this problem led us to a careful follow up of as many of our cases of urinary lithiasis as we could recall. These patients have all been operated on and stones have been removed. To date thirty-three have been examined by us, this examination including the calcium and phosphorus blood contents and roentgen studies. Of this number eleven, or 33½ per cent, have the high blood calcium that is so consistent with parathyroid disease, and although in some of these the phosphorus content is rather high they must all be checked up and studied even more minutely. In only two cases, however, do there appear to be any bony changes. As yet no really complete follow up has been done in the proved hyperparathyroid cases. This will be done in due course and a report made

It will be noticed that we have said nothing about the chemistry of the stones removed in these cases of parathyroidism. As Albright, Aub and Bauer have pointed out, "If the stone is the result of hyperparathyroidism, it should contain a large amount of calcium and phosphorus," and in fact this is the case. We are not yet prepared to remark on the chemistry of these stones because no great amount of data is yet available, and also because it is to be reported at a later time by Albright and his co-workers. Experience has shown that the proper study of these calculi can be done only by a highly trained physical chemist. We believe that such an investigation may throw much valuable light on the etiology of calculi in general

Not only our experience but that of many others has shown the close and frequent relationship of urinary calculi and parathyroid disease. A perusal of the literature, while by no means exhaustive, has been illuminating. Hunter<sup>4</sup> in 1930 collected thirty-two cases of hyperparathyroidism in which there was satisfactory proof of (31.2 per cent) renal calculi were found. In one instance renal calculi began to break up a few weeks after the removal of the parathyroid tumor and were passed into the bladder. Sixty-five cases of parathyroid disease have been reported by thirty-six other authors. Stones were present in fifteen, or 23.07 per cent, these being bilateral in ten, or 66 per cent. While many other cases of hyperparathyroidism have been reported by other investigators we have considered only those which were more or less associated with urinary lithiasis

From all that has been said, it is obvious that we are dealing with a factor of the utmost importance in the etiology of stone. Whether the whole story has yet been told we doubt very much. The discovery is to be developed still further, and during this process it may shed light on other phases of the calculus problem. As yet it does not answer all the questions. If hyperparathyroidism is in the nature of an endocrine dysfunction, it must be generalized throughout the body and the urinary tract. Why, then, does it not result in stones in all cases or in bilateral stones uniformly?

The fact that it does not would indicate that there must be some still unknown factor at work in the kidney itself which prevents stone formation in some cases. By the same reasoning there must be a local renal factor that induces unilateral stone in certain individuals and bilateral stones in others

Perhaps a still more intensive study of the colloids will supply the answer. Possibly dietary and vitamin deficiencies or errors will be found to play their part more than seems now to be the case. Also it may be possible that infection or even stasis will come to be regarded more seriously. That some disturbance of metabolism, plus a factor or factors existing at least temporarily in one or both kidneys, is at work seems a plausible working hypothesis. The realization that hyperparathyroidism will account for at least a part of the problem is important and encouraging. Further studies by the endocrinologist and the biochemist, as well as by the physiologist, will, we feel sure, eventually succeed in solving the question of urinary stone formation

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## INHALED SILICA AND ITS EFFECT ON NORMAL AND TUBERCULOUS LUNGS

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It is no longer reasonable to maintain that all kinds of dust are equally dangerous to the lungs. A very convincing array of clinical, statistical and experimental observations has demonstrated that dusts composed, in whole or in part, of silica are capable of exciting a characteristic, progressive, nodular fibrosis of the lungs and that at the same time these organs become abnormally susceptible to the tubercle bacillus. All the other types of dust that have thus far been investigated can apparently be inhaled almost with impunity for long periods of time

It was originally claimed that only uncombined or "free" silica in the form of quartz was capable of producing this effect, but in recent years there has been a growing tendency to look with suspicion on some of the silicates (combinations of silica with bases). One of them, asbestos, a silicate of magnesium, is now a well recognized cause of pulmonary fibrosis, although the reaction is diffuse and not nodular in character. Jones,<sup>1</sup> an English geologist, claims that a silicate and not free silica is the important factor in the production of all cases of silicosis. In attempting to discover an explanation for the apparent absence of silicosis in certain localities where quartz abounds, he made comparative petrographic studies of both the rocks and the dust particles recovered from the lungs of men dying after such exposures. Where silicosis developed he found a fibrous silicate of aluminum and potassium called sericite in association with the quartz, and where there was no sericite there was no silicosis. While the argument presented by Jones is given very convincingly and his evidence seems to indicate that the presence of sericite in certain localities coincides with

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<sup>1</sup> Jones W. R. Silicosis. *J. Chem. Metallurg. & Mining Soc. of South Africa* 34: 151 (Sept. Oct.) 1933.

<sup>4</sup> Hunter Donald. *Lancet* 1: 897 (April 26) 1930.

the incidence of silicosis, nevertheless there are many who still doubt whether this substance is the universal cause of the disease called silicosis. In this country there are industries handling pure quartz in which numerous instances of silicosis can be detected. Experimentally, pure quartz will produce lesions essentially the same as those found in human silicosis.<sup>2</sup> Experimental tests of the action of pure sericite are in progress but it is yet too soon to expect results. For the present it seems advisable to suspend judgment on the Jones hypothesis until further evidence can be produced.

It becomes pertinent to examine the bases for the belief that only dusts of free and possibly combined silica are particularly harmful. Gye and Purdy<sup>3</sup> demonstrated that silica in colloidal form is a cell poison, which injected intravenously in large doses causes almost instant death but in smaller amounts produces proliferation of connective tissues. These authors thereupon proposed the hypothesis that particulate silica in the form of quartz is slowly dissolved in the alkaline fluids of the body, liberating minute quantities of colloidal silica, which constitutes the irritant responsible for the proliferation of the connective tissues. Chemical proof of this hypothesis is difficult, although King<sup>4</sup> believes that evidence of solution of silica in the body can be determined quantitatively by colorimetric methods. There is considerable indirect experimental evidence which favors the chemical theory of action. For example, it has been shown that the rate of reaction to particulate silica injected intravenously is inversely proportional to the size of the particles.<sup>5</sup> Particles less than 1 micron in diameter act quite like colloidal silica and cause acute inflammation and even death from necrosis of the liver within a few weeks. Particles from 1 to 3 microns in size produce progressive fibrosis in the liver with the formation of nodular lesions similar to those in the lungs caused by inhalation of silica dust. Particles from 10 to 12 microns in diameter stimulate the formation of small foreign body tubercles which do not change materially during a period of two years. Control injections of the same quantity of aluminum oxide (emery) particles cause no necrosis or proliferation of the connective tissues. Responses of this nature clearly indicate that the reaction to silica is chemical in nature.

Uncombined silica causes a very rapid necrosis of tissues, which is not produced by silicates and non-siliceous dusts.<sup>6</sup> Injection of a sufficient quantity of sufficiently fine silica particles into the skin of guinea-pigs provokes an acute exudation of polymorphonuclear leukocytes within four to eight hours. After twenty-four to forty-eight hours the site of injection becomes necrotic and is surrounded by a zone of inflammatory edema from 10 to 20 mm in diameter. The area resembles a strongly positive tuberculin reaction. Within a few days the center of the lesion ulcerates and most of the silica is eliminated in the slough that ensues.

If the concentration of silica is too low or if the particles are larger than 4 microns in diameter, the

response is less intense and no necrosis develops. The reaction excited by many of the silicates is similar, but extensive necrosis with sloughing has not been observed. Sericite, for example, produces inflammation but no necrosis, its action simulating that of granite, a mixture of silicates with quartz. Other substances containing no silica are practically inert. Such substances as diamond, coal, emery, silicon carbide, hematite and gypsum cause pigmentation of the skin with a small amount of inflammatory edema, but the latter subsides and practically disappears after twenty-four hours.

Two features brought out in these experiments are difficult to reconcile with the solubility hypothesis. The relatively insoluble quartz particles are definitely more active than the more readily soluble silicate particles and tissue reactions begin to develop so quickly that it is hard to conceive of such a solution of silica having occurred in the weakly alkaline body fluids.<sup>7</sup> It would seem that either the cellular response to silica is due to some other property than solution or that the ions liberated from free silica are more active than those from the silicates. Silica particles have a negative charge, while most other substances thus far studied are positive, but the effect of this property has never been thoroughly investigated. Obviously, further study is necessary before the mechanism underlying the irritative effect of silica can be properly evaluated.

It may appear that unwarranted emphasis has been laid on the toxic effects of silica, for the most prominent feature of human silicotic lesions is not degeneration but proliferation of connective tissue. Nevertheless the same stimulus, which in extreme concentration results in degeneration and death of cells, in a weaker form merely stimulates the growth of connective tissue. In the animal experiments reviewed, conditions have been made as extreme as possible in order to bring out in sharp relief the contrast between the response to silica and that to other particulate substances. While degenerative changes are not generally prominent in the ordinary case of human silicosis, they do occur. The centers of the hyaline fibrous nodules, where the concentration of particles is greatest, usually show definite evidence of necrosis. In the rapidly developing cases<sup>8</sup> due to the inhalation of excessive quantities of exceedingly fine particles, the bronchioles and other air spaces often contain large masses of necrotic mononuclear and polymorphonuclear leukocytes.

The prolonged inhalation of fine silica dust by white rats, rabbits and guinea-pigs results in the formation of hyaline fibrous nodules throughout the lungs and the tracheobronchial lymph nodes. While there are minor variations in the reaction in different species, the lesions are all comparable to those in human beings. Furthermore, such reaction has regularly occurred in the absence of tuberculosis or other infection, indicating that silica alone can produce nodular fibrosis. By killing animals at serial intervals during the period of dust exposure, the evolution of the pathologic process has been observed. Since the various steps are sufficiently like those disclosed in occasional autopsies of early cases in human beings, it has been assumed that similar mechanisms were involved.

<sup>2</sup> Gardner L. U. Experimental Pneumoconiosis. VIII. Inhalation of Quartz Dust. *J. Indust. Hyg.* 14: 18-38 (Jan.) 1932.

<sup>3</sup> Gye W. E. and Purdy E. H. The Poisonous Properties of Colloidal Silica. *Brit. J. Exper. Path.* 3: 75-95 (April) 1922. 5: 238-250 1924.

<sup>4</sup> King, E. J., Stantiel Helen and Dolan Margery. The Biochemistry of Silicic Acid. III. Excretion of Administered Silica. *Biochem. J.* 27: 1007-1014 1933.

<sup>5</sup> Gardner L. U. and Cummings D. E. Reaction to Fine and Medium Sized Quartz and Aluminum Oxide Particles. Silicotic Cirrhosis of the Liver. *Am. J. Path. (Supp.)* 9: 751-764 1933.

<sup>6</sup> Gardner L. U. and Cummings D. E. Unreported experiments.

<sup>7</sup> To make sure that some solution of silica had not already occurred in the aqueous suspensions of the particles before they were injected air separated dust was sterilized in dry heat suspended in salt solution and immediately injected into the skin. Reaction developed just as promptly as with the autoclaved or boiled suspensions.

<sup>8</sup> Gardner L. U. Pathology of So-Called Acute Silicosis. *Am. J. Pub. Health* 23: 1240-1249 (Dec.) 1933.

With this background of experimental observation, an attempt will be made to interpret the pathologic picture disclosed by the autopsy of a human case of far advanced silicosis. In the great majority of instances this picture is complicated by a coexistent tuberculosis. In South Africa, Irvine<sup>9</sup> has stated that about 75 per cent of all silicotic persons will die of tuberculosis and the same is probably true in this country. In the absence of tubercle, one usually finds a pneumonia. In the far advanced case the silicotic element is represented by discrete fibrous nodules, from 2 to 5 mm in diameter, generally black from soot or other dust inhaled with the silica, distributed throughout both lungs. In the apexes they are less numerous or absent. Sometimes the nodules, particularly in the middle part of the lungs, are embedded in a diffuse deposit of fibrous tissue radiating as a solid fan-shaped mass from one to both hili. The blood vessels and, to a lesser extent, the bronchi, have thick fibrous walls. The interlobular septums are heavy and accentuate the lobular character of the organ. The less involved air spaces are dilated and have thick walls, sometimes along the borders of the lungs there are large emphysematous blebs. Extensive pleural adhesions generally mean infection. The tracheobronchial nodes are either slate gray or black. In the earlier stages of the disease they may be soft and 3 or 4 cm in diameter, but later they often become small, hard and contracted. In the occasional case there may be small nodules in the spleen and liver, but usually the only abdominal involvement occurs in the hepatic lymph node situated near the head of the pancreas and the common bile duct.

The tuberculous element in the picture may be typical in its character and distribution, but more frequently it is not. Usually the most extensive area of infection occurs not in the apex but in the middle or lower lung. Here one may find a thick-walled cavity with evidences of extension into the adjacent lung. The process may be exudative or caseous in character, but more often it is productive with the formation of tuberculous granulation tissue in various degrees of organization, containing only small foci of caseation. Very frequently the center of each silicotic nodule presents a gray dot of caseation, while about its periphery there may be a zone of opaque pneumonic reaction. The typical picture of an apical cavity with the clustered nodules of aspiration disease in the lower lung is relatively rare. Fibrous pleurisy is the rule.

In the light of experimental observations and of the few early cases of human silicosis that come to autopsy, the evolution of uncomplicated silicosis can be depicted in the following manner. When the amount of silica in the industrial atmosphere is not too great, physiologic mechanisms are more or less effective in disposing of the inhaled particles for some years. Particles that reach the terminal air spaces are ingested by the phagocytes. The irritating silica may kill the first cell and several new ones emigrate from the fixed tissue to take its place, thereby creating a picture of cellular activity. Stimulated by the irritant, the surviving cells, each containing only a few particles, begin to move out of the air spaces into the lymphatic system. In so doing many of them pass through masses of lymphoid tissue. The phagocytes are so numerous that not all can enter and they form tubercle-like collec-

tions about the periphery of the lymphoid nodules. Silica is thus concentrated in focal areas. Many of the cells succeed in passing through into the lymphatic trunks and are either carried directly to the tracheobronchial lymph nodes or are held up in the intrapulmonary lymph nodules along the way.

The increasing concentration of silica in these locations stimulates the reticular elements of the lymphoid tissues. They proliferate, the nodule increases in size and gradually compresses the lymphatic channels. This impedes the flow of lymph and prevents effective elimination of particles, which are subsequently inhaled. The lymphatic vessels dilate because of the obstruction at their mediastinal ends and the compression at nodal points along their course through the lungs. Many phagocytes pass outward through their walls and deposit silica in the loose areolar tissue through which the vessels course. These tissues also proliferate and form a fibrous sheath about the lymphatic. For unexplained reasons the lymphatic trunks accompanying branches of the pulmonary artery seem to bear the brunt of these activities. As a result the walls of the arteries become appreciably thickened and the enlarged lymphoid nodules produce beadlike nodulations along their course.

These preliminary changes chiefly affect the lymphatic system and the tissues immediately about them. With ordinary concentrations of atmospheric dust, from three to ten years is required before this reaction is fully developed and the lymphatic system is irreparably damaged. In the generally accepted medicolegal sense, such changes are not considered as indicative of the disease silicosis but merely as preliminary alterations.

In good stereoroentgenograms of the lungs these changes are quite obvious. The linear shadows cast by the blood vessels are accentuated and extend much farther out into the lung than normally. The effect is due to proliferation of connective tissue about the lymph trunks coursing through the vessel walls. "Beading" along the vessels is caused by the formation of minute silicotic nodules in the lymphoid tissues associated with the lymphatics. The mediastinal shadow is broadened because of reaction in the nodes and about the afferent lymphatics traversing the areolar tissue outside the nodes.

When the damage to the lymphatic system is severe, inhaled particles are no longer effectively eliminated from the air spaces. The phagocytes now migrate into the peripheral framework of all parts of the lungs. The concentration of silica thus effected causes local proliferation of connective tissue cells. This occurs in the form of nodules and as a diffuse thickening of the alveolar walls. The characteristic nodular form develops because phagocytes tend to clump together, often about small peripheral masses of lymphoid tissue, and hold the silica at focal points. As time elapses, the number and size of such lesions increases. Even if the workman leaves his dusty occupation and retires to the country after inhaling a sufficient quantity of silica to produce nodulation in the parenchyma of the lung, the pathologic process will continue to progress, for the silica is no longer effectively eliminated by expectoration unless infection supervenes and, being a chemical poison, it continues to exert its effect as long as it remains in contact with the tissues.

In the first stage of the legally recognized disease, the roentgenographic examination reveals minute nodules throughout the middle portions of the lung field, often more marked on the right side. As the

<sup>9</sup> Irvine L. G. Sim on F. W. and Strachan A. S. *The Clinical Pathology of Silicosis*. Internat. Labor Office Report Series F. Johannesburg Conference on Silicosis (Indust. Hyg.) Geneva 1930 No. 13, p. 269.



condition progresses these nodules increase in size and blot out the previously prominent linear markings. In the second stage the nodular shadows become so large that they tend to become confluent and obscure all the normal markings. However, they still retain their uniform distribution and the outlines of the individual units are fairly well defined. Irvine<sup>10</sup> has aptly compared these appearances to the leafless tree, the tree in bud and the tree in full leaf.

As mentioned before, in some cases classified as third stage the nodules may occur in localized masses embedded in dense connective tissue. The significance of such localization is still debatable. Many observers believe that it is always indicative of coexisting infection, but in a few of the cases that have come to autopsy no evidence of an active infectious process has been discovered. Theoretically any local condition that might disturb the efficiency of lymphatic drainage in a particular part of the lung could produce such an effect. This might be caused by a preexisting pneumonia which had healed previously to the time of dust inhalation. It is also conceivable that a large focus of calcified primary tubercle formation in a lymph node might interfere with efficient lymphatic drainage. How far collateral lymphatic circulation would offset such a result has not been determined. A pneumonic process of tuberculous or pneumococcal origin, occurring early in the course of dust inhalation, would be the most obvious cause of localization. Nontuberculous pneumonias frequently fail to resolve in the presence of coexistent silicosis and organization of such a process could explain the picture. However, some of the cases that have come to autopsy with such localized lesions give no history of serious illness. Pancoast and Pendergrass<sup>11</sup> are of the opinion that localized shadows in the silicotic lung are of tuberculous origin when they extend to the periphery of the lung and that when they do not they are due to some other cause.

Under certain unusual conditions it is apparently possible for silicosis to develop rapidly, within a period of eighteen months to four years. Where the dust particles are exceedingly small and where the concentration of dust is excessive, as occurred, for example, in the process of sandblasting before the hazard of this occupation was recognized, cases of rapid silicosis were not uncommon. So many fine particles are inhaled in such a short time that the lymphatic system is entirely inadequate to remove them. As a consequence, at the same time that nodules are developing in lymphoid tissues of the lung and mediastinum, similar lesions are forming everywhere in the walls of the air spaces. The nodules are of microscopic size and there is an unusual amount of diffuse connective proliferation. The fineness of the silica renders it unusually toxic and degenerative changes are prominent. I have had opportunity to study autopsy material from fifteen such cases, in all of which death was caused by superimposed infection.<sup>8</sup> What might be the outcome had no infection occurred can be surmised from animal experiments with excessive exposure. In guinea-pigs thus exposed, the lungs are quite generally consolidated and while nodules are formed they are so embedded in the diffuse reaction that they can be seen only in microscopic sections.

Most patients with silicosis die of a complicating tuberculosis. The source of the infection may be

endogenous or exogenous. In the past it was generally believed that in most instances it originated through contacts established in the industrial environment, but it is becoming recognized that some cases develop from preexisting foci of tubercle. The clinical course of the infection is often atypical, it may not produce characteristic symptoms for a long time and can then only be diagnosed by the roentgenogram.

It manifests itself in several anatomic forms. Rarely it occurs as a healed apical scar, which has perhaps persisted for years without change. In nonsilicotic individuals such scars, according to Sampson and Brown<sup>12</sup> represent infections that have been acquired and completed their course before the age of 25. If the x-ray film of a workman exposed to dust for fifty or more years exhibits such an apical scar in a lung studded with discrete nodulation, it might be assumed that the infectious lesion is probably sterile and will never become reactivated. But there are individuals first exposed to dust after the age of 25 in whom the roentgenogram shows that such reactivation has already occurred. The upper portion of one or both lungs is involved with a massive combination of silicosis and tuberculosis, which is chronic in its course and often causes so few symptoms that it may be discovered only in routine examination of active workmen. The occurrence of such instances of reactivation makes one cautious in suggesting the possible outcome of any tuberculous lesion in the silicotic subject. The apical scar, which will remain innocuous throughout the life of an ordinary person, may harbor living bacilli in a minute focus of caseation. Experience with animals<sup>13</sup> indicates that long continued inhalation of silica may ultimately activate this focus and cause it to spread.

The more common site of tuberculosis, as already mentioned, is in the middle or lower lung. In these cases there is usually no evidence of tubercle in the apex. The roentgenogram may show fully developed silicosis with nodulation evenly distributed throughout the lungs except for a circumscribed area of confluence in the lower two thirds of one of the lungs. In the next roentgenogram, from three to six months later, this localized area has perhaps increased in size. Comparison of this film with the previous one may disclose the fact that each individual nodule throughout the lung has become larger and now casts a fluffy shadow. It is as if the nodules were kernels of corn that had popped. Such disease often continues to spread for months or even years without producing symptoms, expectoration or tubercle bacilli in the sputum. Even cavities may form without clinical manifestations. Ultimately symptoms appear, the cases are diagnosed as tuberculous and find their way to sanatoriums but usually only after a period of some years has elapsed.

Infection may supervene at any time in the course of silicosis. Not infrequently a man leaves his dusty work quite unconscious of the fact that he has acquired silicosis. The disease continues to progress and sooner or later he acquires a superimposed tuberculous infection. In the course of time, symptoms are manifested which bring him to a physician. Unless this doctor inquires carefully into the past occupational history, the important feature of a previous exposure to silica may be entirely overlooked and his condition may be

10 Irvine L G and Stuart W. The Radiology and Symptomatology of Silicosis. Internat Labor Office Report pp 269 293.

11 Pancoast H K and Pendergrass E P. The Roentgenological Aspects of Pneumoconiosis and Its Medicolegal Importance. J Indust Hyg 15 117 135 (May) 1933.

12 Sampson H L and Brown Lawrason. Correlation of Clinical and Roentgenological Observations in Pulmonary Tuberculosis. Radiology 22 1 (Jan) 1934.

13 Gardner L U. Experimental Pneumoconiosis. V. Reactivation of Healing Primary Tubercles by Inhalation of Quartz. Am Rev Tuberc 20 833 875 (Dec) 1929.

diagnosed as one of atypical basal tuberculosis with diffuse dissemination

All the types of tuberculosis thus far mentioned are chronic in their course, but acute forms are not infrequent. Acute cases are sometimes discovered in taking serial roentgenograms of groups of workmen employed in silica industries. On the first examination the film may show a generalized nodulation with a small localized shadow at one point. Two or three months later this shadow will be seen to have increased in size and perhaps many of the nodules in other parts of the lung no longer cast clearly defined shadows. A cavity may form in the original focus and subsequently obvious evidence of infection develop elsewhere. In one such case recently observed, death from generalized pulmonary tuberculosis occurred six months after the first localized shadow, no larger than the thumb nail, was detected. This man, apparently well at the time, later showed fever and other symptoms of intoxication but tubercle bacilli were never found in smears of the sputum. He came to autopsy and the lungs exhibited a typical picture of silicosis with tuberculous pneumonia, but bacilli could be found only after prolonged search.

The pathology of the tuberculous complication has been discussed from its roentgenologic aspects because by this method the evolution of the process can be followed. Histologic examination of the terminal stage seen after autopsy may confirm the diagnosis, and it permits differentiation between silicotic and tuberculous foci. Usually the tuberculous lesions are of a productive type consisting of cellular granulation tissue, which shows a marked tendency toward organization. Such reaction surrounds silicotic nodules so that they become embedded in scar tissue. Caseation and cavity formation occur, but degenerative changes are not always prominent. Such involvement obviously results from extension through the lumen of the air spaces and it merely surrounds any silicotic nodules that happen to be present. In addition, the centers of nodules remote from pneumonic areas frequently contain minute points of caseation. Such a manifestation could be due to dissemination of bacilli through blood or lymph vessels. The lymphatics seem less likely to be the channel of infection, for usually their lumens are completely obliterated. Included blood vessels are also greatly constricted but many of them are potentially patent and could carry organisms into the nodule. In acute cases such as the one described the tuberculosis is of the caseous pneumonic type.

The specific cause of the unusual susceptibility of the silicotic lung to tuberculous infection is not known. The phenomenon can be duplicated in the experimental animal and certain aspects have been studied in detail. Kettle<sup>14</sup> showed, for example, that bovine tubercle bacilli injected intravenously into ordinarily nonsusceptible white mice would localize and multiply without restraint in foci where large quantities of silica had been injected. I<sup>15</sup> have demonstrated that guinea-pigs infected with attenuated tubercle bacilli and then exposed to the inhalation of quartz dust develop a very chronic but fatal form of silicotuberculosis, whereas in normal animals the same infection completely heals and disappears. The effect is not due to changes in the bacilli for when portions of the lungs of the infected silicotic guinea-pig are subinoculated into normal ani-

mals the infection is not progressive. The same result can be obtained by infecting silicotic rabbits with human tubercle bacilli, a type which ordinarily does not produce progressive disease in this animal. All of these studies have merely shown that tubercle bacilli grow better in silicotic soil than they do in normal animal tissue. Cummins<sup>16</sup> suggests that the obstruction of the lymphatic system mechanically prevents elimination of bacteria from the lung, but this will not explain the selective localization and proliferation of intravenously injected bacilli in an area of silicotic reaction in the group. Studies are now in progress to determine whether there is a disturbance of the mechanisms of immunity in silicosis.

The modifying effect of other substances inhaled with silica probably deserves more attention than it has thus far received. It is claimed that the presence of free alkali accelerates the solution of silica and hence promotes more rapid tissue changes. A considerable number of these rapid cases have been reported among young women packing siliceous scouring powders, but their similarity to the disease in sandblasters and others wherein there was no alkali suggests that the excessive exposure to fine dust may have been responsible.

On the other hand, certain other substances seem to retard or prevent silica from exerting its usual effects. The lesions of silicosis in the anthracite coal miner<sup>17</sup> and the hematite miner<sup>18</sup> are often quite atypical even though the concentrations of silica to which these men have been exposed may have been high. Coal and hematite alone tend to produce subpleural and perilymphatic pigmentation with the formation of considerable cellular connective tissue in these locations. The parenchyma of the lung suffers little damage and no nodules are produced. When a little silica is inhaled with these substances, the connective tissue tends to become more dense and hyaline in character but still retains its perilymphatic distribution. If the amount of silica is still greater, nodules form along the lymphatic trunks. Only when silica predominates do nodules develop in the parenchyma of the lung, but even these nodules lack the clear cut definition of the uncomplicated silicotic lesion. They are surrounded by wide, stellate zones of deeply pigmented cellular connective tissue. How far the tuberculous complication may be influenced by coal, hematite and other dusts is still debatable. Considerable evidence is available to suggest that it is not so apt to become progressive as among workers in pure silica.

The effects of the silicates cannot be considered here except to state that the lesions of asbestosis are not nodular but diffuse in character. This is probably due to the shape and character of the particles, which in consequence are not concentrated at focal points by the phagocytes. Tuberculosis is not so invariably the cause of death in the case of asbestosis, although numerous cases have been reported in which it has caused death.<sup>19</sup>

#### SUMMARY

Dusts containing silica are preeminently dangerous. Present knowledge will not permit it to be said that only free silica is harmful, possibly some of the sili-

- 16 Cummins S L Silicosis in Gold Miners and Coal Miners *Am Rev Tuberc* 29 17 35 (Jan) 1934
- 17 Gardner L U The Pathologic Reaction in Various Pneumoconioses J A M A 101 594 598 (Aug 19) 1933
- 18 Stewart M J Silica in Relation to Pulmonary Disease *Tr Tuberc Soc Scotland* 1932 1933 pp 86 92
- 19 The following references furnish excellent reviews of asbestosis:  
Merewether E R A A Memorandum on Asbestosis *Tubercle* 15 69 81 (Nov) 109 (Dec.) 1933 152 159 (Jan) 1934  
Gloyne S R Morbid Anatomy and Histology of Asbestosis *Tubercle* 14 445 451 (July) 493 497 (Aug) 550 557 (Sept) 1933

14 Kettle E H The Demonstration by the Fixation Abscess of the Influence of Silica in Determining B Tuberculosis Infections *Brit. J Exper Path* 5 158 164 (June) 1924

15 Gardner L U Unpublished experiments

cates will also be incriminated. One silicate, asbestos, produces a characteristic and dangerous type of pulmonary fibrosis. Silica is a tissue poison. In low dilutions it causes nodular fibrosis, in higher concentrations it produces rapid necrosis of cells of all kinds.

Human silicosis begins by damaging the pulmonary lymphatic apparatus and is followed by the development of nodular fibrosis of the parenchyma of the lungs.

Silicosis specifically predisposes to infection with the tubercle bacillus. The mechanism of this action has not yet been determined. It probably consists in some alteration in the soil rather than in changes induced in the infecting organism.

Nonsiliceous dusts localize about the lymphatic trunks and some of them excite the proliferation of small amounts of loose cellular connective tissue. They apparently do not increase susceptibility to tuberculosis.

Nonsiliceous dusts inhaled in combination with silica modify the action of the latter, altering the anatomic characteristics of the lesions and apparently decreasing the susceptibility to tuberculosis.

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## Clinical Notes, Suggestions and New Instruments

### GONORRHEAL PROSTATIC ABSCESS IN FOUR YEAR OLD BOY

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Gonorrhea in the male child is considered rare, or very rare, by most authorities, and not a great many cases have been reported in boys at or before puberty. Squires reports five cases of gonorrhea in male children ranging in age from 5 years to 12 years. Bierbach reports two cases in young boys whose respective ages were 3 and 6 years. Wolbarst, within two years, saw twenty-two cases of gonorrheal infection in boys ranging from 18 months to 12 years of age. Textbooks make little or no mention of gonorrhea in male children although its comparative frequency is recognized in female children. Unquestionably the condition is much rarer in young boys than in young girls.

Most authorities who report cases emphasize the fact that gonorrheal infection in children is accompanied much less often by complications than is the infection in adults. This is presumably due to the fact that children are much less likely to have the irritations of sexual excitement and alcoholic excesses than are adults. In fact, in a recent issue of *THE JOURNAL* it was stated<sup>1</sup> in answer to a query concerning a 6 year old boy with gonorrhea that the condition should clear up rapidly without complications if no traumatic treatments were given, because children are not subject to the chief causes of complications and chronicity, namely, sexual excitement and alcohol.

Some authors report cases of complications with and without local treatment. The complications thus reported have been phimosis, lymphangitis of the penis, prostatitis, inguinal adenitis and epididymitis. As far as could be determined by a review of the literature, none have reported an instance of prostatic or periurethral abscess and most declare that the infection clears up rapidly.

The case reported here may be considered unusual because of its chronicity and complications, in a very young child who was subjected to none of the influences ordinarily considered as causative of complications and chronicity.

#### REPORT OF CASE

H. H. J., a boy, aged 4 years, seen Aug. 18, 1932, was brought by his parents because of painful urination and swelling and redness of the penis.

<sup>1</sup> Gonorrhea in a Six Year Old Boy. *Queries and Minor Notes* J. A. M. A. 101: 1903 (Dec. 9) 1933.

At my first observation the glans and prepuce of the penis were inflamed and edematous and there was a profuse yellowish white discharge from the urethra. A smear was made of this discharge and many pus cells with a great many gram negative intracellular diplococci, morphologically identical with gonococci, were found. At this time the condition did not appear so serious. The child was placed on small doses of methenamine internally and the parents were instructed in the method of cleansing the penis with a mild antiseptic solution. No injection was prescribed or used.

In a day or two the patient was brought back with a severe paraphimosis, with great constriction of the penis behind the glans and very marked edema of the glans and prepuce. This paraphimosis could not be reduced and urination had become so difficult that it was necessary to incise the constricting band. This resulted in a subsidence of the swelling in a few days and urination became more normal.

The urethral discharge continued freely for two weeks and then subsided, but pus and gonococci continued to be present in the urine in large numbers. The inflammation and swelling of the glans and prepuce also had practically disappeared in two weeks. There was then no evidence of trouble except in the urine until September 27, when the child began to have pain in the perineum when sitting down or walking. He was then admitted to the Greeneville Sanatorium and Hospital.

There was a very tender mass about the size of an English walnut in the midline of the perineum. The skin over this mass was reddened and edematous and there was slight fluctuation. There was no urethral discharge and no swelling or inflammation of the prepuce or glans. The urinary examination revealed many pus cells and gram-negative extracellular diplococci and a few gram-negative intracellular diplococci. On admission the temperature was 100 F.

After admission to the hospital the pain and tenderness in the perineum became progressively worse and the mass became larger and more fluctuant. The temperature rose to 102. It was decided to incise the mass and on September 30 this was done under general anesthesia. A large amount of thick yellowish white pus was evacuated through a median perineal incision. The abscess cavity was mostly on the right of the midperineal line and extended back to the arch of the pubis. A smear of the pus showed many gram-negative intracellular diplococci morphologically identical with gonococci.

The condition of the child rapidly improved following the incision and in three days his temperature reached normal, where it remained thereafter. The pain and inflammation rapidly subsided in the perineum but there was more or less drainage for several weeks. The patient was able to return to his home seven days after the operation.

He, however, was kept under observation until January 1 and repeated examinations of his urine were made. There was a decrease in the pus cells and diplococci but on the last examination in this period a few gonococci were found.

Some time before this the perineal incision had entirely healed. The general and local condition of the child had so markedly improved that his parents ceased to bring him for examinations.

He was again seen on May 5, 1934, about twenty months after the gonorrheal infection began. At this time his urine was free from pus and bacteria and the local parts were normal except for the prepuce, which was redundant.

#### COMMENT

At no time was this 4 year old child given any urethral injection, nor was any sound or other instrument passed into the urethra, yet his gonorrheal infection lasted for at least five months. The abscess that was opened in the perineum was gonorrheal and came from the prostate, most probably, because there was never any periurethral extravasation of urine or leakage of urine through the perineal incision.

The source of infection could not be determined definitely, but the mother stated that the boy had been playing with a little girl, of about his own age, who was known to have gonorrheal vulvovaginitis. Handling of the penis sometimes resulted in erections, and it is very likely that infection was derived from sexual contact with the girl.

This possible precocious sexual development of the boy may have been a factor in causing his complications and the chronicity of the case. Wolbarst and other writers now incline to the idea that gonorrhea in children is more commonly due to sexual contact than is generally supposed, and this certainly would be a rational conclusion in boys, in whom the opening through which infection must take place is so small.

## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.  
CHICAGO

NOTE—In their elaboration these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The series of articles will be continued from time to time in these columns.—ED

#### THERAPY OF BARBITURATE POISONING

In barbiturate poisoning the phenomena of excitation, even up to tonic spasms and trismus, are rare. They are present only after relatively small toxic dosage. Recovery is the rule. Heroic administration of sedatives in such cases with excitation may cause death.

Usually the patient arrives at the hospital in coma, with the reflexes and pupillary reactions retained or even exaggerated. While the barbituric pupil is usually dilated with normal or slightly delayed pupillary reaction (and it is small and reactionless only in extreme cases), the pupil of morphine poisoning is generally small and becomes dilated only shortly before death. A test for barbituric acid in the urine that clinches the diagnosis is made by acidifying it and shaking out with ether, which leaves, on evaporation, large crystals that melt at 190°C.

The fatal dose is, in general, from fifteen to thirty times the therapeutic dose. The nearly always fatal dose of barbituric acid is about 10 Gm., of phenobarbital about 4 Gm. and of diazepam about 2.4 Gm. The mortality rate may exceed 20 per cent. Barbiturate poisoning generally continues for several days before death or recovery takes place.

Treatment requires the recognition of two stages: the stage of coma and the stage of reaction.

**Stage of Coma**—1. Evacuation of the stomach, with the patient's head lower than the stomach (best carried out on the operating table) is done to prevent aspiration of fluid overflowing from the stomach around the tube, with subsequent development of aspiration pneumonia. If trismus is present the duodenal tube should be passed through the nose. The stomach should be washed thoroughly with diluted (pink) permanganate solution. Lavage is indicated even when the poison was taken many hours previously. To clear unabsorbed poison from the bowel, Magnesium Sulphate (60 Gm.) should be left in the stomach with Fluidextract of Cascara (16 cc.). The tube should be left in place. If no bowel movement is secured, this should be followed in a few hours with a full dose (240 cc.) of Compound Infusion of Senna, and, if this fails, a bombardment should be kept up with 30 cc. of Castor Oil at intervals of four hours until bowel evacuation is secured. Enemas may

be required in addition, and these might well consist of hot strong, black coffee, any quantity of which retained also serves as an antagonist.

2. Postural drainage should be maintained continually. The foot end of the bed is elevated to tilt the bed from 15 to 20 degrees, the patient's feet being tied to the end of the bed if necessary, and the patient's head turned to the side. Secretions accumulating in the pharynx should be removed by suction.

3. Feeding should be done through the stomach tube, at intervals of every four hours, with two cupfuls of not excessively hot, strong coffee with some milk. When a feeding is due, the stomach should always be evacuated of its contents before injection of the feeding that is due, so as to avoid overdistention of the stomach and possible overflow around the tube and aspiration into the lungs.

4. Antagonists should be given in heroic doses, liberally and in rotation. Caffeine in the form of warm black coffee by rectum or of Caffeine Sodio-Benzozate, 0.5 Gm., intramuscularly every two hours up to 1 Gm., repeated after a rest period, and Metrazol, 2 cc. of 10 per cent solution intravenously and 2 cc. intramuscularly at the same time. This dosage may be repeated from every thirty minutes to one hour. Strychnine nitrate, 2 mg. hypodermically every hour or two, should be given until there is increased reflex excitability.

5. Elimination should be assisted by 5 per cent dextrose phlebotomy to maintain free secretion of urine. This may be helped by a xanthine diuretic. (a) Aminophylline (theophylline ethylenediamine) in doses of 0.25 Gm. in 10 cc. of water, which may be given in the dex-

#### PRESCRIPTION 1—Theophylline Suppositories

R. Theophylline	2.50 Gm.
Oil of theobroma	17.50 Gm.
Mix and divide into ten suppositories	One every four hours

trose infusion, possibly every eight hours. (b) If this is not available, suppositories containing Theobromine Sodio-Salicylate, 0.5 Gm., or preferably Theophylline, 0.25 Gm. (prescription 1), may be administered four or more times daily. Catheterization should be done every four to six hours.

6. The body temperature should be kept from falling below the normal by the application of external heat with great care to prevent burns. In conditions of sub-normal temperature, heat is the greatest of all stimulants, it is a requisite to permit medicinal stimulants to act properly, and it may prevent the lowering of resistance that favors the development of pneumonia.

7. Artificial respiration with oxygen inhalation should be instituted on the appearance of marked enfeeblement of respirations. Death from primary paralysis of respiration is, however, very rare. Death from primary circulation failure occurs only in cases in which the heart is diseased.

**Stage of Reaction**—Usually by the end of the first day the temperature rises, respiration becomes embarrassed, pneumonic foci or pulmonary edema develops, the blood pressure falls and the pulse becomes enfeebled. These pulmonary sequelae are probably in most instances the result of the general vasoparesis with or without subsequent infection. Nevertheless, everything should be done to prevent the possibility of a suspicion that they are due to aspiration or to chilling. The treatment is that of pneumonia (q.v.).

Great tendency to decubitus (q v), also due to vascular paresis, requires special precautionary measures

Constant nursing care is imperative to give these desperately sick and helpless patients their best chance for survival

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE  
H A CARTER, Secretary

### RESUSCITATION

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The art of resuscitation<sup>1</sup> has made great advances during the past twenty years both in theory and in practice. These advances will be briefly reviewed here. There are also some developments to report, so recent that they have not yet reached practical application, and some further developments are indicated as probable during the next few years. Such developments deserve encouragement, for there are still large possibilities of improvement in the field of resuscitation. The chief objects of this article are three:

1 To promote the widest possible use of those measures and devices that have been proved by experience to be safe and effective

2 To give warning against the use of drugs and apparatus that, instead of benefiting, may injure patients or may even result in loss of life

3 To show that the facts of resuscitation largely refute the theory of asphyxia that is now generally accepted, and to promote the development of sound theory as a basis for further progress in the art of resuscitation

#### FORMS AND DEGREES OF ASPHYXIA

Resuscitation is the therapeutics of acute asphyxia. The causes and forms of asphyxia, both acute and chronic, are many, and their treatment should vary to correspond with their differences. They include drowning, electric shock, carbon monoxide poisoning, neonatal apnea and atelectasis, anesthetic and postoperative depression, mountain sickness, aviators' collapse, and the impairment of the lungs by irritant gases and by pneumonia. Indeed, the terminal stages of most of the various ways of dying—the stages when the circulation and respiration are failing—are largely asphyxial.

Short of death there are also three degrees of asphyxia. They differ in the duration and intensity of the asphyxia. According to their outstanding features they are apneic asphyxia, acarbic asphyxia and chronic asphyxia.

*Apneic Asphyxia*—Brief but intense asphyxia, under complete deprivation of oxygen, is exemplified in drowning. Its outstanding feature for treatment is apnea cessation of breathing. The vital machine is little damaged. It is merely stopped. It is restarted mainly by means of artificial respiration. Inhalational treatment is secondary, although it is often of critical value for the saving of life. If recovery occurs at all, it is generally rapid and complete.

*Acarbic Asphyxia*—More prolonged but less intense asphyxia is exemplified in those cases in which sublethal atmospheres of carbon monoxide have been breathed for several hours. The patients are often still breathing, although in profound coma, when removed from the poisonous atmosphere. The vital machine has been so deranged by asphyxia that, without treatment, recovery is slow and painful. There may be sequelae of mental or physical incapacity, indicating profound tissue damage especially in the nervous system, or even subsequent death. In such cases artificial respiration is often not needed, as breathing has not stopped. But if further damage is to be prevented and recovery is to be rapid, inhalational treatment is essential. Prolonged acute deprivation of oxygen through any agent or process induces this type of asphyxia. But restoration of oxygen alone does not cure it or cures it only very slowly. Experience has shown that for rapid restoration of normal conditions the effective means, along with oxygen, is inhalation of carbon dioxide in proper dilution. In the benefits of this inhalation the stimulation of respiration is important, but the deeper effects of carbon dioxide on the conditions in the blood and tissues, particularly the relief of acarbica (defined below), are equally or even more important.

*Chronic Asphyxia*—In addition to these two forms of acute asphyxia there is also a third or chronic asphyxia due to a partial deprivation of oxygen. It occurs in anemia and in heart disease and is characterized by shortness of breath and continual oxygen debt. Restoration of red corpuscles and prolonged inhalation of oxygen<sup>2</sup> are the logical treatments.

The fundamental processes occurring in all forms of asphyxia are as yet but incompletely understood or, rather, they have been generally misinterpreted. They have been variously termed acapnia, acidosis and acarbica deficiency of carbon dioxide, excess of acid and diminution of the amount of alkali bicarbonates in the blood. This much only is clear. Deficiency of oxygen induces a profound disturbance of the state in which carbon dioxide is normally held in the body and in its amount. I shall call this state "acarbica." It is the state generally called "acidosis" and mistakenly regarded as an intoxication by acid<sup>3</sup>. Restoration of the supply of oxygen overcomes this state but slowly. If injury to the tissues has not gone too far, restoration of carbon dioxide by inhalation, together with adequate oxygen, rapidly and completely restores normal conditions in the body.

#### ARTIFICIAL RESPIRATION AND INHALATIONAL APPARATUS

In such states as the complete apnea induced by submersion in water or by electric shock, even seconds are precious. Death will quickly result unless the supply of air to the lungs is immediately renewed. The prompt application of artificial respiration is therefore the measure of primary importance and for this purpose the

2 Kroetz C. Formen der Dyspnoe. 1 Cardiac Dyspnoe. Deutsches Arch f klin Med 169 257 1930. Uhlenbruck P. Ueber die Wirksamkeit der Sauerstoffatmung. Ztschr f d ges exper med 74 1 1930. Jansen K. Knipping H W and Stromberger K. Klinische Untersuchungen uiber Atmung und Blutgasen. Beitr z klin d Tuberk 80 305 1932. Barach A L and Richards D W Jr. Effects of Treatment with Oxygen in Cardiac Failure. Arch Int Med 48 325 347 (Aug) 1931. Barach A L. The Treatment of Asphyxia in Clinical Diseases with Especial Reference to Recent Developments in the Use of Oxygen in Heart Failure. New York State J Med to be published.

3 Henderson Yandell. Fundamentals of Asphyxia. J A M A 101 261 (July 22) 1933. This and the following paper contain references to all papers on asphyxia referred to but not specifically cited here. Henderson Yandell and Greenberg L A. Acidosis Acid Intoxication or Acarbica? Am J Physiol 107 37 (Jan) 1934.

From the Laboratory of Applied Physiology Yale University.  
1 Henderson Yandell. Resuscitation from Carbon Monoxide Asphyxia from Ether or Alcohol Intoxication and from Respiratory Failure Due to Other Causes with Some Remarks also on the Use of Oxygen in Pneumonia and Inhalational Therapy in General. J A M A 83 758 763 (Sept) 1924.

prone pressure method introduced by Schafer<sup>4</sup> is the procedure of choice. It should always be continued until natural breathing returns or rigor mortis sets in. Lives have been lost by physicians interfering with the policeman, fireman or boy scout who was performing artificial respiration. It is easy to order a nonbreathing victim of drowning or electric shock or other acute asphyxia into an ambulance, but he will be dead before he reaches the hospital.

In using the Schafer method or any other form of artificial respiration, on a victim of drowning, the question of removing water from the lungs may be disregarded. If the body has been in fresh water, the water that reaches the lungs is quickly absorbed into the blood. If salt water is involved, the absorption is slower. But in either case there is really no way to get the water out of the finer tubes and chambers of the lungs by manipulation. If all of them are occluded, the circulation of the blood through the lungs is believed to be obstructed in a manner similar to Valsalva's experiment and death is immediate by so-called immersion shock. Fortunately there are generally enough spaces in the lungs still free from water to permit sufficient ventilation under artificial respiration to supply that minimum amount of oxygen which is necessary to maintain life. If life is thus maintained the victim is generally resuscitated, provided of course that the heart is still beating and the blood circulating.

Artificial respiration is also the measure of primary importance in electric shock, although it is effective only in cases in which respiration, but not the heart, has been stopped. If the heart has been thrown into fibrillation, no means now available can restore a coordinated pulsation and resuscitate the victim. There is distinct experimental progress toward restoration of coordinated heart action after electric shock,<sup>5</sup> but there is as yet no practical application of such laboratory observations requiring discussion here. If the heart has not been thrown into fibrillation, but only respiration is stopped, recovery under artificial respiration is brought about essentially as in cases of immersion.

In connection with artificial respiration, three recent practical developments deserve mention. One is the tilting board developed by Eve<sup>6</sup> in England and by Cornish<sup>7</sup> in California. This device is in principle a seesaw on which the victim is laid and rocked slowly through an angle of 30 degrees or more from the horizontal each way. Adjustable pegs are placed in holes in the board at the shoulders and feet to keep the body from sliding. When the head is lowered and the feet are raised, the weight of the abdominal viscera acts on the diaphragm to induce expiration. When the head is raised, the movement of the viscera and diaphragm feetward induces inspiration. If the body is completely flaccid, the victim should be laid on his face so that the tongue will fall forward, otherwise on his back. The device is quite easily constructed by any carpenter and would probably prove useful at bathing places and in the accident rooms of hospitals for use in cases of concussion, morphine poisoning and other conditions of

hypopnea and apnea. An apneic baby has been revived with it. It is also particularly adapted to use by laymen.

An apparatus for prolonged artificial respiration by compression of the chest has recently been described by Kerridge.<sup>8</sup>

The other development is of a different type, it is for use by physicians only. It is the device, recently developed by Flagg,<sup>9</sup> to facilitate the introduction of a sound into the trachea for the administration of intratracheal insufflation. It consists of an electrically lighted laryngoscope. Because of the flaccidity of the muscles of the mouth and throat in the victims of drowning and in asphyxial new-born babies, the larynx is readily made visible with this device and a tracheal sound is easily introduced. Through this sound a mixture of oxygen and carbon dioxide may be blown directly into the lungs. The principle involved is essentially that of artificial respiration by intermittent insufflation, as introduced by the late Dr. Meltzer.<sup>10</sup> There can be no doubt that some victims of submersion, of neonatal apnea and of collapse under surgical operations, particularly in the thorax, who can be resuscitated in no other way can be saved by this means. The apparatus will be useful as an attachment of the inhalator at large bathing places, such as Coney Island, where enough drowning and other accidents occur to justify regular medical attendants. The number of cases of drowning and of asphyxia of the new-born needing insufflation is, however, small compared to those needing only inhalation. The capacity of the apparatus to induce dilatation of the atelectatic lungs, especially in cases of birth shock and asphyxia pallida, contributes a marked advantage over simple inhalation, but it should be used with precautions against excessive intrapulmonary pressure. These precautions consist in setting the blow-off valve at not more than 25 mm of mercury pressure. For the adult, 40 mm is allowable.

The report of a referee of the Council on Physical Therapy indicates that in its present form the Flagg laryngoscope is somewhat too large for convenient use on infants and that the metal cannulae will also need some modification to prevent trauma. These are however details that can be easily improved. The revival of intratracheal insufflation for clinical use is a valuable contribution to the art of resuscitation.

During surgical operations in the thorax there is sometimes urgent need for artificial respiration. Apparatus of the general type used in physiologic laboratories would meet this need, if combined with intratracheal insufflation. Such an apparatus has recently been devised by Coryllos.<sup>10a</sup>

Reports based on the practical experience of obstetricians indicate that, in the mixtures of oxygen and carbon dioxide used for resuscitation of the new-born, high percentages of carbon dioxide—up to 20 or even 30—are found most effective for the initiation of spontaneous breathing in difficult cases but that, after spontaneous breathing has been established, percentages of 7 or 8, or even as low as 5 are sufficient. Such is the testimony of the referees to whom the Council on Physical Therapy has referred the infant resuscitation apparatus recently submitted for testing. It is probable

<sup>4</sup> Schafer E. A. Harvey Society Lectures for 1907-1908. New York 1909 p. 223.

<sup>5</sup> Hooker D. R., Kouwenhoven W. B. and Langworthy O. R. The Effect of Alternating Electric Currents on the Heart. *Am. J. Physiol.* 103: 444 (Feb.) 1933. Williams H. B. Personal communication to the author on Resuscitation by Electric Countershock.

<sup>6</sup> Eve F. C. Actuation of the Inert Diaphragm by a Gravity Method. *Lancet* 2: 995 (Nov. 5) 1932. Kilkick, E. M. and Eve F. C. Physiologic Investigation of Rocking Method of Artificial Respiration. *Lancet* 2: 40 (Sept. 30) 1933.

<sup>7</sup> Cornish R. E. cited in Lazarus Dead and Alive. *Time* 23: 49 (March 76) 1934.

<sup>8</sup> Kerridge P. M. T. Artificial Respiration for Two Years. *Lancet* 1: 786 (April 14) 1934.

<sup>9</sup> Flagg P. J. Resuscitation, New York State J. Med. 33: 395 (March 15) 1933.

<sup>10</sup> Meltzer S. J. Simple Devices for Effective Artificial Respiration in Emergencies. *J. A. M. A.* 60: 1407 (May 10) 1913.

<sup>10a</sup> Coryllos P. N. Etiology, Prevention and Treatment of Post-operative Hemorespiratory Complications. *J. Thoracic Surg.* 2: 384 (April) 1933.



that a high initial carbon dioxide mixture followed by a lower mixture would also be the most effective agents for resuscitation in cases of drowning. On theoretical grounds it would seem to me that both for the new-born and for the drowned 20 per cent of carbon dioxide in the stronger mixture and 7 per cent in the weaker should be enough. But, of course, practical experience, not theory, must determine the final decision.

For administering inhalation in all varieties of cases of asphyxia, the H-II Inhalator,<sup>11</sup> with the recent addition of a Flagg device, affords in general the best means of stimulating respiration after submersion, electric shock and carbon monoxide asphyxia. Several thousand of these inhalators are now in use with a very large saving of life. The Davis Inhalator<sup>12</sup> also has been approved by the Council on Physical Therapy. The infant resuscitators of the Ohio Chemical and Manufacturing Company<sup>13</sup> and of the Foregger Company<sup>14</sup> have both been found efficient and have recently received the approval of the Council on Physical Therapy. Both of these companies supply also excellent inhalators for administering carbon dioxide (from cylinders of liquid carbon dioxide) mixed with air in an open mask. The first, third, fourth, fifth and sixth of these appliances are made according to my designs.

The Sparklet Resuscitator, now advertised in medical journals, has possibilities of usefulness that have not as yet been developed to a point deserving of approval by the Council. The amount of the oxygen carbon dioxide mixture that one of the Sparklets affords is so small that it can be used effectively only for total rebreathing. But, used in this way, it should be valuable for the treatment of asphyxial new-born babies delivered in private homes. The amount of liquid carbon dioxide contained in a sparklet would be sufficient to stimulate respiration for a few minutes if the control apparatus regulated the flow effectively. But such is not now the case.

The Pulmotor<sup>15</sup> has been condemned so frequently in reports by committees of high scientific competence that, except for its name, it would long since have passed, as it should, into the limbo of things forgotten. Unfortunately the word "pulmotor" has become in popular speech a generic term for any and all respiratory and resuscitative devices and particularly for an inhalator. Because of this confusion of terms, the newspapers often report the resuscitations effected by means of inhalators as cases of "victims restored to life by the Pulmotor." Then some ill informed community buys one of these discredited devices for its fire department.

Recently another device has been brought out and vigorously promoted by sales agents, which is in all essentials, simply another pulmotor. As it is intended for use by laymen, it applies mechanical artificial respiration by means of a mask. It has, therefore, the same disadvantages as the original pulmotor, namely, leakage from the mask, inflation of the stomach, possibility of injury to the lungs by overdistention, and

rapid and inefficient reversal of inspiration and expiration. If set to produce low pressures, such apparatus is ineffective, if set to high pressures, it is likely to injure the lungs. The apparatus has an inhalation attachment, but the airways are too small for full efficiency in supplying oxygen and carbon dioxide for natural breathing. This defect could be corrected, the pulmotor feature should be eliminated. The name of this device is the E and J Resuscitator. The inventors of apparatus of this type should learn that mechanical artificial respiration apparatus employing pressure and suction with a mask cannot be made effective with a mask or safe for use outside a laboratory or a hospital. Pressure and suction require intubation of the trachea, an operation that properly and legally can be performed only by physicians. The administration of pressure and suction with a mask sometimes works, but it is liable to fail when most needed. In the hands of laymen, such apparatus cannot be made free from serious danger of injury to the lungs.

A device for artificial respiration of a quite different order is the Drinker apparatus<sup>16</sup> and one of the same type offered by Emerson.<sup>17</sup> In such apparatus the entire person of the patient is enclosed in a steel chamber with the exception of the head. A rubber collar fits airtight, but comfortably, around the neck and intermittent suction, or alternating suction and pressure with precautions against excessive forces, are applied to the body within the chamber. The device finds its usefulness in maintaining artificial respiration for periods of days or weeks in cases of poliomyelitis with severe respiratory involvement. It has been used successfully in cases of neonatal apnea and atelectasis but appears to offer no considerable advantages over simple inhalation of oxygen and carbon dioxide in the easier cases of asphyxia of the new-born or over the Flagg technic in extreme cases. In the new-born the object is not, as in poliomyelitis, to supply prolonged artificial breathing but rather to get the child to breathing for itself.

The oxygen tents, now used in cases of pneumonia, have also possibilities of value, as yet undeveloped, as resuscitation apparatus, particularly in cases of extreme hemorrhage.

The lack of apparatus for measuring respiration is now one of the greatest deficiencies in medical technic. Measurement of respiration—in the sense of the volume of air breathed in liters per minute—is quite as important as a guide to prognosis and treatment in many disorders as is measurement of arterial pressure. The apparatus now used for determining basal metabolism could easily be modified to serve also as respirometers.

All subcutaneous, intravenous or intracardiac medication is harmful rather than beneficial in asphyxia.<sup>18</sup> Oxygen administered subcutaneously is absorbed too slowly to be helpful.<sup>19</sup>

#### CONFLICTING THEORIES OF ASPHYXIA<sup>20</sup>

In the development of resuscitation, practice has out-run theory. Resuscitation by means of carbon dioxide

11 The Mine Safety Appliances Company Pittsburgh  
12 Davis Emergency Equipment Corporation New York  
13 Ohio Chemical & Manufacturing Company Cleveland  
14 Foregger Company New York  
15 Report of the Commission on Resuscitation from Electric Shock New York National Electric Light Association 1913. Report of the Committee on Resuscitation from Mine Gases Technical Paper 77 U. S. Bureau of Mines Washington D. C. 1914. Work of the Commission on Electric Shock editorial J. A. M. A. 61 1637 (Nov. 1) 1913. Proceedings and Resolutions of the Third Resuscitation Commission Science 48 563 (Dec. 6) 1918. Drinker K. R. Drinker C. K. and Redfield A. C. J. Indust. Hyg. 6 109 (Aug.) 1923. Final Report of the Commission on Resuscitation from Carbon Monoxide Asphyxia Ibid. 6 125 (Aug.) 1923.

16 Warren E. Collins Company Boston  
17 J. H. Emerson Cambridge Mass.  
18 Henderson Vandell False Remedies for Carbon Monoxide Asphyxia Science 78 408 (Nov. 3) 1933. Treatment of Carbon Monoxide Asphyxia Current Comment J. A. M. A. 102 217 (Jan. 20) 1934. Trautman J. A. Methylene Blue in the Treatment of HCN Gas Poisoning Pub. Health Rep. 48 1443 (Dec. 1) 1933.  
19 Singh I. Absorption of Oxygen from Subcutaneous Tissues Quart. J. Exper. Med. 20 193 1932.  
20 A more detailed discussion and references to the extensive literature of the topics dealt with in this section are given in the papers quoted under reference 3.

is now justified mainly by the incontrovertible fact that in many forms of asphyxia this treatment is highly effective in saving life. But this fact is not greatly reinforced by theory. On the contrary, it has had to meet an extraordinary succession of obstacles in the form of adverse theories. Plausible theories are not easily refuted by facts unless the facts are reinforced by equally plausible alternative theories. In this case the principal obstructive theory is very plausible and very firmly entrenched, it is one of the foundations of modern biochemistry. The alternative theory is as yet crude and incomplete—a mere beginning for a sound conception of asphyxia.

When I<sup>21</sup> first proposed inhalation of carbon dioxide twenty-five or thirty years ago, the gaseous excretion, carbon dioxide, was still regarded as the physiologic opposite of oxygen. Its use in asphyxia or in any condition related to asphyxia, such as postoperative depression, was directly contraindicated. Asphyxia was considered to involve not only lack of oxygen but also excess of carbon dioxide and obstruction or stoppage of breathing. Investigations in this laboratory showed, on the contrary, that in carbon monoxide asphyxia there is excessive breathing and decrease of carbon dioxide. Low oxygen, low carbon dioxide and hypernea are concomitants in mountain sickness, in anesthetic depression and in other states related to asphyxia. In all such states, overbreathing and the development of a deficiency of carbon dioxide are among the conditions inducing the final depression and failure of respiration.

The demonstration by Haldane<sup>22</sup> and his collaborators of the preeminent part that carbon dioxide plays in the regulation of respiration in man facilitated the introduction of carbon dioxide as an agent by which anesthetists may control the breathing of patients under operation. But my advocacy of this use of carbon dioxide was based not merely on the control of breathing but to a greater extent on certain experimental observations on animals in this laboratory. These observations were that after anesthesia and operation the amount of carbon dioxide in the blood is diminished and that, contrariwise, conservation of the body's store of carbon dioxide largely counteracts postoperative depression of the circulation. The low carbon dioxide content of the blood was regarded as a form of acapnia.

Almost simultaneously, another theory<sup>23</sup> based on quite different grounds developed in biochemistry. Under that theory, as commonly interpreted and applied, inhalation of carbon dioxide after asphyxia or in any related condition would have been absolutely prohibited. It would intensify the acidosis that even a slight degree of asphyxia was supposed to induce.

This biochemical theory was beautifully clear and complete. It was based on the principles of physical chemistry. It afforded an apparently perfect theory of asphyxia and of acidosis. According to that theory asphyxia develops as follows: Combustion in the tissues of the living body is first anaerobic, sugar

breaks up into lactic acid. Under normal conditions, part of this lactic acid undergoes combustion, the remainder was supposed to be reconverted into sugar. Under oxygen deficiency, however, some of this lactic acid failed to be either burned or converted back to sugar. This acid then reacted with the alkali bicarbonates of the blood, neutralized them and thus decreased the carbon dioxide content and alkalinity of the blood. Asphyxia led to acidosis, and acidosis was acid poisoning.

In close accord with the requirements of this theory, it was demonstrated that a low  $p_H$ , low alkali bicarbonates and a considerable increase of lactic acid in the blood do occur in the terminal stage of asphyxia and of all related conditions. Biochemists therefore gave warning that inhalation of carbon dioxide, which is the anhydrous form of carbonic acid, must intensify asphyxial acidosis dangerously, perhaps even fatally.<sup>20</sup>

Faced with such opposition—then theoretically insurmountable—resuscitation by inhalation of carbon dioxide could be introduced only clinically, and lives thus saved by avoidance of theory. My discussions of practical means of resuscitation dealt strictly with facts. No well rounded alternative theory was—or is even now—available. With this suppression, inhalation of carbon dioxide was successfully introduced into the surgical field, where it soon proved its usefulness. Its success was complete in the nonmedical field of carbon monoxide asphyxia, where treatment is administered by the rescue crews of city fire departments and theory offered no obstacle.

The justification for such unconventional disregard of theory and the authorities lay strictly in facts. It was found in experiments on animals in this laboratory that so-called asphyxial acidosis differs profoundly from a true acid intoxication. The alkali of the blood is not lost from the body in asphyxia, nor is it permanently neutralized, it is merely rendered occult. Dogs that had been made truly acidotic by intravenous injection of dilute hydrochloric acid were quickly overwhelmed, or even killed, by inhalation of carbon dioxide. On the other hand, animals rendered pseudo-acidotic, or acarbic, by asphyxia were quickly restored to a normal condition by such inhalation. And at this point a fact was discovered that may afford a beginning for a sound theory of asphyxia. This fact is that inhalation of carbon dioxide, instead of intensifying "acidosis" in an acarbic animal or man, quickly recalls the alkali bicarbonates in the blood to their normal amount.<sup>20</sup> In this respect carbonic acid (i.e. carbon dioxide) differs from such acids as hydrochloric. The latter would kill at, or above, a point ( $p_H$  7.0) to which the blood of an asphyxiated man, animal or new-born baby may be acidified with carbonic acid with no harm whatever during resuscitation.

This mobilization of alkali under the influence of carbon dioxide in the presence of oxygen is a vital reaction occurring not only in animals but even in plants, such as the potato. The contrary reaction occurs in men and animals during the development of asphyxia. Under deficiency of oxygen the carbon dioxide in the blood is also diminished, and following this diminution a considerable part of the blood alkali is somehow neutralized or immobilized. It is highly significant that this sequence occurs not only during the development of asphyxia under carbon monoxide but equally in the asphyxia of a baby before birth. The

21 Henderson Landell. Acapnia as a Factor in Shock. *Brit. M. J.* 2 1812 1906. Fatal Apnea and the Shock Problem. *Bull. Johns Hopkins Hosp.* 21 245 (Aug.) 1910. Acapnia and Shock. *Am. J. Physiol.* 21 126 (Feb.) 1908. 23 345 (Feb.) 1909. 24 66 (April) 1909. 25 310 385 (Feb.) 1910. 26 260 (June) 1910. 27 152 (Nov.) 1910. Henderson Landell and Harvey. *S. C. P. Abstr.* 46 533 (Aug.) 1918.

22 Haldane J. S. *Respiration*. New Haven Conn. Yale University Press 1922.

23 Henderson L. J. *Blood: a Study in General Physiology*. New Haven Conn. Yale University Press 1928. Peters J. P. and Van Slyke D. D. *Quantitative Clinical Chemistry*. Baltimore. Williams & Wilkins Company. 1 568 1018 1931.

former can lose carbon dioxide through the lungs, the latter cannot. The orthodox theory, which fails in respect to these matters, has failed also, it may be noted, in others. It has failed particularly in respect to the value of alkaline therapy in diabetic acidosis, and extensive revision has been needed in respect to the part supposedly played by lactic acid in muscular contraction. So fallible a theory should not be allowed longer to interfere with the saving of human life.

#### CONTRASTING INFLUENCES OF OXYGEN AND CARBON DIOXIDE<sup>20</sup>

Even when the obstacle of "acidosis" had been in practice largely surmounted, or at least circumvented, a third theoretical obstacle remained. Until quite recent years this imaginary "lion in the path" has blocked the application of carbon dioxide to what should be its most important field: resuscitation of the asphyxiated newborn. Surely—so it was argued—an asphyxiated baby or drowned adult must have already a supernormal respiratory stimulus in its blood. Because of the accumulated carbon dioxide, lowered  $p_H$  and increased lactic acid in its blood, it should not need any additional stimulus. How, then, could one justify administration of carbon dioxide in cases of asphyxia neonatorum?

It happened however that, in cities where inhalators were available, many babies were resuscitated by the rescue crews of the fire departments, called in by physicians after all the ancient procedures—slapping, swinging, and dipping in cold water—had failed. For a time even the hospitals invoked this aid. Now the large majority of hospitals are equipped with inhalational apparatus and cylinders of carbon dioxide diluted to various percentages in oxygen.

These facts forced a reconstruction of theory with the result that, in this laboratory at least, a conception that has been recently widely current in physiology was rejected. That conception was that the  $p_H$  of the respiratory center itself was the dominant factor in the control of breathing and that it is through this factor that both oxygen and carbon dioxide act.<sup>23a</sup> Instead, it was seen that the most practical conception of respiration requires a sharp distinction between the influences of oxygen and of carbon dioxide in the control of breathing. Neither oxygen nor oxygen deficiency acts as a stimulus. Instead, oxygen largely determines the sensitivity of the neurorespiratory system to its specific stimulus, which is carbon dioxide. Slight oxygen deficiency increases the sensitivity, so that even the normal amount of carbon dioxide affords an excessive stimulus, and hyperpnea results. On the other hand, extreme deficiency of oxygen diminishes the sensitivity and finally paralyzes the system. And the greater the depression of sensitivity, the stronger the stimulus required to excite respiration to activity. This is not a theoretical explanation, that is still to be developed. It is a practical statement of the unique effectiveness of high concentrations of carbon dioxide, up to 20 or even 30 per cent, in extreme cases of asphyxia neonatorum, while lower percentages are sufficient in all moderate cases.

After the presentation of these conceptions, the more important forms of asphyxia, and their characteristics in relation to resuscitation, may now be considered in some detail.

(To be continued)

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

#### DEXTROSE (See New and Nonofficial Remedies, 1934, p. 270)

The following dosage form has been accepted:

*Ampoules Dextrose (d. Glucose) 50 Gm 100 cc* Each ampule contains dextrose (d. glucose) 50 Gm in distilled water to make 100 cc.

Prepared by the Lakeside Laboratories Inc., Milwaukee. No U. S. patent or trademark.

#### DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED) (See New and Nonofficial Remedies, 1934, p. 393)

United States Standard Products Company, Woodworth, Wis.

*Diphtheria Toxoid Alum Precipitated Refined*—Prepared by treating diphtheria toxin with 0.3 to 0.4 per cent formaldehyde at temperatures of from 35 to 40° C. until its toxicity is reduced to the point where five human doses, injected into a guinea pig, produce no symptoms of diphtheria poisoning. The toxoid is treated with a 4 per cent solution of potassium aluminum sulphate, the total amount of which is not to exceed 20 mg. per human dose of the finished product. The resulting precipitate is washed with sterile physiologic solution of sodium chloride and resuspended in physiologic solution of sodium chloride to which merthiolate (1:10,000) has been added. The product is tested for antigenic potency according to the method prescribed by the National Institute of Health. Guinea pigs weighing 500 Gm., given one human dose must produce at the end of six weeks at least two units of diphtheria antitoxin in each cubic centimeter of blood.

Marketed in packages of one 1 cc vial (one immunizing dose) in packages of ten 1 cc vials (ten immunizing doses) and in packages of one 10 cc vial (ten immunizing doses).

### REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
PAUL NICHOLAS LEECH, Secretary

#### SQUIBB ADEX TABLETS 10-D NOT ACCEPTABLE FOR N. N. R. (II)

In 1932 the Council published a report on this product declaring it unacceptable because the application of a proprietary name to a cod liver oil concentrate with viosterol is not in the interest of the medical profession or the public (THE JOURNAL, March 19, 1932, p. 982). Subsequently the firm expressed a desire to meet the wishes of the Council in the matter of the name for this product and proposed the name "Squibb A and D EXT Tablets 10-D." The product was then declared to be "a concentrated extract of the vitamins of Cod and Halibut Liver Oils with Viosterol." The firm was informed that the proposed name was not acceptable, since it is essentially a proprietary name differing from "ADEX" only in spelling. The firm later proposed the name "Squibb Vitamin A and D Tablets." The Council could not recognize this name, because the product is not pure vitamins A and D, this name does not indicate whether the product is an extract or a concentrate. The firm has been informed, however, that the Council has voted to accept such products under the nonproprietary name "Tablets Vitamins A and D Concentrate" with the understanding that the label state the genesis of vitamins as well as the number of units from each source. Although the most recent available labels for ADEX Tablets as well as the firm's proposed label for "A and D EXT Tablets" declare the sources of the vitamins contained, none give the amount taken from each source.

After considerable correspondence, the firm informed the Council that since it would mean considerable loss to change the name "ADEX" and to adopt a longer name in conformance with the Council's desire for a more informative designation, it had reluctantly decided to continue the name "ADEX." The firm expressed the desire to adhere "in every other respect" to the rules of the Council concerning the marketing of this

product and submitted three advertisements which had been prepared as a part of the fall campaign in promotion of Adex Tablets, asking that the Council consider the acceptability of these advertisements. The Council could not undertake to supervise and endorse advertising for an unacceptable product over which it has no real control. The firm was informed, however, that the Council reserves the right to criticize such advertising on its own initiative.

The Council feels that it is irrational to have a series of special names for cod liver oil concentrate tablets, since the common features of these are more important than the differences. The Council further feels that in the case of Adex Tablets neither the higher dosage content nor the special process of protecting the vitamin content (if, indeed, tablets need such protection) represents such an improvement over available preparations as to justify the use of a coined proprietary name.

Since E R Squibb & Sons refused to make the name acceptable the Council reaffirmed its rejection of Squibb Adex Tablets 10 D and authorized publication of the foregoing statement.

## Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING  
AMENDED RULE

RAYMOND HERTWIG Secretary

### SPECIAL PURPOSE FOODS

"Special Purpose Foods" with usefulness restricted to specific purposes, such as inclusion in diets for obesity or special morbid conditions, will be judged on the basis of their probable usefulness and special adaptability. Food products with very low content of dextrose formers, products with little or no caloric content, and products with features of special adaptability and usefulness for the preparation of special diets, will be accepted provided the package label and advertising meet requirements set forth in the following paragraph and the cost is not wholly out of proportion to the possible usefulness of the products.

The labels and advertising shall prominently display, in easily legible type, the designation "Special Purpose Food," a statement listing all ingredients in the order of decreasing predominance by weight, and the special purpose of the product. These statements, so far as is practical, should be in close proximity to the trade name. In addition, as much of the following information should be given as is significant to permit the intelligent use of the particular product by the consumer: specific properties, vitamin and mineral content, the calories per gram or ounce, and the grams each of carbohydrate, protein and fat per portion.

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG Secretary

#### CROSSE & BLACKWELL TOMATO JUICE

**Manufacturer**—The Crosse & Blackwell Company, Baltimore

**Description**—Tomato juice, retaining in high degree the natural vitamins. Seasoned with salt.

**Manufacture**—Tomatoes are washed in running water and then by water sprays. The ripest and those free from blemishes are selected for preparing the juice and are trimmed, chopped and preheated to 77° C in tubes in an atmosphere of steam. The juice is expressed in a steam atmosphere, delivered to tanks where salt is added, passed into the bottom of a filling tank, and at 75° C filled into cans by gravity. The cans are sealed at once, processed at 100° C and cooled to 38° C. The juice packed in bottles is homogenized before filling.

The equipment and method of preparation are especially designed to prevent incorporation of air in the juice and to protect efficiently the natural vitamins. Within fifteen minutes after expression of the juice, it is sealed in the containers.

#### Analysis (submitted by manufacturer) —

	per cent
Moisture	94.3
Ash	0.8
Sodium chloride	0.4
Fat (ether extract)	0.1
Protein (N × 6.25)	1.0
Reducing sugars as dextrose before inversion	2.7
Reducing sugars as dextrose after inversion	2.8
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	3.2
Acidity as citric acid	0.4

Calories—0.2 per gram 6 per ounce

**Vitamins**—Process is efficient to retain vitamins A and C in high degree.

**Claims of Manufacturers**—Especially prepared for table use and as a vitamin C supplementary food for infant feeding.

#### GOLDEN FRUIT BRAND PURE LEMON JUICE

**Manufacturer**—Golden Fruit Products Co., Los Angeles

**Description**—Processed lemon juice, retaining in high degree the natural vitamin content.

**Manufacture**—Ripe washed lemons are sorted by hand to remove any spoiled fruit and are automatically halved and reamed by machine. The juice is centrifugated, run through a block tin coil submerged in hot water (93° C) and machine bottled in clean, heated dark brown bottles. The bottled juice is submerged in hot water brought to a temperature of 66° C in from fifteen to twenty minutes, and sealed.

#### Analysis (submitted by manufacturer) —

	per cent
Moisture	91.7
Total solids	8.3
Suspended solids	0.3
Ash	0.4
Fat (ether extract)	0.01
Protein (N × 6.25)	0.4
Reducing sugars as invert sugar	1.9
Sucrose (copper reduction method)	0.0
Crude fiber	0.0
Carbohydrates (by difference)	1.5
Titrate acidity as citric acid	6.0
Iron (Fe)	0.0013
Phosphoric anhydride (P <sub>2</sub> O <sub>5</sub> )	0.038 as P 0.017
Copper (Cu)	1.9 parts per million
Artificial coloring	none
Preservatives	none

Calories—0.3 per gram 9 per ounce

**Vitamins**—Chemical analysis for ascorbic acid of sample stored for five months shows retention of 92 per cent of ascorbic acid of the freshly expressed juice indicating that vitamin C is retained in high degree.

**Claims of Manufacturer**—For all uses of lemon juice.

#### CELLU JUICE-PAK APRICOTS

**Distributor**—The Chicago Dietetic Supply House, Inc., Chicago

**Packer**—Hunt Bros Packing Company, San Francisco

**Description**—Processed, halved and stoned apricots packed in undiluted juice without added sugar.

**Manufacture**—Tree ripened fruit is halved, pitted, washed under water sprays, sorted (all defective fruit removed), graded, washed and placed in cans, to which is added undiluted, filtered juice expressed from off-size apricots. The treatment thereafter is essentially the same as for Cellu Juice-Pak Bartlett Pears (THE JOURNAL, Aug 4, 1934, page 341).

#### Analysis (submitted by distributor) —

	per cent
Moisture	87.3
Ash	0.7
Fat (ether extract)	0.2
Protein (N × 6.25)	0.4
Reducing sugars as invert sugar	6.8
Sucrose	2.6
Crude fiber	0.5
Carbohydrates other than crude fiber (by difference)	10.9

Calories—0.5 per gram 14 per ounce

**Claims of Manufacturer**—Packed in undiluted apricot juice without added sugar.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 8, 1934

## THE COMPOSITION OF TISSUE PROTEINS

As the principal component of the solid matter of protoplasm and of much of the intercellular material of tissue is protein, the body must depend to a considerable extent on this nitrogenous material for its growth and maintenance. The proteins of the tissues are synthesized from the assortment of amino acids that accumulate in the cellular and intercellular fluids during the hours immediately following a meal containing protein. These synthetic products appear to be characteristic for each tissue of an animal. For example, hemoglobin, the so-called respiratory protein of the blood, will differ in its amino acid make-up from the protein of the muscle. The mechanism by which each tissue selects particular amino acids in the right proportion to form its own specific nitrogen-containing complexes is unknown, but recent investigations have strikingly supported the remarkable specificity manifested by the mammalian organism in these biochemical processes. Attention has been drawn to the basic amino acids arginine, histidine and lysine, the so-called hexone bases, and the constant proportions of these amino acids, which are obtained by hydrolysis of tissue proteins.

Investigators at Yale University have presented evidence<sup>1</sup> for the hypothesis that "the protoplasm of a specific organism, tissue, cell mass, or certain derivatives thereof, is composed of a labile nitrogenous chemical aggregate, tissue protein, which yields arginine, histidine and lysine in molecular ratios that are approximately fixed and characteristic for that tissue as it exists in various classes of animals." Furthermore, considerable significance attaches to the observation that the ratios of basic amino acids obtained from the total protein of human serum is constant even though the amount of total protein may vary 100 per cent and the value of the ratio of serum albumin to serum

globulin may fluctuate widely. It is suggested that "tissue proteins are built upon an 'anlage' of arginine, histidine and lysine," and stress is placed on the "primary importance of the basic amino acids in the genetic and embryological development of the tissue protein as it exists in protoplasm."

Additional evidence for the constant, specific composition imparted to new tissue proteins formed in the animal body is afforded through experimental efforts to alter the composition of the developing hen's egg by variation in the dietary regimen of the bird. Workers in Ontario<sup>2</sup> have studied the influence of diet on the composition of the proteins of eggs; it was not possible to obtain any clear evidence that the diet of the hen had an effect on the percentages of the various amino acids studied. Similar extensive investigations have been recently described by Calvery and Titus<sup>3</sup>. These authors were unable to find any marked differences in the composition of the same proteins prepared from the eggs produced by pullets raised and kept on diets having entirely different sources of nitrogenous food-stuffs. This ability of the organism to put together ten or fifteen or even more different individual amino acids to produce a protein characteristic of a particular tissue must involve specific synthetic processes the mechanism of which challenges the most vivid of investigative imaginations.

## CONTRACEPTION AND BIRTH CONTROL

In a test of more than 100 so-called contraceptives undertaken by the Birth Control Clinic Research Bureau, New York, forty-five were discovered to be unreliable. Today the marketing of devices, drugs and techniques for the prevention of conception is in the realm of big business. Indeed, the marketing of books on the subject has also come to be an exceedingly profitable venture.

In a recent consideration of birth control as a business, Elizabeth H. Garrett<sup>1</sup> credits the tremendous recent expansion to a court decision which affirmed that sales of materials for birth control were legal unless the seller was in complicity with drugstores to resell illegally. The court also said "The intention to prevent a proper medical use of drugs or other articles merely because they are capable of illegal uses is not lightly to be ascribed to Congress." The decision was handed down in 1930. Immediately the country began to be flooded with all sorts of material sent in circulars through the mails to doctors, druggists and the public. Advertisements for feminine hygiene began to appear in the most dignified periodicals. More recently the term "marriage hygiene" has been developed to point

<sup>2</sup> MacFarlane W. D., Fulmer H. L. and Jukes T. H. *Biochem J.* **24**: 1611 (no. 6) 1930.

<sup>3</sup> Calvery H. O. and Titus H. W. *J. Biol. Chem.* **105**: 683 (July) 1934.

<sup>1</sup> Garrett Elizabeth H. *For Legalized Birth Control*. Birth Control's Business Baby. *New Republic* **77**: 269 (Jan. 17) 1934.

<sup>1</sup> Block R. J. *J. Biol. Chem.* **103**: 261 (Nov.) 1933. **104**: 339 (Feb.) 1934. **105**: 455 (June) 663 (July) 1934. Block R. J. and Vickery H. B. *ibid.* **93**: 113 (Sept.) 1931. Block R. J. Darrow D. C. and Cary M. Katherine *ibid.* **104**: 347 (Feb.) 1934.

the use more specifically. Today there are hundreds of jellies, suppositories, rubber devices and systems sold for such purposes throughout the country, as well as many antiseptics that have about the same efficiency as water. A survey in the western part of Florida in 1932 is said to have revealed the information that preventives were sold in 376 places besides drugstores, including gas stations, garages, restaurants, soda fountains, barber shops, pool rooms, cigar stands, news stands, shoe shining parlors and grocery stores. The president of one concern manufacturing a rubber device stated that its business marketed 12,000 gross a month. At the recent annual session of the American Medical Association, held in Cleveland, a resolution was introduced requesting the Board of Trustees to set up some machinery for the scientific study of the various medicaments and devices available, the resolution was tabled by the House of Delegates.

A ray of light in the situation is the so-called Ogino-Knaus biologic law of nature, which deals with the establishment of the so-called safe period. The views of Ogino<sup>2</sup> have recently been made available in a translation of his Japanese book on the subject. Knaus's<sup>3</sup> research has just been published in book form in German with a menstruation calendar neatly inserted in the inside cover, and the volume by Latz<sup>4</sup> dealing with this method has sold well nigh unto 100,000 copies. Furthermore, all sorts of slide rules, calendars and record sheets are being offered to the public by interested manufacturers as a means of promoting this technic for the prevention of conception.

The views of Ogino were advanced in 1924 and he received the prize of the Japanese Gynecologic Society for his work in 1925. Knaus credits his investigations to a stimulus given by the work of Prof. A. J. Clark, published in London in 1924, on the physiology and pharmacology of the uterine musculature, and to the studies that were continued under the late Prof. W. E. Dixon in Cambridge from April 1925 onward. Knaus arrived independently at the establishment of the "safe period." He points out that Ogino's work was not known in Europe when in 1929 he published his own statements on the subject. The idea of a "safe period" goes back, of course, to the Mosaic laws, which through their establishment of ritual cleansing and other processes for women definitely indicated the period during which the woman was most likely to conceive. In fact, Genesis, chapter 1, verse 28, is an order to utilize the fertile period and multiply as the sands of the sea.

Briefly, it is claimed that the five days from the twelfth to the sixteenth day before a subsequent menstruation is the period of ovulation and that this period

is the period during which fertilization is most likely. Within twenty-four hours after ovulation is completed the safe period probably begins. It is fairly well established that the fertilizing ability of the spermatozoa is within a three day period. In the vast majority of cases the human conception period is therefore within the eight days from the twelfth to the nineteenth day before a subsequent menstruation. Means have been developed for careful recording of the menses for menstrual cycles of various durations from twenty-three to thirty days in order to set forth clearly the sterile and safe periods.

Because of the biologic character of this means of prevention of conception it has not apparently been opposed by church, state or other organizations in the manner in which more artificial methods have been opposed. Indeed, it has even had endorsement from some religious groups. Enough evidence has already been established to indicate that a strict observance of the method is insurance of sterility even beyond that associated with the employment of most of the contraceptive apparatus and medicaments. In the vast majority of cases it will, of course, be desirable for the family physician to instruct his patients as to the basis of this method of birth control and as to proper employment. Latz states that he received only one complaint against the system for every 4,000 books sold and in instances in which investigation was possible it was discovered that the employment of the method had not been intelligent. Smulders in Holland has made available records of many thousands of cases of successful practice of this method of birth control.

In view of the availability of this technic, depending on a knowledge of biology, and in view of the tremendous expansion of the business aspects of birth control already mentioned, it would seem to be exceedingly important for some authoritative body to undertake a suitable study of the materials and methods of promotion now being exploited in this country. Whether or not legislation eventually ensues that will throw open the mails and the press to suitable discussion of the subject, the situation now prevailing is warrant for some type of action leading to scientific control.

#### SYNERGISTIC ETIOLOGY OF POLIOMYELITIS

If normal rabbits are injected intravenously with sublethal doses of cholera vibrios, the micro-organisms usually "localize" in the intestinal mucosa, the blood and most of the extra-enteric tissues becoming free from the injected bacilli. The resulting enteric carriers of the comma bacillus usually do not show recognizable cholera symptoms. If, however, these carriers are injected intravenously with alien bacterial products, such as *Bacillus coli* or *Bacillus proteus* filtrate, a violent local hemorrhagic or desquamating enteritis results,

<sup>2</sup> Ogino Kyusaku. Conception Period of Women. Harrisburg: Pa. Medical Arts Publishing Company.

<sup>3</sup> Knaus Hermann. Die periodische Fruchtbarkeit und Unfruchtbarkeit des Weibes der Weg zur natürlichen Geburtenregelung. Vienna: Wilhelm Maudrich.

<sup>4</sup> Latz L. J. The Rhythm of Sterility and Fertility in Women. Chicago: Latz Foundation.



often accompanied by severe or even fatal systemic toxemia. This nonspecific or synergistic local and constitutional reaction was first described in 1924 by Sanarelli,<sup>1</sup> who characterized it as an "epithelial shock" or "epithelavie."

"Sanarelli anaphylaxis" is not apparently confined to the enteric tissues, however. Shwartzman,<sup>2</sup> Sickles,<sup>3</sup> and Freund and Smith,<sup>4</sup> for example, found that a wide range of bacterial products injected intracutaneously into rabbits will render the injected skin areas nonspecifically hypersensitive to heterophile factors. Violent hemorrhagic reactions may occur in the prepared skin areas on the intravenous injection of such substances as agar, gelatin, india ink or soluble starch, or with a wide range of normally nontoxic bacterial filtrates. Gratia and Linz<sup>5</sup> have described a similar nonspecific allergic syndrome in locally infected subcutaneous tissues. Bordet<sup>6</sup> found equally pronounced local Sanarelli reactions in experimentally inoculated lymph nodes and other retroperitoneal tissues. He describes a violent nonspecific and often fatal synergistic shock in tuberculous peritonitis, for example, on the intravenous injection of *Bacillus coli* filtrate. This nonspecific sensitivity of tuberculous animals has, of course, long been known to immunologists, having been described as early as 1891 by Roemer.

While the phenomenon of "nonspecific allergy"<sup>6</sup> is of interest in its bearing on theories of specific antibody production, it is also suggestive with regard to many practical problems of clinical medicine. Hanger<sup>7</sup> has described a synergistic syndrome in certain infections of the upper respiratory tract in rabbits. He found, for example, that many upper respiratory carriers of *Bacterium lepirosepticum* are without demonstrable symptoms. Explosive allergic reactions occur in the nasal mucosa, however, on the intravenous injection of heterophile bacterial filtrates, giving symptoms commonly designated as "snuffles." This strongly suggests that in many cases "snuffles" is of synergistic or duplex etiology, owing to a local and perhaps symptom-free infection of the nasal mucosa "accentuated" by mildly toxic bacterial products absorbed from the gastrointestinal tract.

Hanger's observation is pertinent, since Toomey<sup>8</sup> has recently reported experimental evidence suggesting a somewhat similar synergistic or duplex etiology for polomyelitis.

## Current Comment

### EPIDEMIC ENCEPHALITIS

The symposium on epidemic encephalitis appearing in THE JOURNAL this week (pp 726-735) and to be concluded in the next issue is an exceptional account of an unusual type of epidemic encephalitis. The St. Louis epidemic of 1933 in many respects was unlike the infectious encephalitis that has prevailed in other sections of the United States in recent years and which had come to be known as the von Economo type. In fact, the exact nature of this outbreak was not recognized until after the opportunity had presented itself to perform the first necropsy. The closest precedent for the St. Louis outbreak was an epidemic of thirty-eight cases that occurred in the summer of 1932 in Paris, Ill. There was much similarity also to the type of disease in the great epidemic that occurred in Japan in 1924. The St. Louis epidemic has the distinction, Neal says, of being the only outbreak of epidemic encephalitis in which the etiologic agent has been definitely established. This is a newly isolated filtrable virus that was pathogenic for mice and less so for rhesus monkeys. It was thought that the virus was the same type as the Japanese type B, but at least serologic differences were demonstrated when convalescent serum was obtained from Japan. Strains of the St. Louis virus were isolated in two different laboratories. The research and investigation of the St. Louis epidemic were extremely well done by the St. Louis medical schools, local physicians and health authorities, experts from the United States Public Health Service, the U. S. Army, and other organizations. It represented a modern, well coordinated, cooperative attack on the problems concerned. Epidemics of encephalitis usually start in the summer or in the autumn. Some public health departments have announced that the disease is at present on the increase in their localities. Physicians should become familiar with the facts available on this unusual type of encephalitis, as presented in this symposium.

### THE INCIDENCE OF TRICHINOSIS

Despite the wide dissemination of popular dietary knowledge, frequent examples continue to occur of cases of diseases which, although not of primary importance from the point of view of a major health problem, are completely preventable. The incidence of trichinosis affords an interesting illustration. Sporadic cases, as well as small epidemics, of trichinosis occur throughout the world with disconcerting frequency. German reports show that in 1923 and 1924 there were 150 cases with one death at Karlsruhe and, in 1926, 100 cases and six deaths in Klingenthal.<sup>1</sup> In Spain in 1915 there were 145 cases with seventeen deaths.<sup>1</sup> In the United States, recent cases are reported in the literature only because of some special aspect. A group of eleven cases with recovery was recorded in New York

1. Sanarelli, G. *Experimental Cholera* Ann de l'Inst Pasteur 38 11 (Jan.) 1924

2. Shwartzman, Gregory. *J. Exper. Med.* 54 1 (July) 1931 56 291 (Aug.) 687 (Nov.) 1932 57 857 (May) 1933

3. Sickles, Grace M. *Local Skin Reaction Obtained by Intravenous Injection of Agar Following Intracutaneous Inoculation of Meningococcus Toxin* J. Immunol. 20 169 (Feb.) 1931

4. Freund, J. and Smith, W. F. Jr. *Proc. Soc. Exper. Biol. & Med.* 31 1104 (June) 1934

5. Gratia, A. and Linz, R. *Compt. rend. Soc. de biol.* 106 1251 (No. 13) 1931

6. Bordet, Paul. *Compt. rend. Soc. de biol.* 114 572 574 (No. 31) 1933

7. Hanger, F. M. Jr. *Proc. Soc. Exper. Biol. & Med.* 25 775 (June) 1928

8. Toomey, J. A. *Proc. Soc. Exper. Biol. & Med.* 31 1015 (May) 1934

1. Quoted in Frant, Samuel. *Five Years Experience with Trichinosis in New York City* Pub. Health Rep. 49 869 (July 27) 1934

State in 1932.<sup>2</sup> In the same year<sup>3</sup> there was an account from California of an outbreak of human trichinosis with one death following the ingestion of trichinous bear meat in the form of "jerky." In this instance the brown bear was the cause of infection, whereas customarily pork is the offending meat. Two recent reports dealing with trichinosis serve to emphasize the fact that an unusually large number of cases has come to light during the past few years. An outbreak arising from the ingestion of home-made sausage and involving forty-three persons was reported last year in New Jersey.<sup>4</sup> An interesting account by the United States Public Health Service<sup>1</sup> presents epidemiologic data on 166 cases of trichinosis reported to the New York City Department of Health for the years 1929-1933 inclusive. It is of considerable significance that the ingested pork products have frequently been approved by the United States Department of Agriculture. This serves to emphasize that the usual government inspection of fresh pork and pork products is by no means an adequate criterion of freedom of the pork from trichinae, a fact repeatedly emphasized by the United States Department of Agriculture.<sup>5</sup> In view of the fact that complete cooking will absolutely prevent the disease, every one should be educated to the importance of eating only thoroughly cooked pork and pork products.

## Medical Economics

### THE WAYNE COUNTY MEDICAL SOCIETY, DETROIT, PLAN

Complete medical service without the use of the insurance principle is being offered and given to wage earners of Detroit through a plan developed and put into operation by the Wayne County Medical Society, Detroit. A demonstration set-up is bringing medical care to hundreds of employed persons of small means, people who do not want paternalism or charity but merely credit.

The Wayne County Medical Society plan, originated by Dr. Ralph H. Pino of Detroit, was very carefully scrutinized by the Wayne County Medical Society for more than eighteen months before it was approved by the society's council, Feb. 16, 1934. The board of trustees then appropriated sufficient money to inaugurate and maintain a bureau to put the plan into operation. It is owned and operated exclusively by the Wayne County Medical Society and the administrative office is located in the society's building at 4421 Woodward Avenue, Detroit.

Eliminating the salaried class, which is able to handle its own medical problems, the remaining three classes of people in Detroit can procure medical service through the agency of the Wayne County Medical Society.

1. The unemployed on welfare rolls receive home and office medical service by the family physician, dentist, and so on, through the Medical-Dental Bureau, operated by the Wayne County Medical Society in its building. The cost of this agency is met by the FERA.

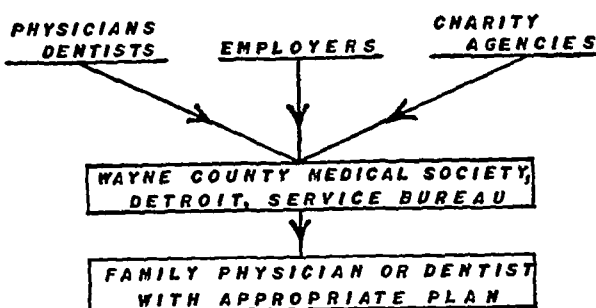
2. The unemployed not on welfare rolls are cared for in Detroit through the Medical Relief Committee on the Wayne

County Medical Society. The family physician or volunteers who serve these people with home and office care at no fees, or at small fees assist the patient to maintain his self respect.

3. Employed persons earning small wages or salaries are cared for in Detroit by the bureau developed from the Wayne County Medical Society plan.

This plan offers complete medical care, comprising the services of physicians, hospitals, dentists, nurses and pharmacists, at a fee that can be paid by easy time payments within a year's time or less.

## SOURCES OF REFERRED PATIENTS



### NO MEDICAL DOLE FOR EMPLOYED WORKERS

The purpose of the Wayne County Medical Society Bureau is to assure employed people of modest income that they can go to the physician of their choice and receive necessary medical service when they need it. Furthermore, the bureau works out a plan for them whereby the account can be paid from week to week.

Those people who for financial reasons are neglecting their health are encouraged to get in touch with the bureau. Because they have no cash reserve is no reason that medical service must come to them through the agency of free dispensaries and tax supported hospitals and clinics.

### PROFESSIONS UNITE TO GIVE SERVICE

The bureau is a demonstration in cooperation. Five professional groups (physicians, hospitals, dentists, nurses and pharmacists) are working together to provide high grade services to the employed worker of small means. Industrial concerns, realizing that healthy workers are more efficient and desirable, cooperate by (1) telling employees to see their family doctors, (2) verifying employment wages and giving credit information to the Bureau on request, (3) assisting in the collection of a fair fee, based on the employee's ability to pay.

Some idea of the immense amount of work necessary to make this plan a success may be gained from the following data. There are over 7,000 units of medical service (physicians, dentists, nurses, pharmacists and hospitals) in Detroit and Wayne County. There are over 2,400 industrial units or employers (factories, shops, and the like) in the same area. The cooperation of all these is necessary to the complete success of this demonstration. The staff at the Wayne County Medical Society is working constantly to establish these contacts and to create the organization necessary to care for all patients who apply at the bureau for aid. It will require more than a year of intensive effort to complete arrangements so that every employer and worker in Detroit and Wayne County will know of this opportunity for service offered by the Wayne County Medical Society.

### TEN POINTS

The essential features of the medical service plan may be briefly summarized as follows:

1. The Wayne County Medical Society headquarters become a coordinating center (with a social service set-up) for those cases which require assistance in obtaining and paying for

<sup>2</sup> Reifstein E. C. Allen E. G. and Allen G. S. Trichinosis. Am. J. M. Sc. 183: 668 (May) 1932.

<sup>3</sup> Walker A. T. Trichinosis. J. A. M. A. 98: 2051 (June 11) 1932.

<sup>4</sup> Kilduffe R. A. Barbash Samuel and Merendino A. G. Am. J. M. Sc. 186: 794 (Dec.) 1933.

<sup>5</sup> Swartz B. U. S. Dept. Agric. Bureau of Animal Industry. Leaflet 34. May 1929.

complete medical service, including hospitalization and medical, dental, nursing and pharmaceutical service

2 The members of the professions become the active staff caring for patients. All forms of medical care, consultation, x-ray and laboratory procedures are to be performed in the office or laboratory of the physician or at the hospital where he takes his patients.

3 This plan includes hospitalization—all the major hospitals of Detroit are cooperating, except one.

4 Arrangements have been and are being made with industrial concerns to make this service known to their employees. The factories and shops are cooperating in giving information and in the collection of accounts. To date the plan has received an enthusiastic welcome by each employer approached.

5 All cases in which the benefits of the coordinating plan are desired will be registered at the Wayne County Medical Society headquarters and referred to the family doctor, if the patient has one. If the patient has no physician, he is asked to select one. The patient will be given an identification card to be presented by him to the physician selected.

6 If several physicians and a hospital cooperate in the care of a case, the bills for fees will be combined into one bill and terms will be arranged according to the patient's ability to pay. The physician and the hospital set the fees—not the bureau. Payments received by the central bureau will be distributed to each cooperating physician, hospital, dentist or nurse.

7 This plan preserves the recognized patient-physician relationship. It does not affect compensation cases. The patient always has a free choice of physician or dentist and the physician has free choice of hospitals, specialists and laboratories exactly as carried on in private practice.

8 The most important feature of this plan is that it places complete medical and hospital services within the reach of every worthy patient and provides an easy payment plan for the settlement of medical bills.

9 The plan should increase the health and happiness of Detroit and Wayne County citizens, as it provides a method whereby people can procure needed medical services. It should remove a large proportion of the financial reasons for delaying medical service. The consolidation of medical and hospital bills, with the arrangement of definite terms at the time the service is rendered should result, with the cooperation of the employer and all concerned, in an increased ratio of collections.

10 Physicians send their bills computed at their usual fees for these patients to bureau headquarters giving certain details of their charges. The physician does not make collection of these charges—the central bureau makes arrangements for collections and has the cooperation of the employer. To defray the cost of operating the bureau, 10 per cent of sums actually collected is retained by the bureau.

#### THE ADVISORY GROUP

The bureau is under the direct financial and executive control of the board of trustees of the Wayne County Medical Society. An advisory committee, called the Board of Arbitration, aids the board of trustees with recommendations regarding details of operation, handles disputes, and assists the smooth performance of the bureau. Representatives of the various cooperating professional groups are seated on the Board of Arbitration. The bureau is under the coordinating supervision of the executive secretary of the Wayne County Medical Society.

The Wayne County Medical Society Bureau has grown so rapidly that statistics are obsolete almost before they can be published. The plan has received a hearty welcome from every industrialist to whom it has been explained. The total number of employees of the industries now cooperating with the bureau is approximately 229,980. Industrial concerns have various methods of cooperating with the central bureau (such as by pay-roll deductions and employee loans), but they all agree on one point: they are willing to extend every courtesy to the medical organizations if they can cooperate with one center but it is impossible for them to deal with over 7,000 individual units who serve the public. Their reason is obvious. One central bureau in the medical society would entail only one

deduction from pay-rolls per month to cover the medical welfare of their employees, the bookkeeping is thus greatly simplified. If, however, the industrial concern attempted similar cooperation with thousands of individual physicians, dentists and hospitals, it would require a tremendous amount of detailed and expensive bookkeeping. Centralized bookkeeping and collections are vital in obtaining the cooperation of large employers of labor. They hesitate to promise cooperation except with one center.

#### CHARITY CHISELERS DISCOURAGED

During recent months, welfare agencies in Detroit (like other large centers) have been flooded with requests for free medical care. When approached by the Wayne County Medical Society and asked to cooperate with its bureau, the officials in charge were glad to conserve public funds by referring all patients able to pay something for medical service to the bureau. These patients are always returned to their family practitioner with a plan of deferred payments. The majority of these patients sought charity because they did not have sufficient cash in reserve to meet the full fees incident to a medical emergency. Their prime need was credit—not free medical care. Already many families have been spared the humiliation of charity by the alert cooperation of the investigators in Detroit's public charity institutions. The bureau will continue its contact with free and part pay dispensaries and clinics with a view to returning as many cases as possible to the private practitioner of medicine in order to strengthen the traditional physician patient relationship.

#### A GOING CONCERN

Since Feb 16 1934, the bureau has been of service to 937 patients (as of Aug 18, 1934) and has not refused service to any deserving applicant. In every case service was rendered immediately without red tape. The universal gratitude of patients has been encouraging.

Patients who erroneously thought they could not pay for medical service have contributed to the bureau in small weekly instalments of one, two and three dollars (occasionally a little more) the surprising total of \$13,140.13 (as of Aug 18, 1934). The rapid acceleration of total payments as the number of cases increases is illustrated by the fact that while \$3,563.82 was collected during the month of July a total of \$3,417.81 was paid in during the first sixteen working days of August.

#### THE BUREAU SOLVES PROBLEM CASES

The bureau has not advertised its services because a large volume of cases could not be handled by the present small administrative staff of the bureau. Experimental publicity has been released to the employees of one large manufacturing concern by a write up in the employees' monthly magazine. The following quotation from this publication illustrates the manner in which the bureau intends to route sick employees or members of their families to their private practitioner, and if financial problems cannot be solved by him, to work out a plan for the benefit of the patient and the doctor.

#### WHAT TO DO WHEN SICK

In case of illness in your family, call your family doctor. Let him examine the patient and make his diagnosis. If you are unable to pay cash for the necessary treatment, ask your doctor to refer you for help to the Wayne County Medical Society Service Bureau, Wayne County Medical Society Building, Detroit. The Bureau will work out an easy payment plan so you can get rid of that pain or sickness today. There are no dues, service charges or interest for you to pay.

The bureau believes that this type of publicity will increase the number of patients seeking medical care in physicians' offices and will lessen the dispensary load and taxpayers' burden.

During the last few years the medical profession has been subjected to unjust and severe criticism, and many opportunists have taken advantage of the smoke screen to formulate schemes (usually socialistic) having bigger and better medical service to the middle class patient as excuse for their meddling. Through its bureau the Wayne County Medical Society of Detroit is seeking to demonstrate that medical care can be supplied those who need it—not through insurance, not through government or political agencies, but through the sane and unselfish work of the individual doctor of medicine coordinated by his county medical society.

## Association News

### MEDICAL BROADCASTS

#### Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, Central daylight saving time. The next three broadcasts will be as follows:

- Sept. 13 Common Eye Troubles, William C. Benedict, M.D., representing the meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago
- Sept. 20 Infantile Paralysis, W. W. Bauer, M.D.
- Sept. 27 Swimming Pool Sanitation, J. F. Hammond, M.D.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Typhoid in Decatur**—Typhoid was reported in Decatur, recently, when fourteen people who drank water from a contaminated well developed the disease. The well water was used for drinking purposes after the water company had discontinued its service for nonpayment of bills; it was stated. A survey was made by the state board of health and the well was closed. Service was resumed by the water company.

**Mosquito Eradication**—Fourteen counties in the state had announced their agreement to participate in a campaign to eradicate mosquitoes, newspapers reported, August 7. The campaign was to be undertaken as a precautionary measure against dengue fever, since several cases had been reported in other southern states. 800 cases of the disease having been reported in Miami, Fla., alone.

**Dr. Baker Appointed to National Board**—Dr. James N. Baker, Montgomery, state health officer, has been appointed a member of the National Board of Medical Examiners for a term of six years, to succeed Dr. Waller S. Leathers, dean of Vanderbilt University School of Medicine. Dr. Baker is a graduate of the University of Virginia Department of Medicine and has been state health officer since 1930, prior to his appointment he had been a practitioner in Montgomery for thirty years.

### COLORADO

**State Medical Meeting at Colorado Springs, September 19-22**—The sixty-fourth annual session of the Colorado State Medical Society will be held at Colorado Springs, September 19-22, with headquarters at the Antlers Hotel. Out-of-state speakers will include, according to the preliminary program, Drs. Rudolph H. Kampmeier, New Orleans, "Aneurysm of the Thoracic Aorta," Joseph Brennemann, Chicago, "Acute Abdominal Conditions in Children," and Walter L. Biering, Des Moines, Iowa, President, American Medical Association. "Heart Disease and the General Practitioner." Included among other speakers are the following physicians:

- William H. Mast, Gunnison, Acute Disorders Simulating Surgical Conditions of the Abdomen
- Herman J. Laff, Denver, Diagnosis of Mastoiditis
- Clinton E. Harris, Woodmen, The Common Cold
- Charles W. Streamer, Pueblo, Traumatic Surgery in Automobile Accidents
- Hermann B. Stein, Denver, The Apple Diet in Treating Diarrheas of Infants and Children
- Herman C. Graves, Jr., Canon City, Early Diagnosis of Peripheral Circulatory Diseases
- Sanford M. Withers, Denver, Cancer of the Breast
- Edward N. Chapman, Colorado Springs, A Major Public Health Problem in Colorado
- Harry Guss, Denver, Changing Concepts in Nephritis
- Edward Jackson, Denver, The Dangers of Proprietary Drugs
- Ralph W. Danielson, Denver, Role of the Ophthalmoscope in General Practice
- George B. Kent, Denver, Surgical Management of Malignant Lesions of the Colon and Rectum

A fracture seminar will be held Thursday morning, with the following participants: Drs. Hamilton I. Barnard and Atha Thomas, both of Denver; Fred H. Hartshorn, Fort Collins.

Harold R. McKeen and Robert G. Packard, Denver. A symposium on obstetrics will be conducted Friday afternoon by Drs. Gerrit Heusinkveld, John R. Evans, Gunnar Jelstrup, Lyman W. Mason, Edward L. Harvey, Harold J. Von Detten and James B. Walton, all of Denver. Saturday afternoon will be devoted to a seminar on the endocrines by Drs. Constantine F. Kemper, George M. Z. Williams and Thaddeus P. Sears, Hugh Kingery, Ph.D., and Bernard B. Longwell, Ph.D., all of Denver. Clinical sessions are being added to the program of the state society this year. The annual golf tournament will be held Friday afternoon, September 21.

### CONNECTICUT

**Dr. Maher Honored**—The infirmary building of the new Seaside Sanatorium for children at Waterford has been named in honor of Dr. Stephen J. Maher for twenty years chairman of the state tuberculosis commission. The new sanatorium, erected at a cost of \$500,000, will care for patients with bone and glandular tuberculosis and replace the old building at Crescent Beach. In 1932 Dr. Maher was awarded the Laetare Medal by Notre Dame University, South Bend, Ind.

### GEORGIA

**Extension Course**—Members of the faculty of the University of Georgia School of Medicine, Augusta, presented a series of lectures in Sandersville, August 6-10. The course was one of a series being sponsored by Emory University and University of Georgia under the supervision of the state board of health.

- August 6, Dr. Virgil P. W. Sydenstricker, Treatment of the Anemias
- Dr. George A. Traylor, Compression Fractures of the Vertebrae
- August 7, Dr. George L. Kelly, Functional Dysmenorrhea, the Aschheim-Zondek Test
- Dr. Ferdinand C. Lee, Common Endocrine Disorders
- August 8, Dr. John W. Brittingham, Syphilis of the Central Nervous System
- Dr. Guy T. Bernard, Carcinoma of the Uterus
- August 9, Dr. Ralph H. Chaney, Surgical Treatment of Pulmonary Tuberculosis
- Dr. Robert C. McGhee, Congenital Syphilis
- August 10, Dr. Henry M. Michel, Diseases of the Hip Joint
- Dr. Thomas B. Phinzy, Preventive Pediatrics

**Society News**—Dr. Charles C. Harrold, Macon, was elected president of the Chattahoochee Valley Medical and Surgical Association at its annual meeting in Albany, July 12, succeeding Dr. Agnew H. Hilsman, Albany, Dr. Marion T. Davidson, Birmingham, Ala., and Dr. Mathew Jay Flipse, Miami, were elected vice presidents, and Dr. William J. Love, Opelika, Ala., secretary. The association will hold its 1935 meeting in Albany. —Dr. James E. Paulin, Atlanta, addressed the Lowndes County Medical Association, recently, on arthritis.

### ILLINOIS

**Richland County Leads in Maternal Mortality**—Figures obtained in a study of maternal mortality in Illinois during the last five years by the state department of health reveal that Richland County leads in maternal deaths with a rate of 16.1 per thousand births. This rate is three times as high as that for the state as a whole (5.6). Twenty-four maternal deaths occurred in the county among 1,488 births. Three counties, Bond, Menard and Putnam, reported no maternal deaths in connection with 2,146 births during the five years. Counties reporting rates of 10 or more during this period include Lee, 13.8, Pulaski, 13.6, Alexander, 13.5, Morgan, 11.8, Effingham, 10.5, Scott, 10.4, Perry, 10.1, Saline, 10.1, and Logan, 10.

### CHICAGO

**Professorship of Nursing Education Created**—With the appointment of Miss Nellie X. Hawkinson as professor of nursing education, a program of nursing education has been begun at the University of Chicago. The committee of nursing education appointed by President Hutchins last winter after a tentative plan for the organization of the courses had been approved will be responsible for the formulation and adoption of the sequences of studies leading to degrees. Sequences for teachers of nursing, supervisors and administrative officers in schools of nursing are being planned as the first step. The degree will be cleared for the present through the division of biological sciences, although the courses included will be offered in education, home economics, psychology and other departments as well as in the science departments.

### IOWA

**Personal**—Mr. C. W. Kammeier was recently appointed executive secretary of the Iowa Tuberculosis Association, succeeding Mr. T. J. Edmonds, resigned. —Dr. Clyde A. Boice, Washington, was reelected president of the state board of health at its annual meeting in Des Moines, July 10.

**Survey of Births**—A report has recently been published on a study covering 129,539 births in Iowa, with special reference to the method of delivery and the stillbirth rate, for the years 1930, 1931 and 1932. There were 3,820 stillbirths among this total, an incidence of 2.94 per cent. Iowa is essentially a rural state and has only twenty-one cities with more than 10,000 population. Births in these urban centers numbered 43,444, while in the rural communities 86,095 births were recorded. For the state as a whole there were 41,418 births in hospitals, giving a percentage of 32. In urban communities 61.9 per cent of all births occurred in hospitals, while in the rural districts the percentage was only 16.9. Of the 129,539 births, the type of delivery was specified in 91,738 cases, in 10,818 operations were performed, a gross operative incidence of 11.8 per cent. Of the various types of deliveries, all varieties of forceps deliveries totaled 6,474, version and extraction, 1,236, cesarean section, 955, breech extraction, 711, craniotomy, 4, while types not specified totaled 1,438. The operative incidence among primiparas (23.1 per cent) was almost four times as great as in multiparas (6.5). The stillbirth rate among primiparas was appreciably higher (3 per cent) than among multiparas (2.4 per cent). The incidence of operative delivery among 89,270 live births was 11.2 per cent, while among 2,468 stillbirths it was 35.1 per cent. In the 37,808 births in which the type of delivery was not stated, the stillbirths numbered 1,352, a rate of 3.6 per cent, while among the 91,738 with delivery data available for analysis there were 2,468 stillbirths, an incidence of 2.7 per cent.

### LOUISIANA

**Society News**—Dr Basil C. MacLern discussed group hospitalization before the Orleans Parish Medical Society in New Orleans, July 9. Speakers before the Second District Medical Society at Destrehan, recently, included Drs Urban Maes and James D. Rives, New Orleans, on "Early Diagnosis of Carcinoma of the Stomach," and "Extra-Gastric Dyspepsias," respectively. The Vernon Parish Medical Society was revived at a meeting, June 30, at which Drs James F. Smith, Leesville, was elected president, William T. Franklin, Anacoco, vice president, and Daniel O. Wilks, Leesville, secretary.

### MARYLAND

**Epidemic of Influenza**—Influenza is spreading over western Maryland, according to the New York Times, August 21, at which time the outbreak involved nearly 1,000 cases. Cases have been reported at Hancock, Hagerstown, Rockville, Magoonsville and Berkeley Springs, W. Va. The attack is sudden, lasting about five days, and is accompanied with chills, pains in the chest and abdomen, and general weakness.

**Diphtheria Prevention Campaign**—The fourth annual diphtheria prevention campaign will begin in Baltimore, October 1, under the supervision of Dr Adolph Weinzirl, director, department of communicable diseases. Between now and the opening of the campaign, parents and guardians of young children are advised to secure from their family physicians the toxoid preventive treatment for their children, as soon as possible after they reach the age of 6 months.

### MICHIGAN

**Society News**—The Berrien-Cass County Medical Association met jointly with the Berrien County Bar Association at Berrien Hills Country Club, July 18, a memorial service for the late Dr Charles N. Sowers, Benton Harbor, was a feature of the program. The Oakland County Medical Society was entertained by the Genesee County Medical Society in Flint, June 20, in the morning, clinics and demonstrations were held at the Hurley Hospital, the afternoon was spent at the Flint Country Club.

### MISSISSIPPI

**Society News**—The Central Medical Society devoted its meeting, July 3, to case reports, participants in the program were Drs John K. Bullock, Roland W. Hall, Walter F. Henderson, Isaac C. Huggins and Julius Crisler, Jackson. A symposium on the toxemias of pregnancy constituted the program of the Issaquena-Sharkey-Warren Counties Medical Society at Vicksburg, August 14. Dr Edward C. Mitchell, Memphis, Tenn., among others addressed the Northeast Mississippi Thirteen Counties Medical Society at Greenwood Springs, recently, other speakers included Drs Hyder F. Brewster, New Orleans, on "Gonococcal Conjunctivitis", Stanley A. Hill, Corinth, "Useful Methods of Treating Fracture of the Femur," and Henry J. Kellum, Tupelo, on "Glaucoma." The North Mississippi Medical Society was addressed at War-

ren Lake near Waterford, June 27, by Drs J. H. Eugene Rosamond, Memphis, on "Diarrheas of Infancy and Childhood", Dudley R. Moore, Byhalia, "Uterine Displacement," and Raphael E. Semmes, Memphis, "Management of Head Injuries."—Dr Frank C. Shute Jr., New Orleans, among others, discussed "Perforated Appendix" before the South Mississippi Medical Society in Hattiesburg, June 14. Speakers before the medical society of Lincoln, Copiah, Lawrence and Walthall counties recently included Drs William L. Little, Wesson, on scarlet fever, and Thomas F. Conn, Monticello, malaria and its treatment.

### MISSOURI

**Personal**—Dr James H. Ready has been named head of the medical department of the General American Life Insurance Company, St. Louis, succeeding Dr James E. Bee, resigned. Dr Ready will be replaced in his position as assistant medical director by Dr Lloyd C. Miller, who has been chief medical examiner.

**Society News**—At a meeting of the Cass County Medical Society in Archie, June 14, Drs Robert M. Miller, Belton, read a paper on "Angina Pectoris" and Vincent T. Williams and John R. Callan, Kansas City, discussed "Pathology of Angina Pectoris and Other Cardiac Lesions."—Dr Jesse E. Douglass, Webb City, addressed the South Central Counties Medical Society at Thayer, June 28, on "Prevention of Tuberculosis."

**State Tuberculosis Division Approved**—The creation of a tuberculosis control division in the state department of health has been approved by a committee representing the Missouri Tuberculosis Association, the state department of health, the state eleemosynary board and the Missouri Tuberculosis Association. The plan would provide for a full time director in the health department and trained workers to handle the rehabilitation and follow-up work on every case discharged from the various state sanatoriums, according to the state medical journal.

### NEW MEXICO

**Study of Accidental Deaths**—A study of accidental deaths in New Mexico in the last five years shows that deaths from automobile and motorcycle accidents led all other causes by a wide margin, with 542 fatalities. Excessive heat caused five in five years. Other causes were falls and crushing, 190, burns, 172, firearms, 120, drowning, 117, poisons, 100, mines and quarries, 92, railroad, 78, lightning and electric current, 42, excessive cold, 40, air transportation, 24. In 1933, 102 persons met death in automobile or motorcycle accidents.

### NEW YORK

**Death from Beriberi**—The first death from beriberi in the state in fifteen years occurred recently in Buffalo, the state department of health reports. The previous one occurred in New York City in 1919. There have been four deaths from the disease in northern New York in the past twenty years.

**A Boasting Young Russian Jailed**—A young man who was attempting to practice medicine without medical education or license was placed in the Sullivan County jail in August for thirty days on one count and ordered to pay a fine of \$500 on another, with a suspended jail sentence of a year. In conversation with the town constable "Dr" Morris Levine, a guest at the Pine Grove Hotel Monticello, boasted of his extensive practice to such a degree that the constable became suspicious, in view of the youth of the "doctor." The constable then consulted an official of the Sullivan County Medical Society, who found that Levine had given medical treatments to several guests of the hotel. He was arrested on the complaint of one of these, pleaded not guilty before a magistrate and was about to be released on \$500 bail when he was again arrested on a warrant sworn out by another guest. Bail was then set at \$2,000, which Levine was unable to raise. An inspector from the state board of medical examiners assisted with the case. Levine said he was 28 years old, a native of Russia and had lived in the United States since 1928. He said that he had lived for a time in Springfield, Mass., and admitted that he had never studied medicine.

### New York City

**Death from Rabies**—A 7 year old boy died of rabies, August 7, after having been bitten by a rabid dog, July 11. The boy received a lacerated wound on the right eyelid, cheek and chin. Antirabic treatment was started, July 12, and fifteen injections had been given when on August 5 the child developed paralysis, convulsions and difficulty in swallowing. Postmortem examination revealed Negri bodies in the brain.

**Friday Afternoon Lectures**—The fall series of Friday Afternoon Lectures sponsored by the Medical Society of the County of Kings at its Brooklyn headquarters will begin, September 28, with the following speakers for the first month

Dr Edwin H. Fiske, Electrosurgery  
Dr Mervin C. Myerson, subject to be announced  
Dr Bernard Benjamin, Anemia of Infancy and Childhood  
Dr Thomas M. Brennan, Intestinal Obstruction

#### NORTH DAKOTA

**Society News**—Dr William R. Winn, Fargo, was elected president of the North Dakota Academy of Ophthalmology and Otolaryngology at its annual meeting in Fargo, recently. Drs Charles N. Spratt, Minneapolis, and George M. Constans, Bismarck, were the speakers.

#### OHIO

**Epidemic Encephalitis at Fremont**—Eight persons died of epidemic encephalitis at Fremont during the two weeks preceding August 28, according to the *Chicago Tribune*. Dr Francis M. Teeple, county health officer, reported that the epidemic appeared to be waning at that time.

**Program of Hospital Obstetric Society**—A plan of action for the Hospital Obstetric Society of Ohio, formation of which was announced in *THE JOURNAL*, May 5, page 1506, was recently outlined by the president, Dr Arthur J. Skeel, Cleveland, and adopted by the society. It is proposed to sponsor the adoption of a continuous audit system of hospital obstetric mortality and morbidity, to develop a code of rules and regulations to govern hospital obstetrics, to further a uniform system of staff organization and control including both the regular and the courtesy or affiliate staffs, to support legislation that will compel conformity with the principles of such a code by institutions or persons unwilling to comply, to develop facilities for maternity cases throughout the state, and to encourage as nearly complete hospitalization of maternity cases as conditions in individual communities will permit.

#### PENNSYLVANIA

**Personal**—Dr Henry F. Ulrich has been appointed coroner of Snyder County to succeed the late Dr A. Jerome Hermann, Middleburg. Drs Edward Lyon Jr. and James Stanley Smith were recently awarded the 1934 prize offered by the Williamsport Hospital staff to the interns submitting the best papers on subjects of interest to the medical profession. Dr Walter F. Donaldson, Pittsburgh, secretary of the Medical Society of Pennsylvania, has been made chairman of the health committee of the Pittsburgh Chamber of Commerce.

**Society News**—Drs Joseph H. Barach, Scott L. Koch and Laurence E. VanKirk, D.D.S., Pittsburgh, addressed a meeting of physicians from several counties under the auspices of the Clearfield Medical Society, Clearfield, recently, on various aspects of cardiovascular renal disease. At the annual meeting of the western section of the Fifth Council District of the Medical Society of the State of Pennsylvania, July 19, at Graeffenberg Inn, Franklin County, speakers were Drs Donald Guthrie, Sayre, president of the state society, on "Cardinal Symptoms of Duodenal Ulcer", John O. Bower, Philadelphia, "Reducing the Mortality of Appendicitis", and Howard K. Petry, Harrisburg, "A Challenge on the Early Stages of Mental Disorders".

#### Philadelphia

**Survey of Poliomyelitis and Encephalitis**—Dr J. Norman Henry, director of health of Philadelphia, has appointed a special committee of physicians to study poliomyelitis and encephalitis, as follows: Drs Courtland Y. White, Abraham M. Ornstein, George E. Johnson, Pascal F. Lucchesi, Randle C. Rosenberger, Daniel J. McCarthy, DeForest P. Willard, Frank W. Konzelmann, Edward A. Strecker and Howard C. Carpenter. The formation of the committee had no bearing on the incidence of the diseases in the community, it was said, but particular attention will be paid to methods of controlling any epidemic that may arise. The object is to study all questions relating to the epidemiology and methods of conveyance of the diseases, together with questions of susceptibility and contagion.

**Municipal Swimming Pools Contaminated**—An investigation conducted by the *Philadelphia Inquirer* early in August revealed that nearly all the swimming pools operated by the city were grossly contaminated because of laxness in supervision. It was charged that adequate precautions were not taken in the matter of requiring swimmers to bathe before entering the pools and that sufficient amounts of chlorine to

counteract the pollution were not being supplied. Following the exposure of these conditions by the newspaper, the state department of health made an inspection and reported that measures had been taken to eliminate the high bacterial count. The department recommended that before another summer season more adequate apparatus for chlorination be installed and that more frequent tests for chlorine content of the water be made.

#### TEXAS

**Society News**—A symposium on pancreatic disease will be presented before the Dallas County Medical Society, September 13, by Drs George D. Mahon Jr., Henry M. Winans and John L. Goforth. Drs Richard B. Grant Jr. and Roland M. Searcy, Bryan, addressed the Brazos-Robertson Counties Medical Society, Hearne, July 10, on diarrheas and fractures of the forearm, respectively. Dr Winfred Wilson, Memphis, discussed hospital insurance at a meeting of the Childress-Collingsworth-Donley-Hall Counties Medical Society, at Childress, June 15. Drs Witten B. Russ and William E. Nesbit, San Antonio, among others, addressed the Gonzales County Medical Society, Gonzales, June 30, on "Danger of Deferring Operation for Cancer of the Stomach" and "Cardiac Conditions Simulating Acute Indigestion," respectively.

#### GENERAL

**Auxiliary Board Meeting**—The regular fall meeting of the board of directors of the Woman's Auxiliary to the American Medical Association will be held in Chicago at the Pearson Hotel, September 22. Mrs. Robert W. Tomlinson, Wilmington, Del., is president of the Auxiliary.

**James Cooper Not an Authorized Solicitor**—James Cooper, who it is reported, has been obtaining money for subscriptions to various publications of the American Medical Association is not an authorized representative of the Association. Cooper has recently been reported in Indiana. He is described as about 22 years of age, 5 feet 10 inches in height, with a fair complexion.

**Changes in Status of Licensure**—The California State Board of Medical Examiners reports that at a meeting in San Francisco, July 9-12, the following action was taken:

Dr Harvey P. Charles, Berkeley, license revoked on records of his conviction of battery following alleged assault on two women who called at his office.

Dr Leman Dow Cruise, San Diego, license revoked following his conviction of narcotic violation now in McNeil Island Penitentiary.

Dr Oscar W. De Vaughn, Oakland, license revoked on record of conviction of criminal abortion and also record of subornation of perjury sentenced to San Quentin.

Dr Manuel M. Doria Jr., San Diego, license revoked July 12 on a charge of habitual intemperance.

The State Medical Board of the Arkansas Medical Society announces the following action:

Dr Junius Ruth, Rison, license restored January 10.

Dr Thomas B. Sylar, Holly Grove, license restored May 16.

**Program on Medicinal Chemistry**—At the semiannual meeting of the American Chemical Society in Cleveland, September 10-14, the division of medicinal chemistry will hear the following speakers, among others:

Dr Emil Bogen and Russell N. Loomis, Olive View Calif. Comparative Carcinogenic Effects of Common Agents.

Conrad A. Elvehjem, Ph.D., Madison, Wis. Effect of Iron and Copper Therapy on the Hemoglobin Content of the Blood of Infants.

Charles G. MacArthur, Buffalo, Chemical Analysis of the Central Nervous System of an Idiot.

Courtland L. Butler Jr., Ph.D., Alice G. Renfrew, Ph.D. and Leon and H. Cretcher, Ph.D., Pittsburgh. Cinchona Alkaloids in Pneumonia.

Dr. Andrew Richard Bliss Jr., Memphis, Tenn. Absorption of Certain Drugs Through the Skin.

Paul Nicholas Leech, Ph.D., secretary, Council on Pharmacy and Chemistry, American Medical Association, Chicago. Some Simple Short Cuts in Analysis of Unknown Medicinals.

Henry V. Farr, St. Louis. Significance of Some Impurities in Anesthetic Ether.

Clemmy O. Miller, Ph.D., Chicago. Analytic Method for Determining Scurvy Based on Ascorbic Acid (Ascorbic Acid).

David Klein, Ph.D., Chicago. Inaccuracies of Official Enzyme Assays.

**Diabetes in 1933**—The average death rate for diabetes in fifty cities of the United States in 1933 was 26 per hundred thousand of population, a slight reduction from the 1932 rate, which was 26.3. A compilation of deaths in 175 cities also shows a reduction from 24.3 to 23.8. These slight improvements may possibly foreshadow further decrease in the near future in the opinion of Frederick L. Hoffman, LL.D., consulting statistician of the Prudential Life Insurance Company.

The highest rates in 1933 occurred in Utica, N. Y., with 60.5; Lancaster, Pa., 49.9; Williamsport, Pa., 49.2; Paterson, N. J., 48.8; Fall River, Mass., 45.8. The five cities with the lowest rates were Somerville, Mass., 2.8; Pueblo, Colo., 3.8; Fort Worth, Texas, 5.5; Newton, Mass., 5.6; and Gary, Ind., 6.1.



The five largest cities in the United States had the following rates: New York, 292, Chicago, 273, Philadelphia, 269, Los Angeles, 214, and Detroit, 169. A study of the rates according to sex in New York City showed that in 1932 the rate for men was 198 and for women, 389. These rates had increased since 1920 from 145 and 233, respectively. It is believed that the annual loss of life from diabetes in continental United States is about 30,000 deaths at present.

**American Academy of Ophthalmology and Otolaryngology**—The thirty-ninth annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held in Chicago at the Sherman Hotel, September 9-14. Professor Hans Lauber, Warsaw, Poland, will be the guest of honor and will deliver an address at the opening general session on "Diagnostic and Prognostic Importance of Ophthalmoscopy in Red-Free Light, with Special Reference to the Affections of the Optic Nerve and the Chiasma." Symposia will be presented on the tonsils, etiology of exophthalmos and conservative treatment of the nose, throat and ear. There will also be courses of instruction on histopathology, fundus clinics at Cook County Hospital and conferences on many special topics each morning. Among other speakers will be:

Dr. Charles H. Watkins, Rochester, Minn., Relation of the Use of Barbiturates to Agnucloeytic Angina  
Dr. Marie F. Weymann, Los Angeles, Use of Sclerosing Solutions in Ophthalmic Therapeutics  
Dr. Harry M. Weed, Buffalo, Divergence Paralysis Due to Head Injury  
Dr. Arthur C. Jones, Boise, Idaho, Oil Cyst of the Orbit with Carcinomatosis  
Drs. Max I. Folk and Samuel Soskin, Chicago, The Fundus Oculi in Diabetes Mellitus

A golf tournament will be held Wednesday afternoon, September 12, at Olympia Fields Country Club. The president, Dr. John M. Wheeler, New York, and Mrs. Wheeler will hold a reception Sunday afternoon, September 9. At a banquet and dinner dance Tuesday evening guests of honor will be Professor Lauber, Dr. Carl Koller, New York, in recognition of the fiftieth anniversary of the discovery of cocaine as a local anesthetic, and Dr. Wells P. Eagleton, Newark, N. J., president-elect of the academy. Friday afternoon will be devoted to a visit to the Illinois Eye and Ear Infirmary.

## Government Services

### Civil Works Health Projects

A summary of the work accomplished on health projects sponsored by the U. S. Public Health Service as a part of the Civil Works Administration during the winter 1933-1934 appeared in *Public Health Reports*, August 17. The four projects recommended were a malaria control drainage program in the fourteen states in which malaria has been most prevalent; construction of sanitary facilities in small towns and unserved outskirts of large cities; surveys to determine the extent of endemic typhus fever in rodents in important seaports, and the sealing of abandoned coal mines to reduce the acid wastes being discharged into streams used for water supplies. Health officers of the states were made agents of the federal health service for technical supervision. Amounts set aside for labor totaled approximately \$4,500,000 for malaria control, \$5,000,000 for community sanitation, \$1,000,000 for typhus fever surveys and \$1,500,000 for sealing coal mines. At the height of employment 28,000 laborers were at work on federal projects and in addition 53,000 were reported to be working on similar projects carried on by state and local authorities. Community sanitation projects were carried out in twenty-four states, employing 35,000 persons at the peak. Incomplete reports showed that more than 200,000 sanitary privies were constructed. In some communities in which increasing prevalence of typhus had alarmed the citizens, sources of infection were located and control measures instituted. The mine sealing operations were curtailed before they were completed, although about 7,000 openings of various kinds had been closed in states where it was possible to begin work immediately, Alabama, Pennsylvania and West Virginia. In other places surveys were completed, furnishing records to state departments of health covering location of mines discharging acid water. Other results considered worth while were the demonstration of the practicability of sealing, development of methods of air sealing under varying conditions, training of mining engineers and others in the methods, and creating interest of mine owners in the problem. The largest number employed on this project was 2,927 men and 24 women.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Aug. 11, 1934

### The Aryan and Nordic Myths

In introducing a discussion on man's place in nature at the International Anthropological Congress in London the president, Sir Grafton Elliot Smith, F.R.S., the anatomist, said that at present it was of the greatest importance that anthropologists should reach some consensus on such problems as might be held to justify or excuse political action. If their discussions did nothing more, it would be a definite gain if they could impress on the world some respect for anthropologic truth and the generally admitted facts of race and culture. There was still some diversity of opinion as to the place where civilization first originated, although he himself had no doubt (He believes that it originated in Egypt). There was now evidence to show that whether it happened in Egypt, India or elsewhere, in any case it was the work of members of the race which, as Sergi taught, spread round the shores of the whole Mediterranean. There was no adequate reason for regarding this as in any sense due to any innate qualities or initiative or skill on the part of the members of that race, but rather to the historical circumstances that impelled the people living on the banks of the Nile to embark on those agricultural pursuits which led inevitably to the building up of civilization.

It was important to emphasize that fact at a time when distinctive qualities were being attributed to the Nordic race and the so called Aryan people. Although the introduction of the term "Aryan people" must be attributed to Max Muller, it was important to note that in the face of intense criticism he was compelled to admit that "an ethnologist who speaks of Aryan race, Aryan blood, Aryan eyes and hair, is as great a sinner as a linguist who speaks of a dolicocephalic dictionary or a brachycephalic grammar." Those who insisted on the moral and intellectual qualities of the so called Aryans and talked about primitive Aryan culture should be reminded that it was more than doubtful whether the Aryans did invent a primitive culture in any other way than in borrowing it from Babylon. Prof. A. J. Carnoy had demonstrated that the so called primitive Aryan culture was derived from Babylonia. It was a fallacy to attribute cultural achievements and inherent mental aptitudes to different races. When one thought of the trenchant exposure of the Aryan fallacy by Huxley in 1890 it became an increasing matter of surprise that the facts of anthropology should be so flagrantly misused at the present time by using the word Aryan in the sense of non-Jewish.

A learned discussion by anthropologists of the term Aryan has followed in the *Times*. Sir Arthur Keith is alone in thinking that Max Muller may after all have been right. The term was originally and still is correctly applied to a group of languages comprising nearly all the European languages and Sanskrit, Zend and Persian. There must have been an original mother tongue from which these languages are descended. Keith argues that there must have been a people who spoke it. But this supposititious race is so remote that its physical characters cannot be described. A. C. Haddon, J. B. S. Haldane and C. G. Seligman in reply to Keith, point out that of the three great divisions of the European races—Nordic, Alpine and Mediterranean—no one can say which is descended from the original Aryan speaking stock and which acquired an Aryan tongue from it. However, it is generally admitted that the original Mediterranean race, of which the ancient Egyptians are an example, was non-Aryan. These professors therefore hold that "no specific racial connotation can be attached correctly to the philological term Aryan. The physical char-

acters of the three European races are so diverse that they can hardly have had a common origin less remote than the common stock of the white race, often called Caucasian, which definitely includes Jews and Arabs

#### Report on Cancer Research

At the annual meeting of the British Empire Cancer Campaign the report, which was presented and approved, stated that the main attack in the battle against cancer was now being directed against the cancer cell itself. Knowledge was increasing about the cell and about the chemical reactions that occur within it in the body. Such knowledge justified a sober optimism, for the enigma of the cancer cell might be looked on as the last defense of the disease. Mr Cecil Rowntree, surgeon to the Cancer Hospital, said that the report showed that the purposes for which the campaign were founded were being fulfilled in all directions. One purpose was the coordination of research and research organizations not only within Great Britain but throughout the empire. The recent steps in setting up a panel of international correspondents, whereby they had an accredited representative in each of the great scientific capitals, added to the accuracy and promptness of their foreign information. The investigations carried out at the Cancer Hospital and at the Middlesex Hospital suggested the possibility that the ultimate cause of cancer might be something of a chemical nature produced by disordered functions within the body itself. An admirable attempt to develop a new line of attack on cancer of the esophagus by intensive roentgen therapy had been made at St Bartholomew's Hospital. In his Garton prize essay Dr Colwell described the action of radiations on normal and malignant cells. All these provided encouraging indications of new and profitable avenues of research. In the direction of prevention they could point to great increase of knowledge of the nature of precancerous conditions, and in particular to the likelihood of a great diminution of the incidence of industrial cancer as the result of investigations into the carcinogenic agents in lubricating oils and other industrial materials.

#### ADVANCES IN THE RADIUM TREATMENT OF CANCER

On the curative side they could point to recent advances in radiation treatment. Partly in consequence of the campaign a silent revolution had been effected, for it seemed that the recent changes witnessed in the radium practice of the whole cancer world were no mere therapeutic experiments of passing interest but evidence of fundamental change in the picture of cancer treatment. The radium bomb, so called, was coming to be regarded as a necessity of all well equipped cancer centers. Fortunately the radium position had been materially eased by the discovery of radium deposits in Canada. It was not pretended that radium was a cure for cancer in the ordinary acceptance of the term, but in certain cases it gave results not hitherto obtained by any other method. One had only to point to cancer of the lip, tongue and uterus to realize the change in current practice. In these situations radium had in part or in whole replaced operative surgery. There was no hope that some sudden flash of genius would solve the cancer problem in a day. Every indication seemed to point to the necessity for laboratories and concentrated effort by skilled teams of workers who by pooling their experience and repeating and correcting one another's observations, would ultimately arrive at the truth.

#### Climate and Health

As Bournemouth is a famous health resort, it was appropriate that the president Dr S Watson Smith who is a local physician, should have taken Climate and Health as the subject for his address. The importance of sunlight to life, he said could not be overestimated but it was necessary to

impress on the community that our greatest natural friend the sun could be an equally important foe. Moderation was essential. Not only did excessive exposure to light rays entail fatigue and exhaustion, but it produced degeneration of the skin, such as may be seen in sailors. The external ears, lower half of the face and backs of the hands showed atrophy and pigmentation, on which warty growths appeared and later might assume a malignant state. But, properly used, the sun was of inestimable value. It had been proved that daylight and industrial efficiency were directly proportional.

#### British Equipment for British Hospitals

In England, once the home of free trade, economic nationalism is now the vogue. That health should be sought in British health resorts and hospital equipment and surgical instruments bought from British makers is now regarded as only right and patriotic. Lord Derby opened the medical section of British Industries House, a building that has recently been converted into a permanent exhibition center of British Empire merchandise, for the convenience of wholesale buyers at home and from overseas. The medical section will be a national buying center for hospitals and the medical profession. On the ground floor has been constructed a model hospital comprising a ward of twelve beds, two operating theaters and accessory rooms, all designed and furnished on the most modern lines. At one end of the ward is a semicircular sun balcony for convalescents. The larger operating theater is equipped with all the appliances needed for major operations. A physician and technical experts are permanently in attendance to explain and advise. The planning of the section has been supervised by a medical advisory council of which the chairman is Dr Cox, formerly medical secretary of the British Medical Association. The third floor of British Industries House is devoted to showrooms and showcases displaying British-made medical and surgical instruments. On the lower ground floor will be installed a manufacturer's pattern and sample department in which will be shown commodities that concern the lay side of hospital maintenance. The opening ceremony was attended by Lords Dawson, Horder and Moynihan, Sir Humphry Rolleston and Sir Holburt Waring, president of the Royal College of Surgeons.

#### PARIS

(From Our Regular Correspondent)

July 18, 1934

#### Congress of French-Speaking Physiologists

The Congress of French-Speaking Physiologists, held at Nancy, was presided over by Prof Henri Fredericq of Liege. Among many interesting papers, attention is directed to the communication of Professor Lapicque of Paris on the autonomic nervous system and to another by Professor Bacque, who postulates the existence of chemical substances liberated by the excitation of the postganglionic fibers of the autonomic nervous system. As Bacque views the subject, the sensitizers (cocaine) and the paralyzants (ergotamine) exert their action not through a modification of the functioning of the nerve but by changing the physicochemistry of the excitable substance. Professor Roche of Marseilles read a paper on the comparative biochemistry of respiratory pigments, an interesting study on the hemoglobins and hemocyanines. The author emphasized the specificity of these substances depending on the species, and in the higher animals even on the individuals. This is a new manifestation of a specific characteristic of protein. In the protein portion of the hemoglobin molecule differences of composition have been found. Mr Delaunay of Bordeaux and Mr Polonowski of Lille discussed the metabolism of ammonia in invertebrates and vertebrates, respectively. It appears that ammonia plays an important part as an end product of the

disintegration of nitrogen compounds but represents only a transitory chemical stage before its fixation in other more stable atomic groups. It disappears therefore almost as soon as it is formed, either by transformation into urea or by giving rise to other compounds. Aside from these important monographs there were numerous others devoted to a consideration of various hormones, which subject appears at present to interest investigators most. The congress closed with an excursion to the hot springs resorts of the Vosges region.

#### Protection of Radios Against Noises

At the request of owners of radio receiving sets, who have become more assertive since the government has imposed a small tax on them, regulations have been promulgated to protect them against disturbing noises caused by electrical apparatus operated in the vicinity. Many complaints have been filed against the medical apparatus of radiologists and electrotherapists, and several lawsuits have been instituted by the neighbors of the latter, and in some cases the neighbors have won the suits. On the other hand, there are devices designed to protect radio apparatus against noises, and it is an easy matter for owners of radios to procure them. The minister in charge has endeavored in his decree to consider the rights of the two opposing camps. He has required that apparatus producing heavy electric power shall be provided with protective devices. Only certain types of motors require protection, which is accomplished easily if they are properly grounded. Electrical medical apparatus is, in principle, classed with household electrical apparatus, that is, it is low powered and the installation of insulating devices would entail expense, out of proportion to the advantages derived. This decision satisfies the owners of ordinary medical apparatus. Nevertheless, when a complaint is filed, no judgment can be pronounced until an opinion by a technical committee appointed by the minister has been rendered. It is impossible at present to prevent a diathermy apparatus from emitting radiations.

#### Lymphogranulomatosis and the Origin of Tabes

Much research has been undertaken to determine the action of the virus of the Nicolas-Favre disease on various organs when injected into the peritoneum of the monkey. It appears to cause a general infection of widely different forms, of which anorectal strictures have furnished recent proof. In 1933 Jonesco-Mihaesti, Tupa, Badenski and Wisner reported observations tending to prove that the virus of this disease, when administered to monkeys by the abdominal route, becomes localized in the nervous system and induces changes that resemble those of human tabes. Such observations, if confirmed, would modify present conceptions of the etiology of tabes dorsalis. Constantin Levaditi and Jean Levaditi, repeating the experiments of Jonesco-Mihaesti, communicated their results to the Academy of Medicine. The former hypothesis was not corroborated when the experiments were carried out on a plan that excludes the confusion of lesions due to the virus of the Nicolas-Favre disease and changes appearing in monkeys in captivity. For the present then the syphilitic virus remains the sole etiologic agent of tabes, conformable to the first conception of Alfred Fournier.

#### Deaths

Dr Achille Louste, who has just died at the age of 58, was an eminent dermatologist. He was chief physician at the Hôpital St Louis. He left many works on the treatment of syphilis.

Dr Geoffroy, professor of histology and of pathologic anatomy at the Faculté française de médecine de Beyrouth has died under distressing conditions. Having occasion to handle in his laboratory the brain of a dog suspected of rabies, he feared he might become inoculated with the virus of rabies so he inoculated himself with antirabic vaccine. A few days

later, paralysis developed—something entirely unusual. In spite of the most excellent care, he succumbed. Professor Geoffroy was formerly a chief physician in the navy. He was a scientist of exceptional merit and an indefatigable investigator.

#### BERLIN

(From Our Regular Correspondent)

July 16, 1934

#### Hereditary Blindness and the Problem of Sterilization

Addressing the Freiburg Medical Society, Prof W Wegner pointed out that the problem of eugenics in connection with congenital blindness is a small part of the problem of sterilization for the prevention of hereditary disease. According to a purely legal interpretation of the German law, only total blindness comes within the sterilization law. From the standpoint of the ophthalmologist, however, those who, with greatly reduced vision, are unable to earn their living must be included. During recent decades, the number of blind persons in Germany has steadily decreased. It is thought that, through improved hygienic measures and the endeavors of ophthalmologists, a further decrease of 30, or even 40, per cent is possible. Aside from the war blinded, that would signify a reduction of Germany's blind population to about 22,000. The persons who can trace their blindness to heredity is placed at about 20 to 25 per cent of the total. Thus, by the application of eugenics a further reduction of the blind population is possible. Aniridia, which is a rare disorder, and zonular cataract, are subject to hereditary influences. The number of blind persons in Germany as the result of congenital cataract is estimated at 4,000. In addition, there are many weak-minded persons, whose number is unknown. Sterilization is demanded with reference to persons with aniridia or severe types of congenital cataract. The extreme prevalence of mild forms of congenital cataract requires the expert to be exceedingly cautious in his diagnosis of a case. As severe recessive hereditary disorders, mention was made of total color blindness, total albinism, retinitis pigmentosa and hydrophthalmos. The sterilization of persons with these severe hereditary disorders is demanded. In the prophylaxis of hereditary disorders, sterilization of all the offspring of persons with severe recessive hereditary disorders would be desirable, but it does not appear feasible at present. The only grave eye disorder of a recessive hereditary character is Leber's optic atrophy. Since the direct transmission of this disorder by manifest carriers is only remotely possible, the sterilization of such persons, although desirable, cannot be considered imperative.

Since most of the sisters of persons thus affected may transmit the disorder without it being necessary that the husband shall be predisposed, the ophthalmologist should demand the sterilization of the sisters of any person presenting Leber's optic atrophy. Such demands in themselves are justified, but they exceed the limitations of the sterilization law. Degenerative myopia is more important, since, by reason of the complications, it represents a greater handicap socially than the inherited recessive disorder. General applications of the sterilization law are unthinkable even in high-grade myopia, but the marital union of persons with high grade myopia should be prevented, since experience has shown that nearly all the offspring of such marriages are very near-sighted. Members of families in which high-grade myopia is frequently complicated by detachment of the retina should be prevented from having offspring. As the statistics on this subject are not the best, it is impossible to state just what can be accomplished by eugenic measures. It is difficult to establish any universal criteria for the application of eugenics in connection with hereditary eye disorders. Yet such criteria are essential in view of compulsory notification and the threatened penalty if such notification is neglected. To procure data for the establish-

ment of such criteria, it has been proposed that an ophthalmologic census of Germany's blind population be undertaken.

Professor Lohlein, director of the Freiburg University eye clinic, contributed a few remarks. One of the controversial points of this whole question is: What constitutes blindness? The sterilization law has obviously a condition in mind in which a person is "practically blind," and does not envisage theoretically complete blindness with absolute exclusion of light sensation, but even the notion of being "practically blind" may be conceived of in various ways. It may designate a condition in which a person is unable to find his way about in a strange region, or, on the other hand, it may signify that a person does not possess adequate vision to profit by the training received in an ordinary school or by preliminary training for the prosecution of ordinary callings. Every ophthalmologist has observed cases in which persons with scarcely one tenth of normal visual acuity are able to get along fairly comfortably in times of stress by reason of their grim determination, whereas many other persons with much better vision are, to all purposes, blind. Another controversial point is the relative frequency of hereditary blindness. No one can supply reliable statistics on this question, but possibly it may be said that the truth lies somewhere between Kraemer's figure of 3.85 per cent of all cases of blindness and Verschuer's estimate of 33 per cent, which is certainly exaggerated. Lohlein holds the view that it would be well to extend the application of the law as first formulated. Difficulties for the ophthalmologist begin at the point at which he has to deal with hereditary eye disorders that, in a certain percentage of cases, actually render the patient practically blind but that frequently are inherited in only a mild form, so that they influence visual acuity but slightly, as, for example, in the case of congenital cataract and in hydrophthalmos, which may appear in a group of brothers and sisters sometimes in grave sometimes in mild forms. Each individual case must therefore be judged on its merits. The problem is to discover why, in a group of siblings, the offspring of the same parental stock, some persons develop a grave and others a mild type of the hereditary disorder. The phenomenon may doubtless be explained by environmental influences, in the broadest sense of the term, or by a predominant influence of either parent. In the event of a close decision it must be determined to what extent some particularly valuable hereditary quality known to exist in the family may be given compensatory consideration, for example, when there is evidence of high musical talent or similar hereditary qualities, for it goes without saying that provision must be made for carrying over into coming generations hereditary qualities of an especially high order. Thus can be seen that the questions concerning persons with reduced vision are much more complicated than as regards persons with hereditary weak-mindedness, for seldom will there be any doubt about the need of preventing weak-minded offspring.

#### Reorganization of the Confidential Physicians in the Krankenkassen

A short time ago the krankenkassen were completely reorganized. In connection with many other changes, it is fortunate that the ambulatoriums, which the medical profession had long combated as undesirable for mass treatment, were closed (*THE JOURNAL*, April 28, 1934, p. 1414). At the same time, a thorough reorganization of the service of confidential physicians was undertaken, which formerly had often awakened the distrust of the insured and of that portion of the medical profession that had retained its independent practice. The confidential physicians are now full time officers, being engaged under a life contract and being entitled to draw a lifelong annuity on completion of their service period. They are prohibited from engaging in any form of outside activity other

than literary work and the estimation of degrees of disability. Part time confidential physicians are called on only for the performance of special tasks. The chief duty of the confidential physicians is to verify the diagnoses of the kassenärzte or, in some cases, to establish a diagnosis. The testing of the working capacity of insured members is of secondary importance in the lineup of their duties. The confidential physicians are under obligations, in every single case, to make their own diagnosis on the basis of a carefully prepared history and a thorough examination, with a setting forth of the scientific reasons for the opinions advanced. It is their duty to get in touch with the attending physician. A service of confidential physicians has been organized in Berlin at each of the twenty-nine administrative centers of the Allgemeine Ortskrankenkasse, and likewise at the administrative centers of the largest special ortskrankenkassen. At the centers that have a large number of members, complete "institutes" for confidential physicians, with a special laboratory and complete roentgen equipment, have been created, which do research for the confidential physicians of smaller administrative centers. In general, there is one confidential physician to from 20,000 to 25,000 insured. The daily performance of the confidential physician is placed at twenty examinations, in addition to extensive administrative work. For the more difficult laboratory researches a special institute is available.

To corroborate the diagnosis, special hospitals for observation have been provided, which deal solely with diagnosis. In these observation hospitals the average observation period is only 5.8 days, as compared with seventeen days in the general hospitals.

The numerical status has improved as a result of the reorganization of the krankenkassen. Whereas, in recent years, the average total number of insured members who were on the sick list was 1 per cent in excess of the average total for the reich, today that excess has been eliminated. This 1 per cent amounts at present for the Berlin ortskrankenkassen to about 8,800 patients, which, with an average daily sick benefit of 1.75 marks (\$0.68), amounts to 15,400 marks (\$6,000) a day, or 5,000,000 marks (\$2,145,000) annually, aside from all other expenses. The whole service of confidential physicians, including the cost of the physicians for the observation hospitals and the special laboratories and institutes, will cost, as nearly as can be estimated, 1,500,000 marks (\$585,000), so that, according to this computation, these additional expenditures would be offset by a decrease in the total average number of patients amounting to only 0.25 per cent.

Departments for the detection of the most important racial diseases have been created, namely, for tuberculosis, cancer, diabetes and rheumatism. In addition, a center has been established that deals with the heredobiologic scrutiny of the population of Berlin. To these centers just mentioned are sent the corresponding reports of all the service centers of the confidential physicians. These centers then deal further with these patients. It is hoped that in this way all unknown cases will be brought to the proper centers without delay. For example, the tuberculosis central carries out a systematic examination of all persons living in a household known to be tuberculous and, if indicated, inaugurates treatment of all persons infected and prophylactic treatment of all persons menaced. From 100 to 120 menaced children may be sent at one time to a bath establishment for children. Thus far this tuberculosis central has ferreted out more than 4,500 active cases of tuberculosis, about 40 per cent of which were unknown.

The diabetes central has detected so far more than 1,000 cases. The total number of manifest cases of diabetes in Berlin amounts to more than 10,000, with an additional 40,000 suspects. By means of a new method, it has proved possible to establish, as a rule the proper nutrition of patients within

a few days without hospital observation, solely with the aid of ambulant laboratory study. The other centrals function correspondingly. In association with the service of the confidential physicians, a special welfare service through welfare aid workers, who visit patients in their homes, has been created.

### ITALY

(From Our Regular Correspondent)

July 15, 1934

#### Meeting of Academy of Medicine

The Academy of Medicine met recently in Turin, under the chairmanship of Professor Tirelli. Bizzozero and Ferrari spoke on cutaneous allergic reactions in syphilis. The researches were carried out on more than 100 persons, on healthy persons who served as controls, and on a group of persons with tertiary manifestations. It developed that in syphilis there is frequently a hypo-ergy of moderate grade toward tuberculum, which is accentuated during the secondary exanthems and becomes attenuated with the disappearance of the exanthem. One observes often hypo-ergy also toward heterogenous proteins and living streptococci. In syphilitic patients with tertiary cutaneous manifestations, inconstant reactivity toward various antigens was observed in six patients. The speakers hold that this reaction is to be regarded as having also the character of specificity.

Rizzatti and Levi reported the results of treatment of epilepsy by the periodic introduction of air by the lumbar route. The experiments were carried out by the introduction of from 5 to 40 cc of filtered air every ten to fifteen days. In thirteen cases so treated they observed no serious disturbances. In seven cases they noted an appreciable diminution of the attacks, although they reduced the anticonvulsive treatment to from 0.05 to 0.10 Gm of phenobarbital.

Rizzatti and Martinengo reported hematologic data they had collected on the families of persons affected with dysthymia. Since persons presenting dysthymia have a marked lymphoid tendency, the speakers considered the phenomenon to be chiefly of a constitutional order and sought to find evidence of it in the family history of the patients. On studying into the histories of six families with typical cases of dysthymia they were able to find a lymphoid tendency sometimes in the maternal blood stream, and sometimes in the blood stream of the father, and in one case in both. They reported that as a rule this peculiarity of the blood affects preferably one sex of the family.

Segre spoke on the speech of laryngectomized persons. A person who has undergone laryngectomy may, through practice reacquire a form of speech, which will take the form of a pseudowhispering or a pharyngeal voice analogous to that observed in a person who has been subjected to tracheotomy but such a voice is not fully adequate. It is however, possible by means of careful reeducation to secure a phonation suitable for narration with a voice of the pharyngeal type.

#### The Kahn Reaction in Mental Patients

In 120 mental patients, Dr Visalli applied both the Wassermann and the Kahn tests. He found a certain degree of positiveness of the test in suspected patients and also in some who were not suspected. These results according to the speaker (who reported them to the Academy of Physical Sciences of Ferrara) support the idea that the syphilitic nature of mental diseases is more frequent than is supposed. The cases of syphilis would appear even more numerous if means of detection more precise and more specific than the Kahn test could be devised. The Kahn test gave negative results in some cases that were certainly syphilitic. The speaker holds that the Kahn test should be applied as a current method of research to all mental patients.

During the discussion, Ravenna stated that for some time the laboratory of the Ferrara Hospital had applied the Wassermann and Kahn tests in a parallel manner. He gave it as his impression that the Kahn test, although more sensitive than the Wassermann test, is somewhat less specific. Hence, from a clinical point of view, a positive Kahn test, unless it is supported by other data, does not seem to the speaker to be sufficient evidence to decide on the existence of a syphilitic infection. Rietti gave the results of his laboratory experiments with the various flocculation tests that had been proposed in recent years. He holds that at present none of these tests can replace the Wassermann test but can only supplement it. If the results are discordant and there are no anamnestic or clinical data that point to the existence of syphilis, great caution must be exercised in evaluating positive results of the flocculation tests.

#### Leonardo da Vinci's Knowledge of Embryology

Dr Mozzetti made a study of the embryologic drawings of Leonardo da Vinci and the notes appended thereto and reported to the Società medico chirurgica of Venice. In addition to the recognized priority with regard to the behavior of the fetus in the uterus and to the placental circulation, it seems probable that to Leonardo belongs the first description of the ductus venosus, which was named after Aranzio, and also the knowledge of the protective function of the amniotic fluid. The embryogenesis of the liver and the spleen and the growth of the fetus in the uterus were described and reproduced by Leonardo. He also gave the first account of placenta praevia centralis. In spite of the inevitable errors due to the times the name of Leonardo has acquired new splendor from a study of his drawings and notes and he has achieved the right to be regarded as one of the precursors of the obstetric and gynecologic disciplines.

### MOSCOW

(From Our Regular Correspondent)

Aug 5, 1934

#### The Fourth International Antirheumatic Congress

The fourth International Antirheumatic Congress was held at Moscow, May 3-7, under the presidency of Prof M P Konchalovski. About 800 physicians took part, including 143 delegates from the soviet union and 100 from nineteen other countries. Thirty-nine reports were read half of them by members of the soviet delegation.

The people's commissar of health G N Kaminsky, told the delegates about the following decisions of the government. In Moscow will be organized a permanent antirheumatic museum, in Sochi and Mazesta, rheumatic clinics. Departments of the central institute for studying spas will be established at Moscow. A children's rheumatologic sanatorium will be built. At Moscow, Leningrad, Charkov and Odessa, medical institutes and institutes for qualification of physicians will be established. Besides this, the soviet government has established two international prizes each of 1000 rubles for the best work on the clinical and social problems of rheumatism.

The scientific exhibits for the congress consisted of five departments. In the first were the conditions created for eliminating the causes of rheumatic morbidity in the soviet union. The second was devoted to balneologic treatment of rheumatic patients. Soviet spas and the organization of treatment were shown. The pathology of rheumatism was concentrated in the third department. The geographic spreading of acute rheumatism, different types and methods of treatment were shown. The other departments of the exhibition concerned materials about rheumatism in children and industrial workers. Methods of combating rheumatism among miners, seamen, railway workers, motor transport workers and machine builders were shown.

As the congress proceeded in the Moscow House of Scientists, the delegates' chairs had radio ear phones and all reports were translated into Russian, English, German and French.

The first day was devoted to the clinical side of acute rheumatism. Prof M P Konchalovsky explained rheumatism according to the allergic theory and denies the presence of a specific infectious agent. In the discussion, Prof D D Pletniev of Moscow spoke on disturbances in the peripheral blood stream during acute rheumatism. Professor Faar of Germany demonstrated that the Aschoff nodes of the heart are more clearly manifested in children than in adults. Professor Schlesinger of London showed that acute rheumatism is closely connected with meteorological and geographic factors. Prof L B Buchstab of Odessa spoke about a biologic test for rheumatism that he and dozent Jassimovsky worked out. A pathologico-anatomic preparation of rheumatic lesions of the valvular system was demonstrated by Prof V T Talalajev of Moscow and Dr Iolo of Finland.

The second topic, indications for the balneologic treatment of rheumatism, was discussed May 5. Prof G M Danichevsky of Moscow illustrated the method of choosing patients who are to be sent to the soviet health resorts. In soviet Russia at the beginning of 1932 there were 232 mud lakes, 163 salt lakes, 301 hydrogenic sulphide springs, 272 carbonic acid spas, 92 warm springs, 8 radioactive spas and 650 other mineral spas. One million eight hundred thousand patients visited the soviet health resorts and rest houses in 1933, 135 000 rheumatic patients were treated in health resorts during 1932.

Prof S S Nalbandov of Odessa spoke of indications for mud treatment of the peripheral nervous system. His material includes 2 632 cases. The best results are obtained in the mud treatment of neuralgia with 91.6 per cent of improvement.

Professor Pisani of Italy gave a classification of rheumatic diseases. Prof N A Valedinsky of Moscow spoke about the influence of hot hydrogen sulphide baths on the hemodynamic and trophic processes in cardiovascular diseases.

The third subject was rheumatism of transport workers, mine workers and metal workers—the significance of the occupational factor in rheumatic diseases. Prof I G Gelman of Moscow read a paper on rheumatism among machine builders. In connection with the mechanization of industry, the rheumatic morbidity continuously decreases. It is most evident in the auto tractor industry, 41 per cent less, and in general machine building industry, less by 27 per cent. The principal rheumatogenic factors are muscle strain static work requiring an incorrect position of the body and overheating, with currents of air and unequal cooling, minor traumas and long contact with cold metal in workshops. The most important rheumatic diseases seen among machine builders are myositis and myalgias (13 to 1,000 workers), acute neuralgias (0.9 to 1,000) and chronic articular rheumatism (0.7 to 1,000). Professor Platte of Germany read a paper on the conditions in mines and in metal works.

The final meeting of the congress was held in the Palace of Culture of the proletarian district of Moscow. There were present many workers who greeted the congress.

The fifth Antirheumatic Congress will be held in Lund, Sweden, in September 1936.

After the sessions of the congress the delegates divided in several groups and made a trip to the soviet health resorts and spas.

#### Institute of Experimental Medicine

The government published a decree about the removal of the Institute of Experimental Medicine from Leningrad to Moscow. The architectural projects of the institute's buildings are ready. They will be built in the style of the Italian renaissance. It is proposed to build stomatologic, pediatric and neuropsychiatric clinics, laboratories for physiology, morphology,

biology, biochemistry and biophysics, a hall for 1,500 people for international congresses, a library consisting of 700,000 volumes and other auxiliary buildings. About 100,000,000 rubles will be spent on the building of the institute during the second five year plan (1932-1937). When the buildings are finished, the Institute of Experimental Medicine will be the largest scientific and practical medical establishment in the world.

#### The Death of R R Vreden

Prof Roman Romanovich Vreden died, February 7, in Leningrad, at the age of 67. During the Russian-Japanese war Professor Vreden was chief surgeon at the front. From 1906 he was the director of the St Petersburg Orthopedic Institute, from 1918 he was professor of orthopedic surgery in the Leningrad Medical Institute and from 1924 he directed the orthopedic department of the State Traumatologic Institute. He was the founder of orthopedic surgery in Russia. He published more than a hundred scientific works, the best known being a practical manual.

#### JAPAN

(From Our Regular Correspondent)

June 30, 1934

#### National Sickness Insurance

Sickness insurance, which has been in force for the last seven years, has developed satisfactorily, although it was limited to a small part of the laboring classes. Now the government has made public a new plan of national sickness insurance which will be made on a large scale and over a large part of the country. The authorities say that the scheme is so large that three or five years will pass before it can be fully enforced. This system includes all except those who have a large income and those who are not able to pay. Sickness and accidents should be insured, but death and childbirth may be included if wanted. It is believed premature to add any further insurance now. The insurer will be any self-governing community and should be a territorial body—a town, city or village. As an exception, men of the same trade may be permitted to organize an association. In the territorial association all the residents should be insured compulsorily. Five or six hundred units will be established every year, and twenty years will probably be required to complete this system all over the country. The insurance allowance in kind is the rule and the cash allowance is the exception. As one kind of insurance is apt not to suit the circumstances in different districts, the details are entrusted to each association or body but under close superintendence and guidance of the government. The expenses should be paid by the members but the state, city, town or village may give a subsidy. Freedom of choice of physicians will be given.

To mediate disputes about the medical contracts, an office will be established. The insurance will be different according to the circumstances of each locality, and those members who are not to be given an allowance will be reimbursed to a certain limit.

It is anticipated that over 30 000 000 persons will be insured out of 50,000,000 persons who qualify for insurance. When this system has been completed, the present positions of the practitioners will have to be entirely changed.

#### Diphtheria Among Silk Mill Workers

Cases of diphtheria in 1933 amounted to 28 518 throughout the country, with 5 270 deaths, a much higher rate than in ordinary years. In Tokyo and in its suburbs there were 6,066 cases, which was 2 000 cases more than usual. There were 10 28 cases per 10 000 of population. There is a silk reeling mill where 145 girls, 16 men workers and 11 members of the owner's family lived in the dormitory. This mill stands in a village with a population of about 7 500, within two hours run by train from Tokyo. In this village there were eight cases



of diphtheria in 1931, three cases in 1932 and eleven cases in 1933. But on April 10 this year, in this mill, there broke out one case, by May 13 the outbreak amounted to forty cases and twenty carriers. All of these were slight attacks and in a week or two all the patients left the isolation hospital and no deaths were reported. In Tokyo and its vicinity 85 per cent of the patients were children under 10 years of age. The metropolitan police board is now encouraging immunization, which has so long been neglected among adults, especially in factories.

#### Outbreak of Encephalitis

As was expected, summer encephalitis has broken out in a few districts, one of which is the prefecture of Okayama. By the end of June more than fifteen cases were reported. Dr. Shoji Takeda, director of the Kobe Prefectural Hospital, has presented a report on this disease from the standpoint of climatic and geographic conditions. He says that more than two cases in the same family have never been found. The cases are widely distributed, but every summer cases occur in the same place. Most of the patients are more than 40 years of age. In the last ten years the largest number of cases occurred in 1924 (827 cases), 1926 (385), 1927 (319), 1929 (362) and 1933 (152). In these years there was little rainfall and the heat was intense in August and September. No matter how violently it raged in the hot months, the cool fall season never failed to cause this disease to disappear completely. The disease occurs chiefly in the three prefectures lying on the coast of the Inland Sea, and the number of the cases for the past ten years has amounted to 6,736. These prefectures are the chief salt-making districts in Japan. In the salt manufacturing industry little rainfall and high temperature are most necessary. Most cases are found in the farm villages and but few in the seashore town or villages.

#### Admiral Togo and His Family Physician

The death of Admiral Togo in May disclosed an episode of nobility of character of both the patient and the family physician. Dr. Naojiro Kato, the admiral's attending physician, was merely a private practitioner and was almost unknown except among his patients. He was neither a famous professor nor a noted director of a big hospital, but he enjoyed the confidence of this great hero over thirty years and he was the medical attendant who was at the deathbed. It has come to be known since the admiral's death that Dr. Kato was a man of deep sincerity and so humble that he never showed pride at being Togo's attending physician. Whenever the admiral fell sick he seldom called other physicians in consultation, but was so careful that he went quietly to prominent practitioners in the capital to ask advice. He was a faithful student of medicine and regularly attended the short course given in the Tokyo Imperial University Medical Department for the past ten years that he might keep up with the progress of medicine. To honor him, his friends and associates and the graduates of the Nippon Medical College held a meeting and this story is widely told as an example of the ideal relation between physician and patient.

#### Cancer Research Institute Completed

The completion of the new buildings of the Cancer Research Institute was celebrated, June 20. Prince Fushimi, the president of the Cancer Research Society, was present. Dr. M. Nagayo is the new chief and Dr. R. Inada is the new director of the hospital attached to it. To assist in this work the new Mitsui Foundation has offered to the institute a quantity of radium, which is reported to have cost a million yen and to consist of 5 Gm of radium bromide and radium sulphate to be bought in the Belgian Congo, Africa. This is the largest single amount of radium that Japan has ever had.

## Marriages

NORMAN JAMES HAVERLY, Lieutenant Commander, M. C., U. S. Navy, Boston, to Miss Agnes Katherine Gordon of Brookline, June 30.

JOSEPH E. O'DONNELL, Champaign, Ill., to Miss Palma Louise Utke of Enderlin, N. D., in Chicago, August 19.

E. TERRILL MONTGOMERY, Garden City, N. Y., to Miss Joan Marie Kimble of Honesdale, Pa., June 16.

ROLAND M. WEBSTER, Strawberry Plains, Tenn., to Miss Clara Evelyn Brown of Florence, Ala., June 9.

PERRY DAVID MELVIN, Ancon, Canal Zone, to Miss Judith Standard Fowler of New Orleans, August 10.

PHILIP WILHELM MORGAN, Emporia, Kan., to Miss Alfreda Neal of Melvern at Kansas City, Mo., July 7.

HARVEY NATHANIEL MIDDLETON, Anderson, Ind., to Miss Stella B. Walker of Indianapolis, June 16.

WILLIAM HUGH MILLER, New Carlisle, Ohio, to Miss Margaret Rose Dillon of Middletown, June 2.

W. BURLEIGH MATTHEW, Lafayette, Ind., to Miss Ruth Suzanne Adams of Beech Grove, June 1.

HARRY DALE MOWRY Ambridge, Pa., to Miss Mildred Hatfield of Harrington, Del., August 21.

HIRAM BURNARD MORGAN, Inman, S. C., to Miss Georgia Marie Dunn of Charleston, June 14.

PAUL THOMAS O'BRIEN, Menasha, Wis., to Miss Margaret Mary Dohr of Appleton, July 31.

ISAAC NEWTON KUGELMASS to DR. ELLA H. FISHBERG, both of New York, August 18.

EDGAR MAYER to Mrs. Rheta Guggenheim Jaffe, both of New York, July 11.

HARRY TABACHNICK to Miss Lilhan Polli, both of Milwaukee, June 25.

SILVESTER DARLING to Miss Helen Barnes, both of Milwaukee, June 25.

## Deaths

Archibald E. Baker of Charleston, S. C., Medical College of the State of South Carolina, Charleston, 1889, clinical professor of gynecology at his alma mater, fellow of the American College of Surgeons, past president of the Tri-State Medical Association and the South Carolina Medical Association, formerly councilor of the first medical district of the South Carolina Medical Association, owner of the Baker Sanatorium, aged 71, died suddenly, July 31, at his summer home on Folly Island, of heart disease.

Edwin Caldwell Simonton, Shreveport, La., Tulane University of Louisiana School of Medicine, New Orleans, 1913, member of the Louisiana State Medical Society, fellow of the American College of Surgeons, on the staffs of the North Louisiana Sanitarium, Shriners' Hospital for Crippled Children, Tri-State and Shreveport Charity hospitals, aged 48, died, July 31.

Julius Eduard Lehmann, Winnipeg, Man., Canada, University of Toronto Faculty of Medicine, 1893, M.R.C.S., England, and L.R.C.P., London, 1901, formerly associate professor of clinical surgery, University of Manitoba Faculty of Medicine, fellow of the American College of Surgeons, on the staff of the Winnipeg General Hospital, aged 66, died suddenly, July 3.

William Francis Freeman, Los Angeles, University of Toronto (Ont.) Faculty of Medicine, 1883, and Faculty of Medicine of Trinity College, Toronto, 1883, aged 77, for many years resident physician to the Santa Fe Coast Lines Hospital, where he died, June 6, of arteriosclerotic heart disease.

John James Walker, Montreal, Que., Canada, McGill University Faculty of Medicine, Montreal, 1906, demonstrator in medicine at his alma mater, health officer of Ste. Anne de Bellevue, 1913-1914, aged 53, for many years on the staff of the Royal Victoria Hospital, where he died, May 4.

Andrew G. Payne of Greenville, Miss., Kentucky School of Medicine, Louisville, 1893, fellow of the American College of Surgeons, past president of the Mid-South Post Graduate Medical Assembly, on the staff of the King's Daughters' Hospital, aged 65, died, July 31, of heart disease.

George Weare Weymouth @ Lyme, N H, Dartmouth Medical School, Hanover, 1882, in 1932 was presented with a gold medal marking the completion of fifty years' membership in the New Hampshire Medical Society, aged 77, died, May 30, in the Mary Hitchcock Hospital, Hanover, of coronary occlusion

William James Boyd, Oklahoma City, Okla, University of Buffalo School of Medicine, 1895, formerly professor of gynecology, Epworth College of Medicine, veteran of the Spanish American War, aged 73, died, July 13, in Colorado Springs, of cerebral hemorrhage

John M Johnson, Giddings, Texas (licensed in Texas under the Act of 1907), member of the State Medical Association of Texas, for many years member of the state legislature, formerly county health officer, aged 64, died suddenly, May 14, of heart disease

Harry Lyman Putnam, St Petersburg, Fla, Bellevue Hospital Medical College New York, 1890 member of the Florida Medical Association, past president of the Pinellas County Medical Society, aged 70, died, July 27, in a hospital at Asheville, N C

John Edward Simpson, Sturgeon Bay, Wis Bennett College of Eclectic Medicine and Surgery, Chicago 1901, served during the World War formerly city health officer aged 62, died, July 24, in the Wisconsin General Hospital, Madison, of bronchopneumonia

Joseph A Archambault, Essex Junction, Vt, University of Vermont College of Medicine, Burlington, 1901, member of the Vermont State Medical Society formerly instructor in medicine at his alma mater, aged 59, died suddenly, May 31, of heart disease

Thomas Boykin Clegg @ Greenville, S C, Emory University School of Medicine, Atlanta, Ga, 1925, on the staff of the Shriners' Hospital for Crippled Children aged 37, was drowned, July 23, while fishing in the surf of Seabrook Island, near Charleston

Patrick Joseph Barrett, Utica N Y Albany Medical College, 1892, member of the Medical Society of the State of New York, served during the World War, on the staff of St Elizabeth's Hospital, aged 63, died suddenly, July 16, of heart disease

James F Barnwell, Johnson City, Texas (registered in Texas, by the state board of medical examiners, under the Act of 1907), county health officer, formerly bank president and school trustee, aged 59, died, June 16, of carcinoma of the spine

Morris Hirsch Kahn, New York, Cornell University Medical College, New York, 1909, fellow of the American College of Physicians, formerly on the staff of the Beth Israel Hospital, aged 45, died, July 13, in the Mount Sinai Hospital

Thomas Ralph Castles, Albia, Iowa, Northwestern University Medical School, Chicago, 1907, member of the Iowa State Medical Society, aged 52, died July 29, in the Iowa Methodist Hospital, Des Moines, of essential hypertension

Richard Calvin McClure, Kansas City Mo, University Medical College of Kansas City, 1900, member of the Missouri State Medical Association, formerly a dentist, aged 62, died, May 19, of hypostatic pneumonia and Parkinson's disease

Louie Elsworth Langley, Williamsport, Pa, University of Maryland School of Medicine, Baltimore, 1910, member of the Medical Society of the State of Pennsylvania on the staff of the Williamsport Hospital, aged 49 died May 31

Horace Thea Fortner, Jellico, Tenn University of Tennessee Medical Department, Nashville 1925 member of the Tennessee State Medical Association, aged 34, was drowned, August 10, in Harrington Lake, near Danville, Ky

Arthur Stevenson McElroy, Ottawa, Ont Canada McGill University Faculty of Medicine Montreal Que 1897 for many years on the staff of the Ottawa Civic Hospital, aged 65, died, April 20 of cerebral hemorrhage

James Lambert Melvin, Guthrie Okla John A Creighton Medical College, 1896, past president of the Logan County Medical Society, aged 78 died July 24, in Bartlesville, of toxemia as the result of prostatitis and cystitis

Heman Rowlee Bull @ Grand Junction Colo, Jefferson Medical College of Philadelphia, 1887 fellow of the American College of Surgeons, for many years on the staff of St Mary's Hospital, aged 71 died, June 21

Alfred Napoléon Rivet, Montreal, Que., Canada School of Medicine and Surgery of Montreal, 1888, emeritus professor of toxicology at his alma mater served during the World War, aged 68 died April 21

Farrar Burr Parker, Long Beach, Calif, Tulane University of Louisiana School of Medicine, New Orleans, 1916, served during the World War, aged 48, died, June 26, of cardiovascular renal disease

John G Motley @ Henderson, Texas, University of Louisville (Ky) School of Medicine, 1891, past president of the Rusk County Medical Society, aged 71, died, June 17, in a hospital at Shreveport

Gershon Campbell Bryant @ Milan, Tenn, Memphis (Tenn) Hospital Medical College, 1903, past president of the Gibson County Medical Society, aged 58, died, July 22, of auricular fibrillation

William N Howard @ Cape Girardeau, Mo, St Louis Medical College, 1890 for many years member of the local board of health on the staff of St Francis Hospital, aged 71, died, July 29

Marjorie Sharps Jefferies Wagoner, Bryn Mawr, Pa, University of Pennsylvania School of Medicine, Philadelphia, 1922, physician to Bryn Mawr College since 1924, aged 37, died, June 22

Rafael Velez Lopez, Rio Piedras, P R Universidad Central de España Facultad de Medicina, Madrid Spain, 1897, member of the Medical Association of Puerto Rico, aged 62, died, June 8

J A Emile Choquette, St Bruno, Que, Canada, School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1900, aged 58, died, March 4

Frank F Fisk @ Price, Utah, Rush Medical College, Chicago, 1897, vice president and past president of the Carbon County Medical Society, aged 66, died, July 21, of heart disease

Burton B Buck @ Waterville, Ohio, Eclectic Medical Institute, Cincinnati, 1899, aged 71, died, August 3, in the Women's and Children's Hospital, Toledo, of cerebral hemorrhage

Benjamin Franklin Parrish, Midway, Ky Bellevue Hospital Medical College, New York, 1890 aged 68, died, July 11, in the Good Samaritan Hospital, Lexington, of heart disease

Michael Timothy Collins, Sedalia, Mo, Medical College of Ohio, Cincinnati, 1889, member of the Missouri State Medical Association, aged 76, died, July 20, of cerebral hemorrhage

William Edgar Christie @ Philadelphia, Jefferson Medical College of Philadelphia, 1917, on the staff of the Presbyterian Hospital, aged 40, died, July 29, at Beach Haven, N J

Francis Eugene Brennan, Flushing, N Y New York Homeopathic Medical College and Hospital, 1894 aged 61, died suddenly, July 30 at his country home in Cold Brook

Sylvain Beer Wolff, Opelousas, La Johns Hopkins University School of Medicine, Baltimore, 1914, past president of St Landry Parish Medical Society, aged 43, died, June 13

Charles Deems Bell, Wilmington, N C, University of Maryland School of Medicine, Baltimore, 1883, aged 76, died, June 17, in the Bulltuck Hospital, of coronary thrombosis

James Daniel Marion Black, South Fork Mo Memphis (Tenn) Hospital Medical College, 1890, member of the Missouri State Medical Association, aged 72, died, May 14

Joseph Patrick O'Hanlon, Brooklyn, Long Island College Hospital, Brooklyn, 1891, aged 63, died, July 5, in the Hamilton Hospital, following an operation for cholelithiasis

Charles James Devlin, Swissvale, Pa, Jefferson Medical College of Philadelphia, 1916, member of the Medical Society of the State of Pennsylvania, aged 45, died, June 20

James Palmer Rankin, Stratford, Ont, Canada, Faculty of Medicine of Trinity College, 1878 formerly member of the city council and school board, aged 79, died, June 15

Preston Charles Jenkins, Roanoke, N C, Bellevue Hospital Medical College, New York, 1873, past president of the Bertie County Medical Society, aged 84, died, July 5

Evan Ellis Owen, Louisville, Ky University of Louisville School of Medicine, 1911, served during the World War, formerly city health officer, aged 45, died, July 20

Franklin W Palmer, Chatsworth, Ill, Barnes Medical College, St Louis, 1898, aged 61, was drowned, July 6, while fishing in the Kankakee River near Wilmington, Ill

Joseph Rymal Smith, Grimsby, Ont, Canada Victoria University Medical Department Coburg 1892, aged 67, died, April 1, in the Hamilton (Ont) General Hospital

Joseph William Stringer, Taylorsville, Miss, Mississippi Medical College, Meridian, 1909 aged 61, died, June 24, in a hospital at Laurel, of cerebral hemorrhage

David Finlay Marr ☉ Bradford, R. I., Tufts College Medical School, Boston, 1911, aged 57, died, May 15, of adenocarcinoma of the left ureter, with metastases to the liver

James Luther Moore, New Stanton, Pa., University of Pittsburgh School of Medicine, 1932, aged 32, died, in July, at the Westmoreland Hospital, Greensburg

Henry Deischer Stichter, Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1889, aged 68, died, July 14, of carcinoma of the stomach

Samuel P. Deem, Rutland, Ohio, Baltimore Medical College 1893, member of the Ohio State Medical Association, aged 70, died July 5, of angina pectoris

H. Allen Booth, Pacific, Mo. Missouri Medical College St. Louis, 1886, aged 77, died, July 26, in the Barnes Hospital, St. Louis, of uremia and arteriosclerosis

Mathias Borts ☉ Cleveland, University of Wooster Medical Department, Cleveland 1881, aged 81, died, July 22, of arteriosclerosis and cerebral hemorrhage

Jonathan Titus McDonald, San Francisco Cooper Medical College, San Francisco, 1884, aged 81, died, May 31, of angina pectoris and coronary sclerosis

Elmer Grant Paxton, Cedar Rapids Iowa Ohio Medical University, Columbus, 1896, aged 64, died July 15 of paralysis agitans and arteriosclerosis

Mary Francilla McCrillis, Quincy, Mass. Boston University School of Medicine, 1882, aged 77, died July 20, in the Glenside Hospital, Boston

Thomas Edward Standifer, Turkey, Texas, Louisville (Ky.) Medical College, 1899, aged 70, died, May 20, in a sanatorium at Oklahoma City

George Arthur Schmidt, Cobalt Ont., Canada, Trinity Medical College, Toronto, 1899, aged 62, died, June 25, in the Toronto General Hospital

Max Von Beust, New Albany, Ind. Hospital College of Medicine, Louisville, Ky. 1881, aged 80, died May 24, of chronic cystitis and uremia

Erle Edson Benedict ☉ Minneapolis University of Minnesota Medical School, Minneapolis 1901, aged 57, died August 8, of heart disease

William Allen McKelvey, Opolis, Kan. St. Louis College of Physicians and Surgeons, 1901, aged 70, died, June 13 in a hospital at St. Louis

Atticus Gwynn Blanton ☉ Sonora Texas, Chattanooga (Tenn.) Medical College 1907, aged 52, was killed July 27 in an automobile accident

Edward Wesley Harrison, Winfield Iowa Keokuk (Iowa) Medical College, 1894, aged 66, died suddenly, July 6 of cerebral hemorrhage

William T. Sumrall, Mount Sterling Ky. Louisville Medical College 1873, aged 92, died, July 22 in Ellicott City, Md., of heart disease

William Witter, Norwich Conn. Yale University School of Medicine New Haven, 1865, aged 93, died suddenly, May 27, of heart disease

Amos Wright Campbell, Prince Albert Ont. Canada Victoria University Medical Department, Coburg 1880, aged 84, died, June 12

Charles W. Piper ☉ Chicago, Chicago Medical College 1891, aged 69, died, July 11, of coronary occlusion and arteriosclerosis

Clarence Joseph Pullen ☉ Georgiana, Ala. (licensed in Alabama in 1905), aged 60, died July 15, in a hospital at Greenville

Thomas J. Gowan, Hornings Mills Ont. Canada Western University Faculty of Medicine, London, 1892, aged 75, died April 28

Charles Manley Foster, Toronto Ont. Canada Victoria University Medical Department, Coburg, 1884, aged 74, died April 9

Orville B. Yager, Glencoe Ky. Miami Medical College Cincinnati, 1867, Civil War veteran, aged 92, died, May 28

Margaret Cowan Calder, Wingham, Ont. Canada University of Toronto Faculty of Medicine, 1907, died, in April

Christian Heidemann, St. Louis Marion-Sims College of Medicine, St. Louis, 1892, aged 63, died suddenly, June 15

Alexander Kahn, Philadelphia Jefferson Medical College of Philadelphia, 1881, aged 75, died, May 12

Samuel Moss ☉ Philadelphia, Jefferson Medical College of Philadelphia, 1909, aged 52, died, June 29

William Bernard McKeon, Troy N. Y. Albany Medical College 1915, aged 42, died June 19

## Correspondence

### MECHANISM OF EXOPHTHALMOS

*To the Editor*—The editorial on "The Mechanism of Exophthalmos" in THE JOURNAL, June 30, quotes what is termed "this curious statement" from my recent textbook "Diseases of the Nervous System" "Apart from gross neoplastic and inflammatory lesions of the orbit, the mechanism of exophthalmos is still little understood" Your comment is "Nevertheless the mechanism of exophthalmos is well understood though the knowledge would seem to be poorly disseminated."

If the writer of your leader had done me the honor of quoting the article on exophthalmic goiter in my textbook, he would have found the explanation of exophthalmos which he proposes fully discussed and the conclusion drawn that "there is probably overaction of part of the ocular sympathetic fibers, causing retraction of the upper lids and some degree of exophthalmos" I am familiar with the various papers quoted in the leader and I agree that the muscles described by Landstrom exist and also that stimulation of the cervical sympathetic in animals will produce exophthalmos. In spite of this, however, I do not know of any proof that the exophthalmos of exophthalmic goiter is produced in this way. Indeed, certain points make it difficult to believe that overaction of the ocular sympathetic affords the whole explanation. Cunliffe Shaw has shown that section of the cervical sympathetic in exophthalmic goiter does not cause diminution in the exophthalmos. Numerous surgical studies of the orbital contents in exophthalmic goiter, especially those of Naffziger, have revealed in many cases intense edema of the orbital fat and extra-ocular muscles, with lymphocytic infiltration and, in the later stages, fibrosis. These changes may, of course, be secondary to the exophthalmos, though it seems to me more probable that they are its cause. Even if the exophthalmos is solely due to contraction of the smooth muscle of the orbit, it is not known whether this is produced by excitation of the sympathetic nervous system centrally or peripherally, nor whether the hypothetical excitation of the sympathetic is brought about by normal or abnormal thyroid secretion, or in some other way.

I have a fairly full acquaintance with the papers on exophthalmos which have been published during the last thirty years and I have discussed the problem with ophthalmologists, pathologists and physiologists. It is disappointing to have to admit that I remain of the opinion expressed in my book that "the mechanism of exophthalmos is still little understood"

W. RUSSELL BRAIN, London

### GROWTH FACTOR FROM ANTERIOR PITUITARY

*To the Editor*—I take this opportunity to add my word of commendation to the thousands which I know you have already received on the leading editorial, "Antihormones" in THE JOURNAL, August 18. Dr. Cushing undoubtedly issued a sound note of warning against the indiscriminate use of endocrine products and I am pleased to see you again warning the doctors about so-called isolated active principles. I have in mind chiefly or particularly the extract of the anterior lobe of the pituitary which I believe is now known to produce a growth factor. My research on cancer cases at the autopsy table has led me to believe that in this condition the anterior lobe is hyperactive. For this reason I cannot help but feel that you have shown the part of wisdom in proclaiming your announcement.

GEORGE A. WILETH M.D., New York

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### ENCEPHALITIS AND NARCOLEPSY

To the Editor—Owing to the fact that I am pretty well muddled over the following terms I am taking the liberty of asking you for assistance: encephalitis, encephalitis lethargica, sleeping sickness and narcolepsy (sleeping sickness not the African type). Up to last evening at a staff meeting of our hospital I thought I had a fairly good idea of the differentiation from their names as well as the pathology. In the last few years, different members have had all told four cases. Three of these cases have been confirmed in diagnosis by men of good reputation away from here. The fourth is the one in particular that has put me out. One of the cases confirmed by Dr. Dowling of the Mayo Clinic and Dr. Stanley Cobb of Boston is in my own family. The one in question has been diagnosed encephalitis by one of the local men. My own idea was that encephalitis simply indicated that there is or was something wrong with the gray matter, such as a tumor, injury, disease or malformation. And I called the case encephalitis of narcoleptic type of a mild form. That precipitated an argument as most of the men felt that encephalitis was not a general term but specified the disease. We are in the same muddle about the pathology. My idea is an edema or boggy-ness of the base of the brain. I am unable to connect the following symptoms coming from the spinal nerves: intermittent loss of control of bowel and bladder, epileptiform seizures and so on. I have read all the articles in *THE JOURNAL* and Dr. Dowling's pamphlets. Will you please give me the titles of articles and prices with address of place to purchase them?

J R WILSON MD Bennington Vt

ANSWER—In spite of the usage of physicians confronted by these perplexing cases, the latest Dorland, Gould and Steadman dictionaries are a unit in distinguishing these fundamental differences.

Encephalitis (Dorland) inflammation of the brain.  
Epidemic (lethargic) encephalitis (Gould) an epidemic form of encephalitis, frequently occurring with influenza, and characterized by drowsiness, apathy, muscular weakness and paralysis of the third cranial nerve.

Narcolepsy (Gould) an uncontrolled tendency to attacks of deep sleep of short duration, it has been observed in epilepsy and other affections.

The *Quarterly Cumulative Index Medicus* lists narcolepsy under disturbances of sleep.

S B Wortis and Foster Kennedy published a short review of narcolepsy last year which might be a good starting point for reading, as the bibliography is extensive. They look on narcolepsy as a symptom complex denoting an underlying neurophysiologic derangement probably of an organic (physico-chemical) nature in the region of the third ventricle and the peraqueductal regions. The review was published in the *American Journal of Psychiatry* (12:939 [March] 1933). The journal is published at 1500 Greenmount Avenue, Baltimore.

### VACCINES IN SINUS INFECTIONS

To the Editor—Will you please advise me in regard to the use of vaccines autogenous and otherwise in cases of two or three years' standing of maxillary sinus infections? The symptoms are simply a profuse sticky mucoid posterior nasal discharge with clouding of the sinus in the roentgenogram. The temperature reaches 99.4 F daily. Please omit name.

MD New York

ANSWER—The symptoms given do not substantiate a diagnosis of a suppurative condition in the maxillary sinuses. The diagnosis of maxillary sinusitis is based first of all on a careful examination (usually after shrinking of the nose), which reveals the presence of pus in the middle meatus. Roentgen observations and the results of transillumination are taken into consideration. The offending sinus is washed out with an irrigating solution and the presence of pus in the cavity substantiated. The maxillary sinus may still, under these circumstances, be acting only as a reservoir for an infection in the frontal and ethmoid sinuses, and only after disease in these has been ruled out can one say that the maxillary sinus is the sole offender. From time to time one sees persons in whom roentgen examination shows the so-called clouding of the sinus. This may not mean an active infection. It may be the evidence of a thickened lining membrane due to disease in the far past, and which is now, to all intents and purposes, clinically healed. Furthermore, such clouding of the maxillary sinuses is seen in the roentgenogram in the absence of suppurative disease and may then be due to an allergic or other state.

Postnasal discharge is frequently seen in certain people and in certain climates and does not necessarily bear any relationship to suppurative sinusitis. Admitting in the case cited that

there is present a bilateral maxillary sinusitis as evidenced by the roentgen examination and a postnasal discharge, the proper treatment, at first, would be to irrigate the sinuses for a time to see whether this alone might not ameliorate the condition or cause it to disappear. It is assumed that there are no marked anatomic or pathologic conditions present, such as polyps or a badly deviated septum.

In the event that properly conducted and repeated lavage does not result in the improvement desired, some form of operation should be considered, for it is not likely that a suppurative condition present for three years would yield to vaccines, autogenous or otherwise. The use of vaccines in sinusitis is debatable. Many specialists of high quality have no faith in them. It is quite possible that vaccines will be found helpful in a small percentage of acute cases, and some seem to think that their use is occasionally valuable in preventing acute recurrences.

Chronic sinusitis of three years' standing would not often, in itself, produce a temperature reaching 99.4 F daily. It would be advisable to search for some other cause for the elevation of temperature.

### DIAGNOSIS AND TREATMENT OF PURPURA

To the Editor—I have under my care a boy aged 6 years who gives the following history: About one and a half years ago he had a gastro-intestinal upset with pains and cramps in the abdomen. Appendicitis was suspected but he seemed to have complete recovery without operative treatment. About six months ago while on a vacation there was a recurrence of the gastro-intestinal upset with severe cramps, pain and vomiting. He was observed by nine physicians and the consensus was appendicitis. They were about to operate when the symptoms subsided so suddenly that this plan was abandoned. About a week ago the child suffered another acute attack with severe abdominal pain, nausea and vomiting. He vomited blood before I arrived. On my arrival about two hours after the beginning of the attack all the intestinal symptoms had disappeared. Large hemorrhagic spots covered the arms, the legs and back. The mucous membrane of the mouth and tongue also showed hemorrhagic areas which were still oozing. My diagnosis was purpura hemorrhagica. I should like to know the different types of treatment and also the prognosis in such a case. Kindly omit name.

MD, New York

ANSWER—Before discussing the various types of treatment and prognosis, it may be well to say a few words about the diagnosis in this case. The term purpura hemorrhagica is usually applied to the thrombopenic form of purpura, or Weill's disease. The history and physical examination suggest the symptomatic form, often called Henoch's purpura. While at present the clinical classification of purpura is most unsatisfactory, the current ideas can be grouped under two schools of thought. There are those who would place all purpuras in one group with the idea that the various clinical forms may be considered variants of the same hemorrhagic diathesis. Others make a strict differentiation on the basis of whether the platelets are reduced or not and group the cases with purpura under two main divisions, the thrombopenic forms and the symptomatic varieties.

The question of classification is not an altogether academic one, as it involves a conception on which treatment and prognosis are based. The controversy is whether the vessel permeability is a primary factor underlying all types of purpura or whether it is the basic mechanism in the symptomatic form only. In the thrombopenic group a disturbance of the intravascular clotting mechanism is also present, which contributes to more severe and chronic hemorrhage. Whatever conception is chosen, it is established that purpura does occur without a reduction of platelets but that the symptom is more constant and severe when the platelets are reduced below the level of 50,000. Hence the treatment and prognosis are both influenced to some extent, depending on the reduction of platelets to a critical level. As a rule thrombopenia is not present in cases presenting abdominal symptoms and purpura, although there are exceptions. The clinical picture is often like the case cited and may simulate an acute appendicitis or intussusception. While such cases should not be confused with these clinical conditions and needless operation be done, it is well to bear in mind that surgical intervention is sometimes indicated in the true Henoch type of purpura. Actual intussusception has been known to occur if the hemorrhage is of sufficient amount to produce a large amount of blood in the wall of the intestine. Under this circumstance the part of bowel affected becomes motionless and the increased peristalsis in the adjacent part of the bowel may drive it into the paralyzed part, producing a true intussusception. Other cases are on record in which operation revealed a true hemorrhagic appendix in Henoch's purpura. Therefore while conservative treatment should usually be chosen in cases of this type the possibilities should be borne

in mind Apparently the pathogenesis in Henoch's type of purpura is an alteration in capillary permeability, which may manifest itself clinically in all stages from a transudative process to a truly hemorrhagic manifestation

The etiologic factors responsible for this derangement in the capillary mechanism may be (1) food allergy, (2) anaphylatoxin associated with a bacterial protein, or (3) histamine-like substances derived from the proteins in the gastro-intestinal tract The action of these substances may be directly on the capillary endothelium or on the vasomotor mechanism According to this etiologic conception, treatment may be suggested along several lines, but it is well to remember that a large number of these cases undergo spontaneous remissions Calcium preparations, by mouth or intramuscularly, are the most popular symptomatic remedies However, in every case of Henoch's purpura the question of allergy and infection should be seriously considered and appropriately treated if present If the attacks of purpura are repeated often, the patient may require treatment for anemia caused by chronic loss of blood In cases in which thrombopenia is definite and persistent, blood transfusion is indicated The prognosis is usually good if there are no acute abdominal and renal complications

#### TOXICITY OF CHLORPICRINE GAS

To the Editor—I would like information regarding the toxicity of chlorpicrine gas It is manufactured by the Innis Speiden Company New York It is used as a weevil exterminator in a grain elevator I have a patient who has had two attacks of pyelitis recently apparently caused by this gas Please omit name

M D Ohio

ANSWER—Chlorpicrine is trichloronitromethane or nitrochloroform, having the formula  $\text{CCl}_3\text{NO}$  This substance has been much used as a war gas of the lachrimatory variety Exposure promptly leads to severe frontal headache Animal experiments carried out by the Chemical Warfare Service of this country failed to reveal consistent evidences of gross pathologic changes resulting from the action of chlorpicrine The toxicity of chloroform (trichloromethane) is well known in relation to anesthesia As an industrial agent trichloromethane is rated as possessing a toxicity at least double that of carbon tetrachloride, which is regarded as a highly dangerous industrial substance The introduction of the "nitro" radical into the chemical structure is believed definitely to enhance the toxicity This general group of chemicals may be credited with the capacity of producing renal lesions and damage to the respiratory and gastro-intestinal tracts and the liver If the two attacks of pyelitis mentioned in the query are the sole manifestations of the action of chlorpicrine, a cause and effect relationship may be doubted Contrariwise, if various other evidences of damage to other body organs may be established, a possible cause of the pyelitis may reside in the chlorpicrine Under any circumstances, exposure to any considerable concentration of chlorpicrine is to be associated with apprehension

#### DERMATITIS AND BRUCELLA ABORTUS

To the Editor—I am wondering whether the following condition is common About three weeks ago a farmer, aged 39 came to me complaining of an eruption on both arms The lesions were found to be papulovesicular in character, surrounded by a moderate amount of edema and erythema The lesions were bilateral in distribution and were scattered over the entire arm from the wrist to about 3 inches above the elbow There was no history of allergic tendencies or of the previous occurrence of the present condition Two days before he had tried to deliver manually an apparently healthy cow which had been in labor for only ten hours Both arms were inserted to about the level of the lesions on the upper arms I advised hot moist dressings and an anti pruritic for the burning and itching Several days ago he came in again My directions had been only partially carried out He stated that each lesion eventually became like a boil and had to be opened and drained before healing At that time the lesions were practically all healed but presented the picture of a healed furuncle What was the cause or nature of the condition? Is this condition common? What is the best line of treatment? It took two weeks to clear up under my care Please omit name

M D, Colorado

ANSWER—Dermatitis of the arms is common in veterinarians engaged in the treatment of cows infected with *Brucella abortus* This is a common disease of cattle Although the cow treated by the patient in this case seemed healthy, it is known that many cows are carriers of this infection, showing no evidence of disease

The dermatitis is due to sensitization of the skin to the infected vaginal secretion, not an infection of the human skin The subject was discussed by L F Weber (*Brucella Dermatitis*, *Arch Dermat & Syph* 26 422 [Sept.] 1932) A query on this subject was answered in THE JOURNAL, January 6, page 69 As suggested in the answer mentioned, long rubber

gloves should be worn in all obstetric work by one sensitized to this form of irritation After careful removal of the gloves, to avoid contact with the contaminated exterior, a thorough washing with soap and hot water is indicated

The treatment given the case in question was proper, except that cool wet dressings are usually more soothing to a dermatitis than hot applications Furuncles are apt to occur after any such dermatitis, because the inflammation has lessened the skin resistance The doctor is to be congratulated on having cleared it up in two weeks That was a prompt result Cool wet dressings of aluminum acetate solution diluted with fifteen parts of cool boiled water or a saturated solution of boric acid, followed by calamine lotion containing 0.5 per cent of phenol and of glycerin is a good plan of treatment The cool wet dressings should be applied for half an hour at a time, several times a day

#### AMAUROTIC FAMILY IDIOCY

To the Editor—Kindly tell me the most prominent symptoms of amaurotic family idiocy in a boy of 2 years What are the causative factors? Could smoking or drinking by the mother during gestation produce such an effect? Kindly omit name

M D, Illinois

ANSWER—Amaurotic family idiocy of the infantile type is also known as Tay-Sachs disease It usually begins in the first six months of life The first symptoms noted are listlessness, inactivity, and indifference of the infant to its surroundings Until the time when these symptoms are first manifested, the infant has developed in a normal manner, and with the onset of the disease a gradual retardation in development occurs and the infant begins to lose ability to perform voluntary activity, such as sitting up and rolling over, which it formerly possessed The baby becomes apathetic, does not smile, and gradually fails to respond to the spoken word as it formerly did The muscles of the limbs become flaccid, and the infant loses the ability to sit upright and to hold its head up This flaccid state gradually changes to a spastic condition

With these changes in the general condition, visual changes occur The infant loses the power to notice objects held before its eyes, does not follow light as formerly, and finally may become totally blind On the other hand, the acoustic sense becomes highly acute The slightest noise will prove startling As the infant lies quietly in bed or on the examining table, a sudden sound, such as the closing of a door or the dropping of a metallic instrument on the floor, will cause it to start violently and jump This manifestation has been termed hyperacusis As the condition progresses, this starting at noises may finally be the cause of the convulsions noted in such infants These may be tonic or clonic and last for a period of several minutes

The infant gradually becomes emaciated with wasted and paralyzed musculature, loses its ability to suck and swallow, and finally dies of inanition The duration of the disease is from one and a half to two years after the occurrence of the first symptoms

The reflexes are usually exaggerated and a positive Babinski sign may often be elicited The pupillary reflex may be sluggish and the optic disk may show some atrophy The characteristic eye sign described by Warren Tay will be found in an examination of the fundi, where a cherry red spot surrounded by a white patch is noted in the region of the macula in each eye

The symptoms already noted, gradually increasing weakness and apathy, the hyperacusis and convulsions, with inanition, culminating in idiocy, together with the loss of vision, optic atrophy and pathognomonic cherry red spot of the macula, should make the diagnosis unmistakable

The disease is supposed to occur exclusively in infants of Jewish parentage of Russian or Polish origin This racial occurrence is the only definite etiologic factor known for the disease and even this is not certain, as its occurrence has been noted in infants of other races

Syphilis, alcoholism, infection, nicotine poisoning or tuberculosis seem to play no part in the cause The outcome seems to be invariably fatal

In recent years, amaurotic family idiocy has been linked with diseases of lipid metabolism, such as lipid histiocytosis, or Niemann-Pick disease Some writers have also included Gaucher's disease and essential xanthomatosis in this group All these conditions are disturbances of lipid metabolism, but sufficient evidence has not yet made it possible to group them together on a common etiologic basis

A late infantile type of amaurotic family idiocy is said to begin at the age of 4 or 6 and take a course somewhat similar to the infantile type without the macular change

## DESENSITIZATION TO MILK ALLERGY IN A CHILD

To the Editor—A child aged 3, suffers from asthma due to an allergic response to milk as shown by a skin reaction and by freedom from attacks while on a milk free diet with return on the reintroduction of milk. Is it possible to prepare milk to be used for desensitization, in the office with ordinary equipment and from ordinary milk? If so please give particulars. I should like to avoid the expense of the usual commercial desensitization set if this can be done without danger to the patient. Please omit name and initials.

M D, Maine

ANSWER—The hypodermic desensitization or injection treatment for foods is seldom necessary, since it can be usually accomplished more successfully and with much less expense at home, by daily ingestion of that food. In instances in which home cooperation is not of the best, such a procedure might be advisable. Hypodermic desensitization to foods has its greatest usefulness in those instances in which the contact with the food material is by inhalation rather than by ingestion, as, for example, in bakers sensitive to wheat.

The procedure of choice in oral desensitization is to administer orally small amounts of the guilty food. Daily doses of the food are taken. The first portions are very small. In the case of milk, one drop of milk in a glass of water would be sufficient to start with, then two drops, and so on. The rate of increase varies with the degree of sensitiveness of the individual. By diligent application it is often possible to attain a practical tolerance in from six to twelve months, that is, by the end of the period the patient may be able to take a glass of milk without the production of symptoms.

It would be rather difficult to prepare milk for hypodermic administration in the office, to compare with a commercial desensitization set. First of all, the cream must be removed. Then the casein, precipitated by the addition of rennin must be filtered out through a Berkefeld filter. The filtrate must then be sterilized by boiling and diluted with phenolized salt solution (physiologic solution of sodium chloride to which 0.4 per cent phenol has been added) into solution of 1:10,000, 1:1,000, 1:500 and 1:100. These liquid extracts should be kept cool, preferably in the refrigerator. Warmth and high dilutions tend to cause rapid decrease in the potency. The office preparations of these allergens by one not experienced at such work would be somewhat risky.

## TREATMENT OF WARTS ON FACE

To the Editor—A Negro aged 40, for the past six months has had a wartlike eruption on the face. The lesions are typically filiform and wartlike in character, millet seed in size, dry, and uniformly distributed over the bearded area of the face and chin. There is no itching, no exudation, no ulceration and no evidence of inflammation. The patient has a positive history for syphilis with treatment fifteen years ago. The Wassermann reaction at the present time is negative. He presents no clinical evidence of syphilis. What is your opinion as to the diagnosis, prognosis and therapy in this case? Please omit address.

M D, New York

ANSWER—Two possibilities are suggested. If the lesions are soft, they are pendulous soft fibromas, often seen but seldom so numerous, and easily eradicated by clipping them close to the skin surface and touching the spot with a small cautery point at red heat.

If the little tumors are horny, there should be many still smaller flat topped ones among the filiform ones. The diagnosis of common verruca seems highly probable. In this case shaving should be interdicted, for it will propagate warts faster than any treatment can eradicate them. An antiseptic lotion, such as corrosive mercuric chloride 1:1,000 in 50 per cent alcohol, should be used after clipping the beard with scissors, with care to avoid the warts.

Touching each wart several times a day with Vlemmink's solution, liquor calcis sulphuratae, or 10 per cent salicylic acid in alcohol may in time cure them.

They can be curetted, each base dried by pressure with a sponge saturated with the antiseptic solution mentioned, preferably in this case with alcohol, then each base touched with phenol, tincture of iodine or trichloroacetic acid. Each wart can be desiccated with the high frequency current with care to avoid scarring. G. C. Andrews (Diseases of the Skin, Philadelphia and London, W. B. Saunders Company, 1930, p. 877) recommends removal of the burned tissue after desiccation and half an erythema dose (150 roentgens) of unfiltered roentgen rays to the area.

Without the desiccation roentgen rays in moderate dosage—less than necessary to produce erythema—will sometimes cure them.

Mercury compounds by mouth or intramuscular injection, bismuth compounds intramuscularly, and various forms of arspenamine have all been used for the treatment of multiple warts with more or less success.

The psychic treatment of warts has been attracting much attention of late years, fostered chiefly by Bloch, who succeeded in curing a large percentage of cases by suggestion. A recent contribution to this time honored method is that of H. V. Allington (Sulpharsphenamine in the Treatment of Warts, *Arch. Dermat. & Syph.* 29:687 [May] 1934), who tested the value of sulpharsphenamine in the treatment of warts—a subject of controversy for years. Allington treated a series of fifty-five cases of warts with sulpharsphenamine injected intramuscularly, and a parallel control series of sixty-one with distilled water colored to match the sulpharsphenamine solution and injected in the same way. The injections of water cured nearly as large a percentage of cases as the sulpharsphenamine.

Another interesting contribution along this line is the work of F. E. Cormia (Autolysate Therapy for Verruca Vulgaris, *Arch. Dermat. & Syph.* 30:44 [July] 1934), who tested the method of Biberstein, who successfully treated warts with an autolysate of each individual's own warts. Cormia, in trying this method, intentionally discouraged his patients to reduce the probability of obtaining a cure by suggestion and in twelve cases treated succeeded in curing only two.

Just how much treatment of warts is chemotherapy, electrotherapy, or actinotherapy and how much psychotherapy is difficult to say, but it is evident that much more of it than the physician suspects is psychotherapy.

## ALOPECIA AREATA

To the Editor—A woman aged 30, has been suffering for several years from extreme loss of hair. At times her hair almost completely comes out. Then a new growth appears. At present there is a bald area about 6 inches in circumference. She has no children and the past history is negative in regard to this disease. She has been treated by at least a half dozen skin specialists with no results whatever. Naturally she is greatly alarmed in view of the fact that no doctor as yet has been able to prescribe or give her any relief. I have given her arspenamine treated the condition locally with various prescriptions, tried thyroid extract and pituitary extract, and administered various tonics internally. On examination the heart, lungs, kidneys, blood pressure and blood are all normal. If possible, could you suggest from the symptoms anything that would be wise to give her? Kindly omit name.

M D, Georgia

ANSWER—The patient is suffering from alopecia areata. The history of recurring attacks of loss of hair is quite characteristic of this disease, especially the fact that at present there is one bald area 6 inches in circumference. The exact cause of alopecia areata is not known. Certain cases are due to severe nervous shock or psychic disturbance. In some instances the disease seems to be linked up with metabolic disturbances or with foci of infection. Many times the physician is unable to find any explanation for the trouble. Despite the comment as to lack of results from treatment by skin specialists, the best advice is reference to a specialist in this particular line of work for even the men best versed in dermatology may have difficulty in coping with such a trouble. In the way of treatment one should, of course, endeavor to remove any possible factor of causation, for example, impacted or infected teeth or infected tonsils. Local treatment consists in the use of stimulating measures, for example, the use of stronger ammonia water rubbed well into the areas twice a day, or the use of a 1 per cent pilocarpine lotion made up in equal parts of rose water and perfumed spirit, N. F. Quartz lamp therapy up to the point of erythema doses is also of value in this condition. In a case in which there is a history of frequent recurrences of the disease, the prognosis is guarded.

## DIFFERENTIAL DIAGNOSIS OF COLDNESS OF FEET WITH SORENESS

To the Editor—A man aged 26, weighing 145 pounds (66 Kg.) complains of soreness and aching in the soles of the feet, up the calves of the legs and across the back. His feet are almost always cold, winter and summer. The blood pressure is normal. The Wassermann test is negative. It affects him mostly when he is standing and the feet are cold from the ankles down. There is no discoloration of the toes alternating hyperemia or anemia. He feels tired. His feet sweat a good deal. There is no pain in his legs at night.

JOHN L. HEALY, M D, Newport, R. I.

ANSWER—The symptoms suggest the following possible diagnoses:

1. Some infectious process in the nerves, muscles or joints, such as early arthritis, or fibrositis secondary to some infection. A roentgenogram of the feet should be made for possible demonstration of arthritic changes in the small bones. Tenderness along the nerve trunks, or local tenderness in the muscles, should be sought. The treatment for this would be



baking and massage, salicylates internally, and removal of any foci of infection. Autogenous vaccine might be tried.

2 Structural defects in the feet. Occasionally this type of pain, bilaterally, is seen with marked grades of flatfoot. Therapeutic tests can be carried out by placing a transverse bar on the sole of the shoe. If no relief is obtained from this treatment, the condition is not present.

3 One of the various neuroses that accompany conditions of general fatigue, which express themselves in the extremities. The treatment of these states of local fatigue is based on measures to improve the general health, such as vacations and relief from environmental strains. Many of these patients are constitutionally inadequate. The diagnosis should be made only after careful examination and absence of organic changes.

4 A condition, observed in young men with cold clammy feet associated with pain on standing, which for want of a better term can be called "vasospastic painful feet." This condition, however, has never been described as a clinical entity. Usually the distress is relieved when the extremities have been warm for a time. A diagnostic test can be made by placing the feet in warm water, or under a radiant heater, to see whether any relief is obtained. This condition may overlap a little with that described first, for the pain probably has a twofold basis, an infectious process, such as early arthritis and intermittent ischemia of the tissues. The description of the complaint suggests this diagnosis. The injection of foreign protein intravenously (small doses of Lederle's triple typhoid vaccine in doses of from 5 to 10 million every three or four days) sufficient to produce one or two degrees of fever may give considerable relief. In addition, physical therapy and contrast baths may help.

These provisional diagnoses are made on the assumption that pulsations in the lower extremities are normal and that there is no gross neurologic condition present that could cause distress in the extremities.

#### REDUCTION OF LOCAL OBESITY

*To the Editor*—A patient of mine, an unmarried woman aged 26 presents as a chief complaint extreme obesity of the legs from the knees to the ankles. Her past history is negative; she never had lymphangitis or phlebitis. Her general health is good and the rest of the body has normal proportions. She has had these very fat legs ever since she can remember say as a child of 7 or 8 but they became more conspicuous as she grew up and are very embarrassing to her. Is there anything that can be done about this disfiguring localized obesity? Please omit name.

M D, New York

*ANSWER*—The reduction of local accumulations of fat is a difficult and uncertain matter. General weight reduction accompanied by vigorous exercise of the affected parts is sometimes successful. Dancing and rope skipping would be the exercises of choice in this case. A brisk rubdown with massage of the affected parts after exercise periods, might also help. If the patient is not overweight the reduction diet should be intermittent so as not to cause too much general weight loss. The exercises, however, should be maintained indefinitely, since there appears to be an increased tendency for the deposition of fat around well developed muscles, once the exercise of those muscles ceases.

#### HEARING DEVICES IN OTOSCLEROSIS

*To the Editor*—I have under my care a woman single aged 20. Ten years ago she noticed that she was having difficulty in hearing. At that time her physician advised removal of tonsils and adenoids which was done by a competent specialist. The deafness has progressively grown worse. She also has developed a constant roaring and at times thumping in the entire head. Politzerization of the tubes has not improved either the deafness or the tinnitus. Physical examination is entirely negative. Aural examination is likewise negative. The patient can hear through bone conduction. All other ear tests are negative. Blood and urine examinations are negative. There is no history of scarlet fever or other infectious diseases and the patient has not taken any medicines. Her habits are normal in all respects. Could you advise me what can be tried to help this young woman? She refuses to use any of the standard appliances for the deaf or hard of hearing because they can be seen. Is there any apparatus that can be worn without detection? If you can suggest anything I would greatly appreciate it. Please omit name.

M D, New York

*ANSWER*—So far as one may judge from the history submitted the case is probably one of otosclerosis (or spongification), as evidenced by the facts that there is no change in the drum membrane, that inflation does not improve the hearing, that the patient is a female, that the disease started early in life, that there is tinnitus and that the bone conduction is good. In this condition the bone conduction is usually prolonged as compared with a normal individual when tested in the usual environment. For all cases in which there is good bone conduction,

those hearing devices which have an attachment that can be placed and held firmly against the mastoid process are of considerable assistance. Several of the electrical hearing devices now on the market have this bone conduction attachment, among them being the appliances manufactured by the Sonotone Company and the Western Electric Company. Women can easily wear this head appliance so that it is not visible, because the band that holds it in contact with the skull may be hidden under the hair.

#### HEADACHES AT MENSTRUAL PERIODS

*To the Editor*—I have a patient aged 41, who complains of severe headaches and vomiting every week end. They are always worse during the menstrual period. While having these attacks she is nervous. Her menstrual periods are regular but scanty at times and at other times normal in the amount of blood. She has a few cramps but they are not marked. She has had similar attacks before but not so often. They have been usual at every menstrual period since she started to menstruate at the age of 12 years at which time she was in bed for a week. She has two children, one 9 years of age and the other 13 months. I did not take care of her during her first pregnancy but I did during the second and she had no symptoms of headaches or vomiting during the nine months or for four months after delivery at which time they started again and have gradually become worse. What line of treatment would you recommend? Please omit name.

M D, Illinois

*ANSWER*—Headaches associated with vomiting, occurring at the menstrual period, may or may not be due to hormone disturbances. Allergic and psychogenic factors may likewise be important. The fact that the patient has attacks every week suggests also that fatigue may be a contributing cause. The regularity of exacerbations of the headache at the menstrual periods does not necessarily point to hormone unbalance as the cause, a psychogenic origin arising in the prepubertal period is more than likely. Headaches with vomiting due to allergy would not usually follow a weekly rhythm.

Treatment should first consist in psychotherapy along psychoanalytic lines. If psychoanalysis is not feasible, at least a psychologic analysis should be made to discover if possible a reason for revolt against menstruation. Perhaps a rational explanation of the physiology of reproduction given to the patient will suffice.

#### RESECTION OF NASAL SEPTUM

*To the Editor*—I would appreciate any information you can give me as to the advisability of having a resection of a deviated nasal septum in a case of chronic sinusitis, also the consensus as to the benefits that are derived from such a procedure. Will such an operation reduce the frequency and the severity of an attack of rhinitis and sinusitis? Please omit name.

M D, Connecticut

*ANSWER*—If a deviation of the nasal septum is such as to interfere with drainage from the nasal accessory sinuses, the submucous resection is advisable. In some of these cases a sharp deviation presses the middle turbinate close to the nasal lateral wall, causing marked obstruction to drainage by way of the middle meatus. It is then best to infract the middle turbinate toward the median line and provide more space in the region of the middle meatus.

Occasionally, marked thickening of the posterior portion of the septum may interfere with drainage from the posterior ethmoidal cells, and in such case submucous resection would also be of considerable aid in facilitating drainage. Even with increased air space it is doubtful whether one may say that the straightening of the nasal septum will reduce the frequency or severity of rhinitis or sinusitis, but, when the infection of the sinus does occur the improvement of space for drainage will often aid in shortening the attack either spontaneously or as a result of treatment.

#### EPILEPSY

*To the Editor*—A man aged 36 tells me that as a baby almost from the day he was born until he was about 8 years of age he had epileptic fits almost every day. These stopped at this age and have never recurred. He is a fine specimen of manhood of foreign birth, his nervous system is apparently all right and his physical condition excellent. To his knowledge this is not a family characteristic. He has asked me what are the chances of his children being epileptic should he marry. Is he ever likely to have this condition return? Please omit name.

M D, New York

*ANSWER*—Epileptiform seizures in infancy are most frequently due to some acquired cerebral damage and are not of the same nature as cryptogenic (idiopathic) epilepsy. It is in the latter that hereditary influences play an important part. The history given in this case suggests that the man will remain free from attacks and since the lesion was probably acquired that there is no likelihood of a condition of epilepsy being transmitted to his children.

### CREDE METHOD AND VISION

*To the Editor*—Does the use of the old Crede treatment of a baby's eyes at birth (2 per cent silver nitrate immediately neutralized by physiologic solution of sodium chloride) ever cause permanent impairment of vision? Is there such a thing as an idiosyncrasy to silver nitrate used in eyes in 2 per cent strength? At about what age does a child use his eyes for vision? At about what age are the eyes fully developed? Kindly omit name

M D Illinois

**ANSWER**—The old Crede method of using 2 per cent (or preferably 1 per cent) silver nitrate in the eyes at birth will never cause permanent impairment of vision, provided the proper technic is followed. In the cases in which damage has been reported, either the silver solution was too strong or the neutralization was postponed too long. As far as is known, there is no idiosyncrasy to 2 per cent silver nitrate. A rather severe reaction may follow the use of a solution of that strength if there has been failure to neutralize completely all the caustic agent. A child has vision at birth, but central vision, as known to the adult eye, is absent until differentiation of the macula has taken place. This starts between the fourth and sixth weeks post partum and is usually complete by the third month. The eyes are fully developed between the eighth and tenth years of life.

### REMOVAL OF TATTOOING

*To the Editor*—I would like to have your opinion as to the therapeutic value of the following prescription for the removal of tattooing taken from Fitch's Medical Formulary. First the skin is vigorously rubbed until the outer epidermis comes off, then a paste of quicklime, just slacked, to which pulverized phosphorus (two tablespoonfuls to a pint) is added and thoroughly mixed is applied to the tattooed surface and held by a bandage which is taken off two days later. The crust is left to dry and then fall off itself in about fifteen days. A second application should be made a third is rarely necessary. Thus treated the tattooing disappears completely without the least scar.

JOHN S HATTERY M D, Mansfield Ohio

**ANSWER**—There are many methods of removing tattoo marks, some of them fairly satisfactory, others less so. The claim for any one of them that "the tattooing disappears completely without the least scar" appears to those experienced in the use of the older methods somewhat exaggerated. If this claim is warranted, all other methods are due to be forgotten.

No opinion of any method for the removal of tattooing is of value except that acquired by actual experience. In the use of any method, the area treated at any one sitting should be not over 2 cm in diameter. This is particularly true in experimental work. Most methods of removal require local anesthesia. Powdered phosphorus is red phosphorus, which is nontoxic.

### THERAPEUTICS OF GARLIC

*To the Editor*—Recently two patients, one with cholecystitis and the other with arterial hypertension, have been extolling the therapeutic virtues of garlic. The vegetable has been prescribed uncooked and in considerable quantities. Are the beneficial results attributed to its ingestion due to some vitamin or are they purely psychologic in nature? I have not seen any literature on the subject.

H B HANSON, M D, Fort Brown Texas

**ANSWER**—Externally, garlic may be used as a rubefacient. Internally it is useful as a carminative—in flatulence—and thus gives symptomatic relief to a patient with cholecystitis. Taken in liberal doses it has a tendency to dilate the blood vessels of the skin, ordinarily one hour after its ingestion, an effect that lasts for several hours and may possibly be of use in arterial hypertension. Its psychic qualities—the offensive odor it imparts to the breath and the sweat—are probably the chief cause for its limited use.

### CHRONIC GONORRHEA IN WOMEN

*To the Editor*—I have fallen heir to two cases of chronic gonorrheal proctitis in young unmarried girls. Hot permanganate douches three times a day and triweekly injections of metapen into the cervix have been used. Both cases now show only pus cells in repeated smears. Am I dealing now with a secondary staphylococcal invasion? There are no cervical lesions. The discharge is mucoid and in one case absent except immediately following menstruation. What is the chance for complete cure medically? What are the prerequisites for dismissal? When may these girls marry? What about diathermy in these cases? Please omit name.

M D Ohio

**ANSWER**—From the description of these two cases it would appear to be reasonable to assume that the chances for complete cure are excellent. Before the patients are discharged as cured or before permission to marry is given the following program should be carried out. The urethra, Skene's glands and Bartholin's glands should be carefully examined for the presence of pus and if present this should be examined for the

presence or absence of gonococci. After three negative slides have been obtained from each of these sources, preferably one week apart, cultures should be made on special culture mediums to demonstrate the presence or absence of gonococci. Whether a secondary invasion due to the staphylococcus is present can be determined by microscopic examination of smears. It does not appear that diathermy is indicated in these two cases.

### TOXICITY OF CARAWAY SEEDS

*To the Editor*—I have a patient, aged 28 who has the habit of eating a 10 cent box of caraway seeds each day and recently has been complaining of headaches, loss of weight and general nervousness. Will you please tell me the effect of caraway seeds on the human body, provided the woman has been using this preparation for the past four years? She eats the seeds.

RAYMOND H LEU M D, New Martinsville W Va

**ANSWER**—Oil of caraway is known to produce headache, dizziness and delirium in acute poisoning, and it is not unreasonable to suppose that the symptoms complained of may have something to do with this most unusual practice. The chronic ingestion of excessive quantities of substances containing volatile oil, such as caraway seed, is likely to affect unfavorably the parenchyma of the liver and kidney. A study of the functional condition of these organs should be made in this case.

### KALA AZAR

*To the Editor*—Please advise whether it would be possible or probable for a child about 3 years of age to have a case of kala azar who had never been out of the state of Texas and had no contact with any one that could have had this disease. Would it be possible that it could be transmitted by toys after they had come through the regular channels of trade? Please omit name.

M D, Texas

**ANSWER**—In the present conception of the etiology of the disease this would be considered impossible. All evidence points to an insect vector for kala-azar, most probably a species of the sand fly *Phlebotomus*. It is inconceivable that such insects could be transported by toys. In addition, all known facts of the epidemiology of the disease are opposed to this method of transmission or to spontaneous cases occurring in the United States.

### DIFFERENTIAL DIAGNOSIS IN ARTHRITIS

*To the Editor*—I have a patient aged 37 who has a chronic arthritis of three years' duration. He has taken salicylates and cinchophen without relief. At the age of 16 he had gonorrhea which cleared up promptly under treatment and has not recurred. He has a boy 8 years of age and his wife has shown no symptoms. The arthritis is a migratory one and has affected his fingers, hips, shoulders and knees. The question in my mind is whether this is an infectious arthritis or whether it might be gonorrheal. Would a complement fixation test help at this time?

FREDERICK B DEWITT M D, Oneonta N Y

**ANSWER**—This is a case of rheumatic arthritis and should be considered infectious. It might be due to the gonococcus. The complement fixation test may or may not be of value as an etiologically diagnostic agent. It is true that in many of these cases the original gonococcal infection sensitizes the patient to an infection that may occur later.

### SOLUTION OF EPHEDRINE

*To the Editor*—What is the best method of dissolving ephedrine alkaloid in light mineral oil to make a 1 per cent solution? It seems not to be readily dissolved. Should a preservative be added and if so, what? Is it true that the alkaloid is much more effective for local shrinking action than the salt? Please omit name.

M D Connecticut

**ANSWER**—One Gm of ephedrine dissolves readily in 100 cc of liquid petrolatum by the aid of water bath heat. To obtain a clear solution the ephedrine must be dry or the solution filtered through dry filter paper. Some ephedrine (base) on the American market contains water of hydration or "sensible moisture." This will not dissolve in liquid petrolatum but requires addition of other solvents or filtering out of the water.

Preservatives that do not change the nature of the substance are not known. The solution should be well protected from light and heat, and it should be prepared in small enough volume so that it will be used up in about three months.

Ephedrine salts are not soluble in liquid petrolatum, therefore they would not be available for preparing oil sprays. The aqueous solution of the salt will have a prompter but more transient effect than the oil solution of the alkaloid. Usually the latter effect is desired. There have been introduced other vasoconstrictors as Symphephrine Tartrate, Neosymphephrine and Benzadrine; the latter is volatile and may be used in a nonliquid type of inhaler (inhalator tubes).

## LEUKORRHEA IN PREGNANCY

To the Editor—I have observed quite a few cases of an irritating leukorrhea producing inguinal dermatitis and excoriations in several of my prenatal cases. This leukorrhea has not appeared until the last two months of pregnancy and there has been no evidence of any infection gonorrheal or otherwise prior to the last two months. I have talked with a number of my colleagues, who state that they are familiar with the condition but are also in the dark as to the best mode of treatment. The data that I have given are limited but is there any physiologic or etiologic explanation for this annoying condition? Since one does not ordinarily use douches the last two months of pregnancy, what would be the best mode of treatment? Please withhold name.

M D California

ANSWER—Pressure and congestion are, of course, the chief factor in predisposing to discomforting leukorrhea during the late months of pregnancy. Less well recognized, an increased sugar content in the urine and in the serum of the genital secretions at this time is also important in producing low grade vulvovaginal infection.

The carbohydrate intake of these patients should be restricted. Although local treatment of any sort is advocated with hesitancy in the late months of pregnancy, dry cleansing of the lower part of the genital canal and gentle use of astringent topical applications may be resorted to in selected cases. Aseptic technic is imperative.

## SILICA AS A HAZARD IN SOAP FACTORIES

To the Editor—Will you please let me know if the hazard of silicosis exists among workers in various soap factories?

MOSES J STONE M D Boston

ANSWER—Silicosis is a hazard in those soap factories using silica (SiO<sub>2</sub>) in the manufacture of abrasive soaps. Others may make use of silicates for abrasive purposes and the possibility of silicosis exists. As a filler for some soaps sodium silicate is employed in liquid form. This use of a silicate is dissimilar to the employment of such others as pumice for detergent purposes. Cases of silicosis originating in soap factories are well known. It has been stated that the coexistence of silica and alkali dusts in soap plants is conducive to an accelerated form of silicosis to which the term "acute silicosis" has been applied. This accelerating or aggravating action of alkalis is not definitely proved, but in any event certain cases of silicosis among soap workers rapidly have progressed to disability and to death.

## BELCHING WITH AEROPHAGIA

To the Editor—I have a patient aged 34 a white woman who has had severe attacks of belching of almost a hiccup like nature for the past year. They occur several times a day with no relation to meals or diet. Belladonna, alkalis and barbituric acid sedatives have no effect. Physical examination is not remarkable except for a slight systolic murmur and for sterculation under the eyes. Urinalysis is negative. There is no pain and the patient sleeps well. Could you suggest the possible diagnosis and treatment? Please omit name.

M D Alabama

ANSWER—The information submitted in this question is too meager to furnish any definite idea as to the possible cause. The fact that the patient has indulged in this form of belching for years suggests that it is functional in character. However, it may be of reflex origin from some disturbance in the biliary or gastro-intestinal tract. Some form of psychotherapy might be suggested after a complete investigation has been made and the patient assured of the absence of organic trouble. One might let the patient observe in the course of the fluoroscopic examination of the stomach that she actually swallows air every time that she belches. This kind of evidence of the absence of gas formation in the stomach has at times striking suggestive therapeutic effect.

## FUNCTION OF FETAL KIDNEYS

To the Editor—In THE JOURNAL July 14 page 126 is a query regarding the fetal kidneys and their function. I should like to mention the results of a necropsy at the Greenpoint Hospital in September 1933. A new born male child presented a completely imperforate urethra. The bladder showed muscular hypertrophy and submucosal hemorrhages. Both ureters were markedly torse and showed a segmental dilatation which at some points almost resulted in stricture. Both kidneys were polycystic. The bladder contained urine and the renal cysts contained a urinous fluid. About 500 cc of fluid was free in the abdomen. There was no evidence of hepatic abnormality. There was no cardiac dilatation. It can be presumed here that fetal secretion of urine was present. With complete closure of the urethra the muscle wall of the bladder hypertrophied in a vain attempt to expel its contents and even causing submucosal hemorrhages. Back pressure could effect the dilatation and torsion of the ureters and may have been an etiologic factor in the production of bilateral polycystic kidneys. Whether hypertension was present or not is not known.

SAMUEL WALDMAN M D Brooklyn

Council on Medical Education  
and Hospitals

## COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written (Group B candidates)* The examination will be held in various centers throughout the country Oct 1 *Oral (Group A and Group B candidates)* San Antonio Texas Nov 13 16 Sec Dr C Guy Lane 416 Marlborough St Boston

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written (Group B candidates)* The examination will be held in various cities of the United States and Canada Nov 3 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY San Antonio Texas Nov 13 Philadelphia June 10 *Application must be filed at least sixty days prior to date of examination* Sec Dr William H Wilder 122 S Michigan Blvd Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY San Antonio Texas Nov 16 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

ARIZONA Phoenix Oct 23 Sec Dr J H Patterson 320 Security Bldg Phoenix

CALIFORNIA Sacramento Oct 15 18 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

COLORADO Denver Oct 2 Sec Dr Wm Whitridge Williams 422 State Office Bldg Denver

CONNECTICUT *Basic Science* New Haven Oct 13 *Prerequisite to license examination* Address State Board of Healing Arts 1895 Yale Station New Haven

GEORGIA Atlanta Oct 9 10 Joint Secretary State Examining Boards Mr R C Coleman 111 State Capitol Atlanta

IDAHO Boise Oct 2 Commissioner of Law Enforcement, Hon Emmitt Pfost 205 State House Boise

ILLINOIS Chicago Oct 16 18 Superintendent of Registration Department of Registration and Education Mr Eugene R Schwartz Springfield

IOWA Des Moines Oct 8 10 Dir Division of Licensure and Registration Mr H W Grefe Capitol Bldg Des Moines

MICHIGAN Lansing Oct 9 11 Sec Board of Registration in Medicine Dr J Earl McIntyre 202 34 Hollister Bldg Lansing

MINNESOTA *Basic Science* Minneapolis Oct 23 Sec Dr J Charnley McKinley 126 Millard Hall University of Minnesota Minneapolis *Medical* Minneapolis Oct 16 18 Sec Dr E J Engberg 350 St Peter St St Paul

MISSOURI Kansas City Oct 24 State Health Commissioner Dr E T McCaughy State Capitol Bldg Jefferson City

MONTANA Helena Oct 2 Sec Dr S A Cooney 7 W 6th Ave Helena

NATIONAL BOARD OF MEDICAL EXAMINERS The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

NEBRASKA *Basic Science* Omaha Oct 23 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln

NEW HAMPSHIRE Concord Sept 13 14 Sec Board of Registration in Medicine Dr Charles Duncan State House Concord

NEW JERSEY Trenton Oct 16 17 Sec Dr James J McGuire 28 W State St Trenton

NEW MEXICO Santa Fe Oct 8 9 Sec Dr P G Cornish Jr 221 W Central Ave Albuquerque

NEW YORK Albany Buffalo Syracuse and New York Sept 24 27 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany

OKLAHOMA Oklahoma City Sept 11 12 Sec Dr J M Byrum Mammoth Building Shawnee

RHODE ISLAND Providence Oct 4 5 Dir Public Health Commission Dr Lester A Round 319 State Office Bldg Providence

WISCONSIN *Medical Reciprocity* Green Bay Sept 11 Sec Dr Robert E Flynn 401 Main St La Crosse *Basic Science* Madison Sept 22 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee

WYOMING Cheyenne Oct 1 Sec Dr W H Hassel Capitol Bldg Cheyenne

## Florida June Examination

Dr William M Rowlett, secretary, State Board of Medical Examiners, reports the examination held in Jacksonville, June 11-12, 1934. An average of 75 per cent was required to pass. Seventy-three candidates were examined, 66 of whom passed and 7 failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
College of Medical Evangelists		(1924)	90 1
Atlanta Medical College		(1915)	86 8
Emory University School of Medicine		(1926)	84 7
(1929) 80 2 (1930) 82 3 (1931) 84 7 88 2 (1932) 82 3 85 2 85 2 86 8 (1933) 85 1 85 4 86 1 (1934) 86 2 87 7			
University of Georgia School of Medicine		(1932)	81 6
(1933) 86 9 (1934) 81 6 82 5 82 9			
Loyola University School of Medicine		(1918)	82 8
Northwestern University Medical School		(1898)	90 1
(1927) 79 9 (1930) 81 6			
Rush Medical College		(1931) 91 8	(1934) 91 9
University of Kansas School of Medicine		(1925)	85 2
University of Louisville Medical Department		(1914)	75 8
University of Louisville School of Medicine		(1933)	84 6
Tulane University of Louisiana School of Medicine		(1934)	79 8
83 7 85 8 86 6 87 88 9			
Harvard University Medical School		(1932)	92 5
Tufts College Medical School		(1931)	87 2
Columbia University College of Physicians and Surgeons		(1901) 76 7 (1906) 86 9	(1908) 82 1
Syracuse University College of Medicine		(1911)	76 9

University of Buffalo School of Medicine	(1929)	85.8
Duke University School of Medicine	(1933)	82.7
North Carolina Medical College	(1908)	82.4
University of Cincinnati College of Medicine	(1911)	83.9
(1930)		89.9
Western Reserve University School of Medicine	(1933)	90.6
Medico-Chirurgical College of Philadelphia	(1909)	82.4
University of Pennsylvania Department of Medicine	(1905)	80.6
University of Pennsylvania School of Medicine	(1933)	83.4
Meharry Medical College	(1933)	85.1
University of Nashville Medical Department	(1905)	76.5
University of Tennessee College of Medicine	(1917)	76.5
(1932) 78		81.7
University of Tennessee Medical Department	(1909)	80.4
Vanderbilt University School of Medicine (1917)	(1926)	89.1
University of Vermont College of Medicine	(1932)	88.9
Medical College of Virginia	(1931)	81.5
University of Virginia Department of Medicine	(1896)	84.4
<hr/>		
School	Year	Per
	Grad.	Cent
Birmingham Medical College Alabama	(1911)	72.4
Columbian University Medical Department D C	(1901)	71.3
Atlanta College of Physicians and Surgeons	(1913)	73
Atlanta Medical College	(1897)	72.4
Long Island College Hospital	(1908)	69.9
Medical College of Ohio	(1897)	68.7
Jefferson Medical College of Philadelphia	(1880)	47.9

### Vermont June Examination

Dr W Scott Nay, secretary, Board of Medical Registration, reports the written examination held in Burlington, June 20-22, 1934. The examination covered 12 subjects and included 90 questions. An average of 75 per cent was required to pass. Twenty-two candidates were examined, all of whom passed. The following schools were represented:

School	Year	Per
	Grad	Cent
Tufts College Medical School	(1933)	86.6
University of Vermont College of Medicine	(1933)	75.1
76.5 * 80.1, 81.2 * 84.7 (1934) 79.6 * 80 * 82.5 * 83.7 *		
83.9 * 84.1 * 85 * 85.2 * 85.3 * 85.5 * 86.3 * 86.8 *		
86.9 * 89 * 89.3 *		
McGill University Faculty of Medicine	(1933)	80.1
* License withheld pending completion of internship		

## Book Notices

**Brucellosis A Public Health Problem** By Ward Giltner. Agricultural Experiment Station Michigan State College of Agriculture and Applied Science. Section of Bacteriology. Memoir No 1. Paper. Pp 118. East Lansing Mich 1934.

The author has successfully achieved his purpose in conducting this study, namely, to provide practitioners of human and veterinary medicine with a broad but concise statement of the present knowledge of the *Brucella* (Alcaligenes) diseases of animals and man. Due importance is also given to the problem as it relates to the owners of susceptible livestock and to those who are concerned with industries that deal in animals and animal products. The author possesses qualifications for a synthetic statement of the problem. Under his direction, workers at Michigan State College have engaged for many years in a comprehensive study of *Brucella* infections. Giltner states that brucellosis (brucellasis) is certainly comparable in importance to bovine tuberculosis as a disease of cattle. The comparative importance of the two diseases of bovine origin is, however, directly influenced by the measures that have been taken to control the one or the other disease in cattle or otherwise to prevent their dissemination. In those states in which vigorous and successful campaigns against bovine tuberculosis have been carried out, the disease has been largely eliminated among other animals and human beings. In these areas, however, many cases of undulant fever of bovine origin have developed. *Brucella abortus* infection is most common in those countries in which there is a highly developed dairy cattle industry, it is transmitted to man by the ingestion of raw milk and its products, and by direct contacts with infected cattle. *Brucella suis* infection is confined almost exclusively to hog raising sections, it is transmitted to man by contacts, especially in hog packing plants, in the butcher shop, on the farm, or as a result of handling or eating infective pork. *Brucella melitensis* infection is most frequent in regions where the milch goat is a common source of milk and its products, man acquires the disease from the ingestion of raw milk and unpasteurized dairy products and from contact with affected goats, goat tissues or excretions. The prevention of brucel-

losis in man is essentially a problem in animal hygiene, the animal sources must be brought under control. Attempts are being made to eradicate the disease in cattle by blood testing and isolation or disposal of all reactors, disinfection of the premises and replenishing of the herd with nonreactors or by building up the herd from its own progeny. While this plan has great promise, it has been applied to an insignificantly small percentage of the dairy herds of this country. While experience with bovine tuberculosis and other diseases of cattle indicates that governmental financial aid and coercion make possible the practical eradication of cattle disease over considerable areas, Giltner does not consider it wise at this time to undertake such an extensive program with brucellosis of cattle, goats and swine. There is some evidence that preventive vaccination with Huddleson's avirulent live culture vaccine of *Brucella abortus* may be of some value as a supplement to the segregation plan. Pending the achievement of a brucellosis-free animal population or an acceptable immunizing agent, human beings must be protected from milk-borne infection by legally enforced or voluntary pasteurization of market milk and the milk to be used for dairy manufactures. An educational campaign designed to prepare producers, consumers and health enforcement officers should pave the way for protective legal measures.

One inconsistent statement is found. At one point the author says "At present there are those who would minimize the importance of consuming infective dairy products and magnify the importance of animal contacts. There is nothing to be gained by taking either stand." On another page appears this statement "At the present time there is sufficient information to indicate that Bang's organisms in milk are rarely responsible for producing undulant fever in human beings." On several other pages, convincing evidence appears that ingestion of raw milk containing *Brucella* organisms is a common source of infection. This contradiction does not detract, however, from the value of this monograph to the physician, public health worker, veterinarian or dairyman.

**Les traitements de l'hypertension artérielle** Par Maurice Roch, professeur de clinique médicale à la Faculté de Genève. Paper. Price 20 francs. Pp 148. Paris: Masson & Cie 1934.

This small, highly condensed monograph is one of a series on medical and surgical practice. It is clearly and concisely written and briefly covers the field designated by the title. All the more recent and important of the almost innumerable therapeutic measures in hypertensive disease are mentioned and an attempt is made to evaluate their worth. The critical discussion, however, is not as broad or as inclusive as one might wish. The plan and style are logical and simple. The work is an excellent summary of existing methods of therapy, there is perhaps a natural overemphasis of the choline derivatives and surgical sympathectomy. This is not surprising in view of the many French studies concerning these two lines of therapeutic attack. The bibliography is not voluminous but appears to be well chosen and contains more references to the American literature than is usual with work from the continent. The discussion is limited strictly to the problems and methods of therapy in hypertensive arterial disease and its commoner complications. This is unfortunate, as logical curative therapy must be based on an understanding of etiology and pathogenesis and therefore any truly complete discussion of therapy requires due emphasis of these. As a brief outline of present-day methods the volume is to be commended. It will have a definite place in the literature of hypertensive disease.

**Pathologie buccale. Péri buccale et d'origine buccale** Par les Drs Rousseau, Decelle et Raison. La pratique stomatologique. Publiée sous la direction du Dr Chompret et autres. Cloth. Price 85 francs. Pp 576 with 196 illustrations. Paris: Masson & Cie 1933.

The text is divided into two parts. The first is concerned with diseases primary in the mouth and the second with the manifestations in the mouth of diseases of other parts of the body. It is an encyclopedic presentation of stomatology and not strictly a pathology. For example, the parasitology, etiology, pathologic anatomy, symptomatology, prognosis and treatment of actinomycosis occupy ten pages, the symptomatology alone covers four and one-half pages. Such subjects as syphilis and tuberculosis are discussed in great detail, although on

the whole most diseases are treated quite briefly. In the section on deficiency diseases some hesitation is manifested in ascribing the etiology of rickets to a deficiency of vitamin D, and Melanby is placed as an American worker. Eighty-six of the illustrations are excellent drawings and the remainder are poor to fair reproductions of photographs. In the United States this book has some value for reference purposes.

**Developmental Psychology: An Introduction to the Study of Human Behavior.** By Florence I. Goodenough, Professor, Institute of Child Welfare, University of Minnesota. The Century Psychology Series. Edited by Richard M. Lillioth. Cloth. Price \$3. Pp. 619 with 81 illustrations. New York & London: D. Appleton-Century Company, 1934.

One logical way to teach psychology to beginners would be by showing the development of traits, mental functions and abilities with the increase in age of an individual. The present work is an admirable attempt to do this by showing ontogenically the mental capacity of the human child, the adolescent, and the mature and senescent adult. A well selected synthesis of facts about heredity and embryology, with emphasis on the nervous system, precedes chapters dealing with the infant before speech begins and after its onset. Succeeding chapters describe in chronological order the social, emotional and other characteristics of the mental life of the child through prekindergarten, kindergarten, school child and college student ages. Daily the genetic psychologists of the country are pouring out more experimental results, so that selection of these in such a way as to show how they fit together to form living personalities is no mean task. Goodenough has done it in a way that will give the beginning student an idea of modern psychology, and the present volume will quite likely supersede the stodgy structuralistic textbooks that are still being used in many institutions. It gives a decidedly better understanding of the mechanics of behavior than earlier textbooks. To the pediatrician and pediopsychiatrist it gives for the first time concise, systematic and annotated information about the normal development of gross functions (such as color vision or introversion) to be expected at definite periods of the life cycle. To these specialists it gives also an idea of some of the more useful psychologic techniques and the aims of modern psychology. However, the chapters on mental disease and old age are inadequate and unnecessary and might well be disregarded.

**Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern. Röntgenologische Skelettstudien an menschlichen Zwillingen und Mehrlingen. Ein Beitrag zu den Problemen der Konstitution und der Phylogenese.** Von Franz Buschke. Mit Geleitwort von H. R. Schinz. Mit Unterstützung der Stiftung für wissenschaftliche Forschung an der Universität Zürich. Fortschritte auf dem Gebiete der Röntgenstrahlen, Ergänzungsband XLVI. Herausgegeben von Prof. Dr. Grashof. Paper. Price 25 marks. Pp. 150 with 55 illustrations. Leipzig: Georg Thieme, 1934.

H. R. Schinz, professor of roentgenology in Zurich, in a prefatory word points out that the study of genetics is yet in its infancy and that an intensive study of human heredity did not begin until after the World War. He points out further that the study of twins is the most certain method for determining some of the relations between inherited and acquired characteristics.

Buschke, the author, says that the skeleton is in many respects a mirror by means of which the biologic changes in the organism can be read. The roentgen-morphologic analysis of the skeleton, especially of the growing skeleton, gives perhaps more exact information about the variations in the function of the endocrine organs than can be obtained in any other way. The author's purpose is to determine to what extent hereditary factors influence the development and individual form of the skeletal system. He presents the results of roentgenologic study of the skeleton in twenty-five pairs of identical twins, eighteen pairs of two egg twins of the same sex, seven pairs of two-egg twins of opposite sex, four sets of triplets, and one set of quadruplets. In form and structure of the skeleton there are marked concordances even to the smallest detail, in the identical twins, and corresponding discordances in the two egg twins. The discordances in the two-egg twins are less marked, however, than in two persons of the same age and sex who are not related. The order of ossification is in general constant. A distinction must be noted between centers which ossify in regular order and those which do not ossify in the same order in all persons. The latter centers usually ossify in the same

order in siblings, but there may be marked discordances, even in the identical twins. The time of ossification shows marked similarity in identical twins, dissimilarity in the two egg twins. Special peculiarities of ossification appear to be concordant in identical twins and discordant in two egg twins, though the author admits that the material is too meager for final conclusions.

The conclusions drawn from the investigation are discussed, and the results placed, as far as possible, in their proper relation to genetics. The possibility of evaluating the results with regard to the problem of evolution is indicated. The observations are clearly presented in fifty detailed tables accompanied by numerous roentgenograms. There are also six summary tables. Table 1 gives an outline of the whole investigation, table 2 a summary of the observations in identical twins, table 3 a summary of the observations in two-egg twins, tables 4, 5 and 6 indicate the order of ossification of the bones of the hand, elbow and foot in the various cases. Before discussing his own work, the author discusses briefly what is known about the biology of twins and the literature about the influence of heredity and environment on the morphogenesis of the skeleton. He also gives an excellent though brief bibliography on heredity, research in twins and multiplets, and bone development.

**Researches on Tropical Typhus. A Study of the Bacteriology, Serology and Epidemiology of the Disease.** By Iudwik Anigstein, M.D., Ph.D., Parasitologist to the State Institute of Hygiene, Warsaw, Poland. Studies from the Institute for Medical Research, Federated Malay States, No. 22. Cloth. Pp. 186 with illustrations. Kuala Lumpur: Kyle Palmer & Company Ltd., 1933.

The typhus-like disease first described under the name tropical typhus by Fletcher and Lesslar (*Bull. Inst. M. Res. F. M. S.* 1925, No. 2) has been the subject of the extensive investigations reported here in monographic form. Special attention has been paid to the symptomatology and Weil-Felix reaction in ninety cases of tropical typhus from the Oil Palm Estate (Selangor Province, Malaya), to the study of the experimental disease in guinea-pigs, rabbits and rats, to the bacteriologic studies and to the epidemiology of the disease, with particular reference to the rural and urban types.

The incubation period varied from eleven to twenty-one days. The disease was characterized by a rather sharp onset, a fever reaching 102 F. on the third or fourth day and increasing to 104 F. the next few days, followed by rapid defervescence, and inconstant rash which frequently attacked the face, symptoms of dysfunction of the central nervous system, enlargement of the lymphatic glands, a lymphocytosis of from 40 to 60 per cent with the absence of eosinophilic cells, and a death rate of about 14 per cent. The disease appeared to be particularly more virulent for Europeans than for natives.

Weil-Felix reaction carried out with the two *Proteus* organisms OX<sub>19</sub> and OXK showed that the reaction with OX<sub>19</sub> was just as specific for the urban (W) type of tropical typhus as for typhus exanthematicus, while a similar part was played by reactions with OXK for the rural (K or scrub) type of the disease. Patients' serum (of W type) when absorbed with living suspensions of the W strain had both the H and O agglutinins removed by the absorption. As regards thermostability, the behavior of the agglutinins in tropical typhus patients may be compared, in general, with that of typhus fever.

Guinea-pigs were found to have a marked resistance to experimental infection with tropical typhus, only 11 per cent showing a febrile reaction. A redness and swelling of the scrotum was noticed in 6 per cent of the guinea-pigs inoculated. Necropsies of the animals that reacted to inoculation disclosed normal or moderately enlarged spleens, enlarged suprarenal glands, hemorrhagic foci in the lungs, and congested meninges. Hemorrhagic gelatinous exudates in the polar fat of the testes, often with marked injection of the tunica vaginalis, were found in most of the male animals. Large numbers of micro-organisms corresponding to different phases of the rickettsiae that have been described from guinea-pigs with infections with Mexican typhus were observed in the smears from the tunica vaginalis. Thirty-five per cent of the rats inoculated were found to be susceptible and X<sub>19</sub> agglutinins were formed more readily in them than in the rabbit. The Weil-Felix reaction in rats and rabbits was found to be a reliable indicator of a specific infection.

Cultures were made from the blood of human cases on diluted Hottinger broth. After one week's incubation subcultures were made on a blood ascitic-agar medium, even though no visible growth could be seen on the primary cultures. A total of seventy-six strains of organisms were thus obtained from the blood and infected tissues of human patients and of infected laboratory animals and also from lice fed on patients. The organisms were highly pleomorphic, ranging from the classic rickettsial form to fusiform and "diphtheroid" rods and coccobacilli with bipolar staining. All were gram negative. Biochemically these strains fell into three groups, one of which contained strains showing the characteristics of the B proteus X group. Although most of the strains showed no serologic relationships to B proteus, they produced a positive Weil-Felix reaction in inoculated animals. Twelve of the strains, however, were serologically related to B proteus X. The virulence of the cultures for laboratory animals was highly variable in degree, the more virulent strains producing symptoms and pathologic changes similar to those produced by the original virus. These more virulent strains consisted usually of minute coccoid forms resembling rickettsiae. Micro organisms of this type were also found to develop in lice fed on tropical typhus patients and when inoculated into a rat they produced a positive Weil-Felix reaction to the XK strain. The transmission is not thought, however, to be effected through body or head lice.

The finding of a positive Weil-Felix reaction in 10 per cent of the wild rats indicated that they serve as animal reservoirs of scrub typhus. Since *Trombicula deliensis* is known to be a vector of tsutsugamushi in Japan, and since these mites were found to be common on rats in Malaya, it seems quite probable that some *Trombicula* mite may serve as the vector of scrub (or the rural type of tropical) typhus. The author inclines toward the belief that, in spite of the epidemiologic and serologic differences between the K and W types of the disease, the causative organism is probably the same species in all cases, the differences possibly being explicable because of different vectors.

Promising results were obtained with a mixed prophylactic vaccine prepared from formalized cultures that had been isolated from infected rats.

**Die Tasmassage Ihre Anwendung und Wirkungsweise bei den Weichgelenkrheumatismen** Von Dr. Walter Ruhmann Spezialarzt für Innere Krankheiten und Nervenleiden Berlin. Paper. Price 1.20 marks. Pp. 30 with 10 illustrations. Leipzig: Fischers medizinische Buchhandlung 1934.

Soft tissue rheumatism manifests itself in localized hardening of muscles or skin mainly. It may also be perineural and periarticular. Such hardenings can be found by the palpating finger tip on proper training and can often be influenced by proper local massage.

Increased blood supply and influence on tissue metabolism are invoked to explain, somewhat verbosely, the good influence on pain and the solution of the hardening when this occurs.

**Psychology and Psychotherapy** By William Brown D.M. D.Sc. F.R.C.P. Wilde Reader in Mental Philosophy in the University of Oxford. Third edition. Cloth. Price \$4.75. Pp. 252 with illustrations. Baltimore: William Wood & Company 1934.

A writer with the equipment with which Dr. Brown is endowed (for he is author of at least one fine monograph on psychology and is trained as a physician) should be expected to make a real contribution to the literature of psychotherapy. Before stating that he does, one must point out that the present work is uneven in quality, and that the chapters on peace and war and on physical research are irrelevant. Nevertheless, a modern book in which all the various schools of psychotherapy are summarized and their applications shown has been badly needed. In this volume are discussed the underlying theories of psychoanalysis and hypnosis and their techniques. The therapeutic uses of personal influence and faith therapy are seldom discussed so that their inclusion adds to the value of this book. There is a section on juvenile delinquency which expresses a very different opinion from that generally held in this country, for the role of the parent is ignored. Adlerian psychology is not emphasized. Case histories are included, chiefly in the chapter on war neuroses. All in all one must admit that the

book is a step in the right direction, but its contents are too poorly organized for a real textbook on psychotherapeutics. For those primarily interested in this field it does offer stimulation.

**Investigations into the Cause of Mental Deficiency** By H. O. Wildenskov M.D. Medical Superintendent of the Keller Institution for Mental Defectives Brejning Denmark. (Translation from Danish by Hans Andersen.) Paper. Pp. 113. Copenhagen: Levin & Munksgaard London: Oxford University Press 1934.

This is a study of fifty propositions from the Keller institution for the purpose of determining whether the type of material used in studies of the feeble-minded has any bearing on the results. The author believes that higher grades of deficiency are more likely to be of hereditary origin than lower, so that studies made on defectives in which the subjects cover the whole range will give conflicting results. He reviews the literature covering the hereditary phases of the problem and cites various cases of his own of acquired oligophrenia. The study compares a high grade with a low grade group of defectives in regard to siblings and other relatives. Wildenskov concludes that there is a difference in the results of his observations in two groups significant enough so as to justify future studies on the subject of mental deficiency based on groups that are unified as to intelligence levels. The subjects of the present study, however, are insufficient in number and he does not show the range of intelligence within his group—two deficiencies that make the conclusion questionable. A good bibliography is appended.

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## Medicolegal

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**Privileged Communications Implied Waiver of Privilege**—In December 1928, before issuing four policies providing certain benefits in the event of disability, the defendant insurance company required the plaintiff to undergo a physical examination. During that examination he, in answer to a question, stated that he had never consulted a physician for or suffered from any ailment of the lungs. Some three and one-half years later the plaintiff sued the insurance company, to recover disability benefits, alleging that he was disabled by pulmonary tuberculosis. The company, in defending, claimed that the plaintiff had answered falsely the question noted above, propounded to him during the medical examination, in that he previously had had tuberculosis and had undergone medical treatment for it. At the trial, a physician, who had examined the plaintiff for the first time on the day of the trial, testified on his behalf that he was then suffering from moderately advanced active pulmonary tuberculosis which in the opinion of the witness, had existed since Jan. 1, 1932 seven months before the trial. Two physicians, called by the insurance company, each testified that prior to the date of plaintiff's examination for insurance he had attended the plaintiff in a professional capacity on several occasions and that on those occasions the plaintiff was sick, but neither of these physicians was permitted to state the ailment from which the plaintiff was then suffering. Judgment was given for the plaintiff, and the defendant appealed to the Court of Appeals of New York.

At common law said the Court of Appeals, a physician could be required on a trial to disclose information which he acquired in attending and treating a patient. A statute, however, changes this rule in the state of New York, where a physician is not allowed to disclose any information which he has acquired in attending a patient in a professional capacity and which was necessary to enable him to act in that capacity, unless the patient personally, in open court waives the privilege of secrecy. The purpose of this statute is to protect the relationship of physician and patient by preventing physicians from disclosing information that might result in humiliation, embarrassment or disgrace to patients. The question here is whether the plaintiff, by calling a physician and thereby disclosing the fact that he was suffering from tuberculosis at the time of the trial, waived his privilege of non-disclosure, so that the testimony of physicians who had treated him was admissible on behalf of the insurer to show that he was suffering from the same disease prior to his examination for insurance.



In *Capron v Douglass*, 193 N Y 11, 85 N E 827, the plaintiff testified as to his physical condition and without objection permitted a physician who had operated on him to describe what he found during that operation. When the defendant called a physician who had assisted at the operation, his testimony was excluded as privileged. On appeal, however, the Court of Appeals of New York held that if the testimony of one physician is received without objection, the privilege is waived and the testimony of another physician, who was present and assisted in an operation, when offered by the opposing party, is competent and should be received. The court did not restrict its decision to the facts of that case but expressly stated that when a plaintiff, by testimony given by others with his knowledge and consent, has exposed his physical condition to the public, the door is open for the defendant to offer the testimony of physicians on that subject. In this case, when the plaintiff called a physician to testify that he had been suffering from tuberculosis for seven months he exposed his condition to the public and disclosed the secret which the statute was enacted to protect. By his own act he removed the prohibition of the statute and waived on the trial the protection that it afforded him.

The plaintiff urged that even if the testimony of the physicians called by the defendant, as to the plaintiff's physical condition during the seven months preceding the trial was admissible, testimony by them as to his condition more than three years before the trial, when the application for insurance was signed, was not admissible. Such a contention said the court, overlooks or ignores the purpose of the statute. There would be no more humiliation, mortification or disgrace in having the fact disclosed that the plaintiff had pulmonary tuberculosis more than three years and seven months before the trial than in the fact that he had that disease for seven months before the trial. If his condition could not be shown as it existed three years before the trial, could it be shown as it existed three months or three weeks before? The disease is a progressive one. The plaintiff may or may not have suffered from it when he signed the application. That was the issue in the case, and the insurance company was entitled to have the testimony of the physicians who had examined and treated the plaintiff before the application was signed received in evidence.

The judgment of the lower court in favor of the plaintiff was reversed and a new trial granted—*Stenberg v New York Life Ins Co (N Y)*, 188 N E 152.

**Liability of Druggist for Mistake in Compounding Prescription**—A physician prescribed for the plaintiff a 1 per cent solution of gentian violet, the written prescription directing the use of the solution as a mouth wash. The physician, however, orally directed the plaintiff to use the solution in her eyes also. The drug company to which the plaintiff took the prescription gave her, not a 1 per cent solution of gentian violet, but a 3 per cent solution, and this, when used as an eyewash, caused the plaintiff to lose her eyesight. She sued the drug company. The trial court sustained the demurrer interposed by the drug company. The plaintiff then appealed to the court of appeals of Georgia, division No 1.

The defendant drug company apparently contended that it was not liable, because the prescription indicated on its face that it was to be used as a mouth wash, that the use of the 3 per cent solution erroneously dispensed would have been safe for that purpose, and that the drug company could not anticipate that the solution would be used as an eye wash also. The company apparently relied on the rule that a person charged with negligence is liable only for those injuries which a prudent man, in the exercise of care, could have reasonably foreseen or expected as the natural and probable consequence of his act. But, said the court, it is not necessary, after negligence has been proved, to prove also that the consequences of that negligence could have been foreseen by the defendant. It is sufficient if the injuries are the natural result of the negligence, such injuries as are likely under ordinary circumstances to ensue from it. A druggist, the court pointed out, impliedly warrants that the article that he sells is the article called for and is liable for injury that results from his giving the purchaser a different article. In the opinion of the court, the proximate and legal cause of the plaintiff's injury, under the allegations of the petition, was a matter for the jury to

determine. The trial court erred in sustaining the defendant's demurrer. The judgment of the trial court was accordingly reversed—*Watkins v Jacobs Pharmacy Co (Ga)*, 171 S E 830.

**Accident Insurance Suturing of Wound a Part of Surgical Operation or of Medical Treatment**—The defendant association issued a policy of insurance providing certain benefits if the insured should die from external, violent and accidental means. No benefits were to be paid, however, for any injury caused wholly or in part, directly or indirectly, by surgical operations or medical treatment or for death resulting from any such cause. The insured died from tetanus, following a herniotomy. His widow, the beneficiary under the policy, sued the insurer to recover the benefits named in the policy. The parties to the suit agreed that the insured was subjected to a herniotomy, that the herniotomy was successful and in no way caused or contributed to the death of the insured, which was due to tetanus, and that the operating physician used a kangaroo tendon suture in closing a part of the opening in the patient's abdominal wall, which suture, without the knowledge of the operating physician, contained tetanus germs, which infected the insured and caused his death.

The plaintiff contended that since, according to the agreed facts, the operation for hernia was successful and in no way caused or contributed to the death of the insured, the cause of death was wholly separate and apart from the operation. We think, however, said the Supreme Judicial Court of Massachusetts, Suffolk, that "tying up and closing a portion of the opening in the abdominal cavity" was a necessary part of the surgical operation or, if not connected with that operation, was a necessary part of the medical treatment. Recovery of benefits under the policy was therefore denied and judgment entered in favor of the insurer—*Pitman v Commercial Travelers Eastern Acc Assn (Mass)*, 188 N E 241.

## Society Proceedings

### COMING MEETINGS

- American Academy of Ophthalmology and Otolaryngology Chicago Sept. 9-14 Dr William P Wherry 107 South 17th Street Omaha Executive Secretary
- American College of Surgeons Boston Oct 15-19 Dr Franklin H Martin 40 East Erie Street Chicago Director General
- American Congress of Physical Therapy Philadelphia Sept 10-13 Dr Nathan H Polmer 921 Canal Street New Orleans Secretary
- American Hospital Association Philadelphia Sept 24-28 Dr Bert W Caldwell 18 East Division Street Chicago Executive Secretary
- American Roentgen Ray Society, Pittsburgh Sept 25-28 Dr Eugene P Pendergrass 3400 Spruce Street Philadelphia Secretary
- Associated Anesthetists of the United States and Canada Boston Oct 15-19 Dr F H McMechan 318 Hotel Westlake Rocky River Ohio Secretary
- Association of Military Surgeons of the United States Carlisle Barracks Pa Oct 8-10 Dr J R Kean Army Medical Museum Washington D C Secretary
- Colorado State Medical Society Colorado Springs Sept 19-22 Mr Harvey T Sethman 537 Republic Bldg Denver Executive Secretary
- Delaware Medical Society of Dover Oct 9-10 Dr William H Speer 917 Washington Street Wilmington, Secretary
- Indiana State Medical Association Indianapolis Oct 9-11 Mr T A Hendricks 23 East Ohio Street Indianapolis Executive Secretary
- Kansas City Southwest Clinical Society, Kansas City Mo Oct 1-4 Dr Hugh Wilkinson 750 Minnesota Avenue Kansas City Kan Secretary
- Kentucky State Medical Association Harlan Oct 14 Dr A T McCormack 532 West Main Street Louisville Secretary
- Michigan State Medical Society Battle Creek Sept 12-14 Dr F C Warnshuis 313 Metz Bldg Grand Rapids Secretary
- Nevada State Medical Association Reno Sept 21-22 Dr Horace J Brown 120 North Virginia Street Reno Secretary
- New England Surgical Society Burlington Vt Sept 28-29 Dr J M Birnie 14 Chestnut Street Springfield Mass Secretary
- Northern Minnesota Medical Association Brainerd Sept. 10-11 Dr Oscar O Larsen Detroit Lakes Secretary
- Ohio State Medical Association Columbus Oct 4-6 Mr Don K Martin 1005 Hartman Theatre Building Columbus Secretary
- Omaha Mid West Clinical Society Omaha Oct 29-Nov 2 Dr Joseph D McCarthy 107 South 17th Street Omaha Secretary
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- Pennsylvania Medical Society of the State of Wilkes Barre Oct. 1-4 Dr Walter F Donaldson 500 Penn Avenue Pittsburgh Secretary
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- Washington State Medical Association Spokane Sept 10-13 Dr Curtis H Thomson 1305 Fourth Avenue Seattle Secretary
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## Current Medical Literature

### AMERICAN

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#### Menopausal Symptoms Following Hysterectomy —

Tamis determined the ovarian function of eighteen hysterectomized women by means of the extraction from the urine, of estrogenic substance and anterior pituitary-like hormone. The absence of estrogenic substance and the persistent presence of the anterior pituitary-like hormone indicates ovarian failure. The presence of estrogenic substance indicates ovarian follicular activity. The duration of ovarian function did not bear any relation to the amount of gonadal tissue conserved. Ovarian activity persisted longer in the women less than 35 years of age at the time of operation than in the older group. Conservation of the ovaries in the women less than 35 years of age tended to retard the onset of the "flushes" to a greater degree than in the older group. In both groups, when the flushes did occur, they lasted longer than when they appeared in the bilaterally oophorectomized women. Determination of the ovarian function preoperatively in amenorrheic cases in which this activity is questionable may aid the surgeon in deciding beforehand the problem of gonadal conservation in the treatment of fibromyoma of the uterus. No direct relationship could be demonstrated between follicle hormone production

alone and the onset and severity of the vasomotor disturbances of the menopause. Whatever influence the ovary exerts over these symptoms is due to some other mechanism. The author suggests that the gynecologist not only attempt to conserve the ovaries when treating uterine fibroids but also to save as much of the uterine mucosa as may be feasible. It is the latter procedure that is probably of greatest value to the patient in the prevention of the appearance of menopausal symptoms.

**Acute Yellow Atrophy of the Liver in Pregnancy —** Stander and Cadden report a case of acute yellow atrophy, occurring in a woman at term. Initial symptoms of vomiting, dizziness and headache appeared four days before admission to the hospital and seven days before death. A great deal of stress should be laid on such symptoms occurring near term, and if a satisfactory explanation cannot be found the patient should be admitted to a hospital for careful study. When the diagnosis of acute yellow atrophy is made, the therapy of choice is massive doses of dextrose. Should acidosis develop, alkali therapy is indicated. In the authors' case, dextrose therapy was undoubtedly started too late in the course of the disease. The blood and urine chemical observations in this patient were consistent with injury to the liver and similar to those seen in partial removal of the liver in dogs. The pathologic observations showed advanced fatty degeneration throughout the entire lobule. This fatty degenerative change extended from the central vein to the portal spaces.

**Sterilization by Coagulation of the Uterine Cornu —** According to Hyams, sterilization by coagulating the uterine ends of the fallopian tubes is simple and can be carried out in the office. Anesthesia or hospitalization is unnecessary, as the instrument can be introduced with little or no pain or trauma. No after-treatment is needed and the results are effective. The author does not advise sterilization by this procedure during a menstrual period. If the uterine cavity is distorted by submucous fibroids or by the pressure of uterine tumors, the openings of the fallopian tubes cannot be reached. In the presence of an acute or subacute inflammation of the pelvic organs, polyps, hydrosalpinx, hematosalpinx or pyosalpingitis, treatment by this method is contraindicated.

#### American Journal of Orthopsychiatry, Menasha, Wis

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- Demonstration as a Method of Education in Training for Psychiatric Social Work G H Reeve Cleveland—p 359
- Some Basic Concepts Regarding Field Work Training for Psychiatric Social Work Alice D Taggart New York—p 365
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#### American Journal of Pathology, Boston

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- Studies on Myocardial Aschoff Body I Descriptive Classification of Lesions L Gross and J C Ehrlich, New York—p 467
- \*Id II Life Cycle Sites of Predilection and Relation to Clinical Course of Rheumatic Fever L Gross and J C Ehrlich New York—p 489
- \*Disappearance of Glomeruli in Chronic Kidney Disease A R Moritz and J M Hayman Jr Cleveland—p 505
- Actinomycosis of Tubes and Ovaries Report of Case V H Cornell Washington D C—p 519
- \*Extragenital Chorionepithelioma in a Male A R Kantrowitz New York—p 531
- Multiple Hemangioblastomas of the Spinal Cord with Syringomyelia Case of Lindau's Disease A Wolf and S L Wilens, New York—p 545

**Life Cycle, Sites of Predilection and Relation of Aschoff Body in Rheumatic Fever —** Gross and Ehrlich base their study of the life cycle of the myocardial Aschoff body on an examination of the clinical records and necropsy material from seventy cases that presented Aschoff bodies in the myocardium. It appears that these specific lesions pass through three stages in development. The earliest phases,

represented by small cell coronal and reticular Aschoff bodies, have been found to occur up to the fourth week after the onset of the illness. The middle phases, represented by large cell coronal, syncytial coronal, mosaic and large irregular cell polarized Aschoff bodies, have been found to occur between the fourth and thirteenth weeks after the onset of the illness. The late phases are represented by polarized Aschoff bodies that occur from the ninth to the sixteenth week after the onset of the illness, and subsequently by fibrillar Aschoff bodies that occur after the thirteenth week of the illness. The earliest type of specific lesions are apparently influenced in their response by the reactivity of the tissue, depending on whether there has or has not been a previous attack of rheumatic fever, and also by the state of the collagen present in the interstices between the myocardial bundles.

**Disappearance of Glomeruli in Chronic Kidney Disease**—Moritz and Hayman show that both in chronic renal disease in man and in experimentally produced glomerular injury in rabbits a large proportion of the glomeruli in a given kidney may disappear, leaving no recognizable trace. In the rabbits, in which the disease was not progressive, there was not even any condensation of the interstitial connective tissue to indicate the loss of parenchyma. In man the chronic progressive nature of the disease made interstitial fibrosis a constant observation, even though the recognizable glomerular scars were not numerous enough to account for more than a fraction of the obliterated glomeruli. The reduction of the number of glomeruli was not paralleled by a corresponding reduction from the expected normal weight of the kidney. If so large a proportion of the glomeruli in chronic renal disease can disappear without trace, the final histologic examination of the kidney may give less information concerning the pathogenesis and severity of the disease than is commonly thought. If a kidney, having originally an expected normal number of about one million glomeruli, can lose as many as three fourths of these without leaving recognizable scars of those lost, it is not fair to assume that the changes affecting the remaining one fourth were necessarily the same as those that occurred in the glomeruli that have disappeared. The final pathologic diagnosis of the kidney is frequently made on a basis of the preponderant change seen. This may involve a weighing of the evidence of arteriolar sclerosis against the evidence of inflammation. If complete glomerular disappearance occurs to the extent indicated in this investigation, the final pathologic picture may throw but little light on the pathogenesis of certain types of chronic renal disease.

**Extragenital Chorionepithelioma in a Man**—Kantrowitz presents a case with necropsy observations in a man, aged 22, having a primary teratoma of the anterior mediastinum containing chorionepitheliomatous elements. The tumor invaded the superior vena cava, studding both lungs with chorionepitheliomatous nodules. Careful gross examination revealed no metastases in the other organs or lymph nodes. The genital tract (testicles, vas deferens, seminal vesicles and prostate) showed no tumor nodules. The testicles were sectioned in 2 mm blocks, and slides were made from each block. Examination revealed no tumor nodules. Microscopic examination of the tumor revealed teratomatous and chorionepitheliomatous elements. Only chorionepithelioma was found in the pulmonary metastases. The testicles showed no neoplastic elements. Marked interstitial cell hyperplasia of the testicles was seen. These observations refute the contention of Prym and Oberndorfer that in man chorionepithelioma always goes together with tumors of the testicles. The Aschheim-Zondek test was positive in both the urine and tumor tissue extracts.

### Annals of Medical History, New York

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### Annals of Surgery, Philadelphia

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\*Venous Obstruction in Upper Mediastinum L. S. Pilcher 2d and R. H. Overholt Boston—p. 74  
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\*Intestinal Obstruction Analysis of Five Hundred and Five Cases from Records of Cook County Hospital Chicago K. A. Meyer and J. L. Spivack Chicago—p. 148  
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**Primary Carcinoma of Lung, Treated Successfully**—Young treated a case of primary carcinoma of the lung by lobectomy. The patient is fit and well two years after operation. The type of operation followed, namely, trapdoor thoracotomy, proved in every way satisfactory. It gave excellent exposure and the utmost freedom to the operative technique of removal. The individual ligation of entering arteries and returning veins seems, when practicable, to be preferable to mass ligation of the stump as practiced by many operators today. It is questionable whether this procedure of individual ligation need add materially to the duration of the operation. The chief difficulty would seem to be in respect to the effective closure of the bronchus, but this difficulty should be readily enough overcome if a small portion of lung tissue is left, which may be closely sutured over the crushed, ligated and inverted stump of the bronchus.

**Venous Obstruction in Upper Mediastinum**—Pilcher and Overholt found fifty patients in a group of surgical patients harboring lesions in the upper chest and the mediastinum who showed evidence of obstruction of the superior vena cava or innominate veins. Many of these patients complained of symptoms that were attributable to the effects of the disturbed venous circulation. Dilatation of the neck and arm veins was the most common physical sign. In many of these patients, however, dilated veins were not visible and definite symptoms were lacking. In these patients the presence of venous obstruction was discovered entirely by measurement of the venous pressure. It is therefore important in the study of patients with lesions in or near the mediastinum to measure the venous pressure directly in order to determine accurately the status of the upper venous system. In the great majority of the fifty patients it was possible to relieve the obstructive lesion surgically. In a few cases radiation therapy was effective. Venous pressure estimations taken at intervals postoperatively were particularly valuable in determining the degree of relief of the venous obstruction. Relief of symptoms accompanied the restoration of the venous pressure to normal in each case.

**Intestinal Obstruction**—Meyer and Spivack observed that the mortality of surgically treated cases of acute intestinal

obstruction has been reduced but little in the last twenty-five years. In their series of 505 cases it was 48.6 per cent. The high mortality is due to late surgical intervention when the "triad" of symptoms is present. This "triad" appears late, when the patient is practically moribund. Injection of physiologic solution of sodium chloride and dextrose cannot compensate for the damage of delay and does not influence appreciably the degree of mortality. The mortality will be reduced appreciably only by early operation and this will be possible only when early diagnoses are made. An early diagnosis is possible only by taking flat roentgenograms as a routine measure. A "herring-bone" appearance shows the earliest stage of obstruction, a "step-ladder" appearance shows a more developed process and "fluid levels" show the well advanced intestinal obstruction. In every postoperative abdominal case in which intermittent abdominal pain arises it is advisable to take a roentgenogram by a portable apparatus and not to wait until the grave "triad" appears.

### Archives of Dermatology and Syphilology, Chicago

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- Preparation of Trichophytin A P Krueger clinical note by H J Templeton Oakland Calif—p 9
- Old French Poem on Syphilis and Its Proper Treatment W R Riddell, Toronto—p 11
- Kahn Reaction in Group of College Students N Nagle and J C Willett St Louis—p 21
- \*Pemphigus Evidence in Support of Bacteremia as Explanation of Certain Terminal Changes in Blood Picture A W Grace technical assistance by Edith Ross New York—p 22
- Aid in Management of Occupational Contact Dermatitis (Dermatitis Venenata) A P R James, Toledo Ohio—p 30
- Cutaneous Manifestations of Arsenic Poisoning S Ayres Jr and N P Anderson Los Angeles—p 33
- \*Autolysate Therapy for Verruca Vulgaris F E Cormia Philadelphia—p 44
- \*Colloidal Mercury Sulphide in Treatment of Syphilis G E Wakerlin Louisville Ky—p 49
- Hematogenous Cutaneous Tuberculosis (Sarcoid) in Negroes Report of Six Cases R Nomland Chicago—p 59
- Dermatitis Due to Potassium Mercuric Iodide J Lawrence and M J Strauss New Haven, Conn—p 76
- Kraurosis Leukoplakia and Pruritus Vulvae Correlation of Clinical and Pathologic Observations with Further Studies Regarding Resection of the Sensory Nerves of Perineum H Montgomery V S Counsellor and W M Craig Rochester Minn—p 80

**Pemphigus**—Grace confirms Kissmeyer's original observation of a progressive diminution in the number of eosinophil leukocytes with increasing activity of the clinical condition in two cases of pemphigus. Bacterial strains, obtained in one instance sixteen days and in the other thirty-one days before death, were found to be identical with strains obtained from the cardiac blood at necropsy. Absorption of bacteria into the blood stream from the base of a purulent bulla is not an unlikely happening in a debilitated condition such as these patients showed at the time the bulla fluids were examined. It is also known that bacteremia or toxemia resulting from the activity of pyogenic organisms can produce a total and differential white blood picture such as these patients showed and can also be associated with temperature charts similar to those obtained in these cases. Therefore the author is of the opinion that there was a progressive, subacute bacteremia in the two cases beginning at approximately the time of aspiration of the bullae and that this bacteremia was responsible for the change in the leukocyte picture.

**Autolysate Therapy for Verruca Vulgaris**—Cormia prepared a wart autolysate in accordance with the methods suggested by Biberstein and Soule. He treated twelve patients each receiving at least ten injections of autolysate. In only two cases was a cure effected, and here the specific immunologic action was questionable.

**Colloidal Mercury Sulphide in Treatment of Syphilis**—Wakerlin administered a total of approximately 800 intravenous injections of colloidal mercury sulphide to a series of thirty syphilitic patients in various stages of the disease in order to test the antisyphilitic potency of the drug and its suitability for intravenous use. The patients having early syphilis were given an initial course of twenty-four semiweekly injections of 60 mg of the drug followed by alternate courses

of neoarsphenamine, colloidal mercury sulphide and a bismuth compound. The patients presenting more advanced forms of the disease received a course of twenty-four weekly injections of 60 mg of the drug followed by the combination therapy indicated. Colloidal mercury sulphide showed a favorable effect on the lesions and serologic changes of primary and secondary syphilis that was only slightly, if at all inferior to that of the arsphenamines. The patients presenting clinical manifestations of late syphilis also responded favorably to the drug. The serologic response to colloidal mercury sulphide therapy was excellent in early latent syphilis, although the drug was ineffective in reversing the positive Wassermann reactions in long standing latent or congenital syphilis if the patients had previously received approximately four years of more or less regular treatment with standard antisyphilitics. Examinations of the spinal fluid indicated that colloidal mercury sulphide influenced the changes in the spinal fluid neither favorably nor unfavorably. There were no local or systemic reactions by the intravenous administration of the drug. In a definitely therapeutic range of dosage, colloidal mercury sulphide was well tolerated and showed a low incidence of mild mercurialism. A series of twelve or fifteen weekly injections of 60 mg of the drug may be repeated one or more times during therapy. Patients presenting early syphilis who tolerate the arsphenamines poorly may be given an initial course of twenty-four semiweekly injections of 60 mg or twelve weekly injections of 120 mg of colloidal mercury sulphide with the assurance of producing a prompt healing of the lesions and a satisfactory effect on the Wassermann reaction.

### Archives of Neurology and Psychiatry, Chicago

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- \*Relationship of Migraine Epilepsy and Some Other Neuropsychiatric Disorders H A Paskind Chicago—p 45
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- Effects of Stimulation of Sympathetic and Dorsal Roots on Contraction of Skeletal Muscle H G Wolff and M Cattell New York—p 81
- Leukemic Changes in Brain Report of Fourteen Cases I B Diamond Chicago—p 118
- \*Primary Ependymitis Subacute Type with Occlusion of Foramina of Monro and Hydrocephalus of Lateral Ventricles J G Arnold Jr Baltimore—p 143
- Study of Motor Automatism M Seham and D V Boardman Minneapolis—p 154
- \*Cerebral Complications of Putrid Pleuropulmonary Suppuration I Cohen New York—p 174

**Relationship of Migraine, Epilepsy and Other Neuropsychiatric Disorders**—Paskind compared the prevalence of familial, parental and personal migraine among patients having epilepsy with the incidence among patients presenting no neuropsychiatric disorders and among patients with manic-depressive psychosis, trigeminal neuralgia, psychasthenia, dementia praecox, tic constitutional inferiority and paranoid states. These comparisons indicate that there is no special relationship between migraine and epilepsy and that migraine occurs as evidence of a familial neuropathic trend in the other neurologic conditions studied.

**Primary Ependymitis**—Arnold states that primary ependymitis is a distinct pathologic entity and reports a case of the subacute type. The pathologic changes are characterized by a selective subacute inflammatory process, which involves the entire ventricular system being limited to the ependyma, subependyma and choroid plexus. Should ventricular obstruction not occur in the subacute stage the inflammatory reaction subsides and the condition becomes chronic. The inflammatory process with subependymal glial proliferation tends to occlude the ventricular foramina with the development of obstructive hydrocephalus. The choroid plexus is the most likely portal of entry of the toxins or bacteria. The signs and symptoms are due chiefly to hydrocephalus increased intracranial tension (headache, vomiting, mental changes, papilledema, bradycardia and occasionally convulsions), few, if any localizing signs and

a tendency toward remissions The disease is simulated by cerebral neoplasm, tuberculous meningitis and syphilitic meningitis

**Cerebral Complications of Putrid Pleuropulmonary Suppuration**—Cohen reviewed nineteen cases that presented cerebral symptoms complicating pleuropulmonary suppuration, dividing them arbitrarily into three groups abscess of the brain, aseptic embolus and psychosis He suggests that a single etiologic factor is present in all groups, namely, an embolus In the first group the embolus is infected and in the second group aseptic, in the third group it is postulated as a factor in the psychosis

### Archives of Otolaryngology, Chicago

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- Meniere's Disease Symptoms Objective Findings and Treatment in Forty Two Cases W E Dandy Baltimore—p 1  
Color Index of Nasal Septum Critical Study of Vasomotor Mechanism of Nose L B Bernheimer Chicago—p 31  
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### Archives of Surgery, Chicago

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\*Pericardiectomy for Advanced Pick's Disease J B Flick and J H Gibbon Jr Philadelphia—p 126  
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Review of Urologic Surgery A J Scholl Los Angeles E S Judd Rochester Minn J Verbrugge Antwerp Belgium A B Hepler Seattle R Gutierrez, New York and V J O'Connor Chicago—p 149

**Peripheral Arterial Thrombosis**—Mead and Stewart report a case in which a gonorrheal infectious process and the intramuscular injection of milk seem to be etiologic factors in the production of peripheral arterial thrombosis and gangrene in the first three toes of the left foot The authors failed to find a previous record of the intramuscular injection of milk as a probable etiologic factor in the production of peripheral arterial thrombosis The reaction of the patient to the injection of foreign protein was in no way unusual, being high temperature, leukocytosis, profuse perspiration, headache, backache, abdominal pain and increased pain in the affected joints It is not difficult, however, to associate a possible chemical action on the blood with the other etiologic factors in the production of arterial thrombosis At least the injection of milk was a potential etiologic factor in this case and clinically seemed to exert a potent influence in the production of the thrombotic lesions

**Influence of Venous Stasis on Heterotopic Formation of Bone**—Roome and McMaster studied the effect of venous

stasis on heterotopic formation of bone induced by transplanting similar portions of mucosa of the urinary bladder into the muscle planes of both hind legs in a series of six dogs The femoral vein and its tributaries in the upper portion of the thigh were ligated and excised on one side, while the other leg was used as a control In five cases more bone was formed in the leg with venous ligations than in the control leg, while in one case the amounts were equal, as studied by roentgenograms and by weighing the bone plaques The bone formed about the transplant increased in density for a period of a few months and then atrophied, although the bone did not entirely disappear from the legs in the one case that was observed for two and a half years Heterotopic formation of bone is accelerated by venous stasis

**Pericardiectomy for Advanced Pick's Disease**—Flick and Gibbon performed anterior partial pericardiectomy on a 12 year old boy with advanced Pick's disease The thickened calcified epicardium was not removed There was slight temporary improvement after the operation, but death occurred forty-six days later At necropsy, adhesions were found to have reformed between the heart and the remaining portion of the pericardium The failure to relieve the patient of his symptoms was attributed to the presence of a thickened epicardium The author discusses the significance of the low serum proteins found prior to operation

**Histamine in Treatment of Myositis and Arthritis**—Kling points out that the effect of histamine treatment consisted in a dilatation of the minute vessels and the smaller arterioles and in an increase in the flow of blood and in the permeability of the vessels, which caused a hyperemia and elevation of the cutaneous temperature for a duration of several hours A definite conclusion as to the value of this method is at present possible only in myositis Of 376 patients, 343 were cured or improved, recurrences were noted in thirty three patients Of thirty-two private cases of myositis, twenty four were cured or improved and eight remained unimproved Immediate relief of pain and tenderness after the first treatment was of favorable prognostic significance Secondary myalgia due to static unbalance after trauma and strain was benefited in a moderate number of the cases reported Five patients with subacromial bursitis and two with tenosynovitis were treated successfully In 151 cases of arthritis reported in the literature improvement occurred in 124, in twenty two cases the arthritis recurred In twenty-four personal cases of arthritis, fourteen were improved and ten unimproved

### Journal of Immunology, Baltimore

27 1124 (July) 1934

- Influence of Nutrition on Natural Immunity Reactions of Blood and on Skin Reactions to Bacterial Toxins E J M Anderson and A H H Fraser Aberdeen Scotland—p 1  
Immunologic Characteristics of the Poliocidal Substance in Human Serum Concentration Thermostability, Absorption and Specificity C W Jungblut New York—p 17  
Inactivation of Poliomyelitis Virus and of Diphtheria Toxin by Various Endocrine Principles C W Jungblut K Meyer and E T Engle New York—p 43  
Role of Autonomic Nervous System in the Anaphylactic Smooth Muscle Contraction C V Seastone Jr and A Rosenbluth Boston—p 57  
Effect of Reticulo Endothelial Cell Blockade on Antibody Formation in Rabbits L Tuft with assistance of Mary Mulrooney Philadelphia—p 63  
Comparison of Sensitizing and Therapeutic Effect of Rabbit and Horse Antipneumococcus Type I Serums in Albino Mice Julia Mehlman and Beatrice Carrier Seegal New York—p 81  
Refractory State as Concerns the Shwartzman Phenomenon II Inhibition of Refractivity Producing Factors in Moccasin Venom by Antivenin and Normal Horse Serum S M Peck New York—p 89  
\*Study of Pneumococcus Carriers Eleanor A Bliss W D McClaskey and P H Long Baltimore—p 95  
Electric Charge of Bacteria Sensitized with Purified Agglutinins L Olitzki Jerusalem Palestine—p 105  
Sensitization of Guinea Pigs to Poison Ivy F A Simon Margaret G Simon F M Rackemann and L Dienes Boston—p 113

**Study of Pneumococcus Carriers**—In an effort to determine whether the constant carrying of pneumococci in the throat was associated with frequent infections of the upper respiratory tract, Bliss and her associates obtained throat cultures from a group of twenty young adults approximately once a week over a period of two academic years Of the 1,016 throat cultures that were obtained, 34.5 per cent were positive for pneumococci After the first year it seemed that indi-

Individuals could be divided into three groups with respect to the carrying of pneumococci: chronic carriers, intermittent carriers and noncarriers. However, at the end of the second year it became apparent that those individuals who had been classed as intermittent carriers were, in reality, chronic carriers, for, although few positive cultures were obtained from them and those irregularly, the same type of pneumococcus recurred in their cultures. It was found that there was little difference in the frequency and duration of infections of the upper respiratory tract between the chronic carriers and the noncarriers. While the same type of pneumococcus tends to recur in the throat cultures from a chronic carrier, it is frequently possible to demonstrate the simultaneous carrying of two or three types of pneumococci in these persons if the proper procedures are used. The authors believe that their study adds evidence in favor of the theory of the stability of pneumococcus types in the human being.

### Journal of Industrial Hygiene, Baltimore

16 201-254 (July) 1934

- Ulcers of Stomach in Lead Workers Anna Makaritschewa and Tatiana Clagolewa, Leningrad U S S R—p 201  
Silicosis Among Sandstone Workers in Scotland and the North of England T Ferguson, London England—p 203  
Cancer and Some Anticarcinogenic Influences M Copisarow Manchester England—p 212  
Cause of Bakers' Eczema Erna Zitzke Cologne Prussia—p 218  
Compensation Aspect of Occupational Dermatitis W J O'Donovan London England—p 223  
Health Hazards in the Foundry Industry W J McConnell and J W Fehnel New York—p 227

**Cause of Bakers' Eczema**—Zitzke, in examining 149 bakers suffering from eczema, found that 41.8 per cent reacted positively to flours not treated with chemicals, but 67.2 per cent showed a positive reaction to flour to which chemicals (ammonium persulphate, acid calcium phosphate and potassium bromate) had been added. Eighty-six of the 149 bakers, or 58 per cent reacted positively to the treated flour, whether the test was a subcutaneous one made with flour containing ammonium persulphate or a patch test with ammonium persulphate. Eight bakers alone reacted positively to ammonium persulphate patch tests, while the subcutaneous method of testing with treated flours gave negative results. The results indicate that the primary injurious substance in the treatment of flour is ammonium persulphate. This leads in most cases to a hypersensitivity of the organism, which occurs only rarely in exposure to pure flour albumin. Whether it is the chemicals alone that produce the hypersensitivity or whether under the influence of these chemicals a molecular change takes place in the albumin which raises its allergic quality cannot be proved by means of examination but can only remain in the sphere of probability.

### Laryngoscope, St Louis

44 515-598 (July) 1934

- Tinnitus Aurium Etiology Differential Diagnosis Treatment and Review of Twenty-Five Cases M M Kafka Far Rockaway N Y—p 515  
Schwabach's Test The Author's Test Comparative Study B M Becker Brooklyn—p 544  
Respiratory Paralysis in a Case of Cerebellar Abscess Autopsy Finding Herniation of Cerebellum into Foramen Magnum G B Fred Boston—p 550  
Lingual Goster E J Whalen Hartford Conn—p 555  
Interrelationship of Sinus Disease and Bronchiectasis with Especial Reference to Prognosis L H Clerf Philadelphia—p 568  
Carcinoma of the Middle Turbinate Case Report E S Lodge Los Angeles—p 572  
Opticofacial Winking Reflex S M Weingrow New York—p 577  
New Mouth Gag for Cleft Palate Operation H D Newkirk Anaheim Calif—p 587

**Comparative Study of Hearing Tests**—In performing Becker's hearing test, the examiner faces the patient and presses his own auricle against that of the latter, thereby converting his own auditory meatus and that of the patient into closed cavities. If the patient's right ear is to be tested, the examiner places his own right ear against that of the former. A strongly vibrating fork is set on the patient's mastoid opposite the obstructed ear and he is instructed to concentrate on the sound and to inform the examiner of the exact moment when he ceases to hear it. When the patient no longer hears the sound the examiner notes in terms of seconds, the difference between

his own hearing time and that of the patient. In all conditions save that of perceptive deafness in the patient, the examiner and the examined will hear the sound for the same length of time. Therefore it follows that if the examiner hears the sound longer than the patient (making allowance of between three to five seconds for normal variations in the hearing time of the two), the latter suffers from a perceptive lesion. The degree of involvement can be judged by the number of seconds the examiner hears the sound longer than the patient. The conditions under which the two hear the sound of the fork are so similar that the test can be reversed, that is, the examiner can place the fork on his own mastoid with the patient listening to the sound through the former's skull without in the least altering the results.

**Opticofacial Winking Reflex**—In eliciting the opticofacial reflex (closure of the lids when an object is brought suddenly into the field of vision) for testing unilateral or bilateral marked visual impairment or destruction, Weingrow places his hand above, to the side or below the eyes of the subject and out of his field of vision, then he moves it suddenly across the eyes, thus causing a sudden closure of both lids. If one eye is shielded by a cardboard and the other eye stimulated, there results a bilateral closure of the lids. The afferent path of this reflex is the same as that of the emergency light reflex, but the efferent path seems to be confined to the facial nerve. The author reports cases presenting such impairment with the consequent involvement of the opticofacial reflex and gives reference to cases in which the efferent part of the opticofacial reflex arc is involved.

### Michigan State M Society Journal, Grand Rapids

33 339-408 (July) 1934

- Carcinoma of the Colon Surgical Considerations C W Mayo Rochester Minn—p 351  
Excretory Urography J B Jackson Kalamazoo—p 356  
Fluorides as an Aid to Iodine in Hyperthyroidism W S Reveno Detroit—p 359  
Etiologic Approach to Asthmatic Breathing S W Insley, Detroit—p 364  
Functional Disorders of the Ovary J P Pratt, Detroit—p 370  
Office Treatment of Pernicious Anemia with Liver Extract Intravenously and Intramuscularly P W Kniskern Grand Rapids and L G Christian Lansing—p 373  
Functional Disorders of the Colon E L Eggleston Battle Creek—p 378  
Operations on the Orbit W L Benedict Rochester Minn—p 383  
Chronic Subdural Hematoma Complicating Severe Brain Injury E S Gurdjian Detroit—p 387  
Physicians Without the Degree M D R Berman Detroit—p 390

### New England Journal of Medicine, Boston

211 49-98 (July 12) 1934

- Hyperinsulinism Without Demonstrable Pancreatic Changes in an Eleven Year Old Child Case J A Boone Harlingen Texas—p 49  
Incidence of Neurocirculatory Asthenia With and Without Organic Heart Disease Note J C Edwards Springfield Mass, and P D White Boston—p 53  
Fracture of the (Navicular) Carpal Scaphoid J H Burnett, Boston—p 56  
Heart Disease L M Hurvethal Boston—p 61  
Study of One Hundred and Seven Cases of Early Syphilis F Thurmon Boston and L Koretsky Springfield, Mass—p 65  
Progress of Nutrition F L Burnett Boston—p 68

211 99-142 (July 19) 1934

- Value of Commercial Antibacterial Streptococcus Serums in Hemolytic Streptococcus Infections L D Fothergill and R Lum Boston—p 99  
Gonococcus Complement Fixation Test in Blood and Synovial Fluid of Patients with Arthritis W K Myers and C S Keefer, Boston—p 101  
Use of Insulin in Malnutrition H Blotner Boston—p 103  
Arthus Phenomenon Report of Clinical Case J A Maroney, Worcester Mass—p 106  
Auscultation of the Abdomen Aid to Diagnosis N C Stevens Glen Cove Long Island New York—p 108  
Prolapse of Uterus During Pregnancy D E Higgins Epping N H—p 125

**Gonococcus Complement Fixation Test in Arthritis**—Myers and Keefer observed the results of the gonococcus complement fixation reaction of the blood serums and synovial fluids of forty-three patients having proved gonococcal arthritis and of sixty-six patients having rheumatic fever, rheumatoid arthritis or some other type of arthritis. A positive reaction was encountered in 86 per cent of the cases of gonococcal arthritis. The blood serums of only two of the seventy-one



patients who had joint disease not due to gonococcal infection gave isolated positive reactions. The reaction was doubtful in one patient with rheumatic fever who had a gonococcal prostatitis. The reaction of the blood serum and that of the synovial fluid, simultaneously collected, were with few exceptions identical. The examination of the synovial fluid offered little advantage over that of the blood serum. A positive Wassermann reaction did not influence complement fixation to the gonococcal antigen. The routine employment of this test in the study of patients with arthritis was valuable. In the authors' experience the employment of this test has proved to be of great value in the etiologic diagnosis of chronic arthritis.

### New Jersey Medical Society Journal, Trenton

31 315 376 (June) 1934

- Surgical Mastoiditis in Infants W J Greenfield East Orange—p 330  
Suprapubic Prostatectomy T C Stellwagen Philadelphia—p 335  
\*Absorption of Decomposition Products of Sweat as an Etiologic Factor in Vitiligo W O Roop Atlantic City—p 339  
Stovarsol (Spirocid) Its Use in Congenital Syphilis Review of Literature and Report of Fourteen Cases B M Joseph Jersey City—p 343  
Abdominal Surgery in Infancy and Childhood E J Donovan New York—p 346  
Ectopic Paroxysmal Tachycardia J Wyckoff New York—p 349

**Sweat an Etiologic Factor in Vitiligo**—Roop believes that sweat may be a possible causative factor of vitiligo. His theory is that vitiligo is the result of absorption by the skin of certain decomposition products of sweat which have remained and undergone a chemical change on the skin. This chemical, as yet undetermined, may be ammonia or ammonia carbonate and carbamate and, when so absorbed, depigments the skin by acting as a bleaching agent on the melanin of the pigment cells. The absorptive power of the skin is so definitely acknowledged and readily proved that it is unnecessary to elaborate on this point and it is this function of the skin which contributes to the possibility and plausibility of his theory. During the past summer three women patients consulted the author for treatment of beginning vitiligo, also one middle-aged man with vitiligo of a duration of three years, limited to the scrotum. In this group of cases marked sweating was evident in each case, and the more the author contemplated and checked these cases with vitiligo in general, the more he was convinced that they offered an important clue to the etiology of vitiligo.

### Public Health Reports, Washington, D C

49 783 810 (July 6) 1934

- Effectiveness of Filtration in Removing from Water and of Chlorine in Killing Causative Organism of Amebic Dysentery Bertha Kaplan Spector J R Baylis and O Gullans—p 786

49 811 838 (July 13) 1934

- Time Distribution of Common Colds and Its Relation to Corresponding Weather Conditions Mary Gover L J Reed and S D Collins—p 811

- Electrocution New Aid in Preparation of Mosquito Mounts C P Coogler—p 824

49 839 868 (July 20) 1934

- Pulmonary Infection in Pneumonoconiosis I Bacteriologic and Experimental Study H O Proske and R R Sayers—p 839

### Science, New York

80 43 80 (July 20) 1934

- \*Use of Absorbent Pulpit in Cultivation of Aerobic Organisms J W Williams—p 75  
Apparatus for the Measurement of Respiratory Rate R H Landon and W G Brierley—p 75  
Modification of the Mudd Electro-Ensmosis Apparatus H Klein—p 76

**Use of Absorbent Pulpit in Cultivation of Aerobic Organisms**—Williams describes a method that he has applied especially to fungi to study their aerobic tendencies. The fungi chosen were members of a group that had proved pathogenic to man. An absorbent possessing neither nutrient, antiseptic, chemically nor physically reactive properties is suitable. Blotting paper was chosen. A fast color is desirable, the most suitable color being dependent on the color of the organismal growth to be studied. For adaptation to test tubes, a two-legged pulpit of blotting paper with the horizontal portion above the fluid mediums proved satisfactory. The organism was planted on this portion and its growth observed. Some organisms grew on this portion alone some on it and in the

mediums and some in the mediums alone. When growth occurred in both situations, it often varied in marked degree both in character and in extent. The bacteria tried (*Bacillus subtilis*, *Staphylococcus aureus*, *Bacillus coli*) showed scanty growth on the pulpit and prolific growth in the mediums, while fungi (*Trichophyton interdigitale*, *Epidermophyton inguinale*) grew well on the seat. Growths which, because of their aerobic tendencies, would be inhibited or destroyed by sinking in liquid mediums can be prevented from doing so. The type of growth on the pulpit, on its legs and in the mediums can be observed. The site of growth can be observed. Growths have been carried on the pulpits for over two months and have shown no tendency to dry out. In a control on Sabouraud's proof medium there has been drying. It is necessary to test the absorbent used and assure oneself that it is innocuous.

### Southwestern Medicine, Phoenix, Ariz

18 219 252 (July) 1934

- What to Expect from Surgery in Treatment of Exophthalmic Goiter W I Brown C P Brown and J L Murphy El Paso Texas—p 219  
Treatment of Acute Intestinal Obstruction W O Sweek and G C French Phoenix Ariz—p 224  
Pulsion Diverticulum of the Esophagus C T Sturgeon, Los Angeles—p 227  
Surgery of the Biliary Tract H K Gray Rochester Minn—p 229  
Functional Evaluation of Permanent Partial Disabilities R F Palmer Phoenix Ariz—p 235  
Rural Obstetrics Deliveries in the Home G T Colvard Deming N M—p 238  
Ocular Symptomatology in General Diseases S A Schuster and F P Schuster El Paso Texas—p 239

### Texas State Journal of Medicine, Fort Worth

30 177 238 (July) 1934

- Cardiac Disorders in Surgical Patients Criteria Used in Estimating Risk Involved G Herrmann Galveston and L G Herrmann, Cincinnati—p 183  
Typhus Fever in Texas C D Reece Austin—p 192  
Sugar Tolerance in Cancer with Reference to Degree of Malignancy D Jackson and D A Todd San Antonio—p 197  
Fistula Etiologic Factor in Cancer of Anal Canal C Rosser Dallas—p 203  
\*Modified Coutard Technic in Deep X-Ray Therapy C L Martin Dallas—p 207  
\*Desensitization of Nasal Mucous Membranes for Relief of Hay Fever Asthma and Food Allergy H L Warwick Fort Worth—p 210  
Use of Adult Whole Blood in Whooping Cough W D Brown Beaumont—p 216  
Some Recent Advances in Our Knowledge of Bone Metabolism Laboratory Diagnostic Criteria in Clinical Hyperparathyroidism Rickets and Other Disease of Bone M Bodansky Galveston—p 218  
A Physician Views the Changing Era C T Stone Galveston—p 221

**Modified Coutard Technic in Roentgen Therapy**—In order to make the Coutard method workable, Martin developed a technic using 200 kilovolts, 0.75 mm of copper and 1 mm of aluminum filter, a target skin distance of 50 cm, and a current of 6 milliamperes. With these settings 300 roentgens can be given in twenty-five minutes with an intensity of 12 roentgens per minute. The author administered fourteen such doses (4,200 roentgens) to a single skin area in sixteen days. A denudation of the skin appeared in three weeks followed by rapid healing and no sequelae during a period of observation of eight months. When this therapy was administered to the side of the neck, the mucous membrane of the throat was denuded after about two weeks and the patient found swallowing difficult for a period of about ten days. However, healing was prompt.

**Desensitization of Nasal Mucous Membranes in Hay Fever and Asthma**—Warwick has employed nasal ionization for the last seven years and he believes that intranasal ionization is the most satisfactory method of desensitizing the individual to pollens and foods, using an alloy of zinc, tin and cadmium as an electrode and the salts of these metals as the electrolyte. A safe, suitable direct current, which has been filtered previously, is best furnished by a special motor generator. Unless the patient is unusually hypersensitive, one treatment is sufficient, and some patients have remained immune for as long as seven years. No damage is done to the nasal membranes by the ionization treatment, as evidenced by laboratory examinations of specimens of tissues from three different cases. The reactions are not only local but systemic. Patients who have had the ionization treatment report that they are less susceptible to colds afterward.

FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

57 91 210 (June) 1934

- Familial Periodic Paralysis and Its Transition into Spinal Muscular Atrophy A Briemond and A P Daniels —p 91  
Analysis of Disturbed Function in Aphasia K Zucker —p 109  
Senile Plaques L Bouman —p 128  
Intrinsic Nervous Mechanism of the Human Lung J B Gaylor —p 143  
\*Subacute Spinocerebellar Degeneration Occurring in Elderly Patients J G Greenfield —p 161  
Cholesteatoma of Middle and Posterior Cranial Fossae G L Montgomery and D I C Finlayson —p 177  
\*Myotonia Acquisita in Relation to Postneuritic Muscular Hypertrophies K H Krabbe —p 184  
Participation of Neuroglia in Formation of Myelin in Prenatal Infantile Brain B J Alpers and W Haymaker —p 195

**Subacute Spinocerebellar Degeneration in Elderly Patients**—Greenfield presents two cases of spinocerebellar degeneration. The disease came on in patients aged 66 and 57 years and ran a rapid course, with a fatal termination in three and seven months respectively from the onset of the first symptoms. In both patients, pains in the limbs were a prominent early symptom, this was succeeded by weakness and ataxia of the legs and arms, dysarthria and mental enfeeblement. Nystagmus was indefinite or quite absent, and no loss of skin sensibility was found. There was considerable pleocytosis and excess of protein in the cerebrospinal fluid in both cases. Pathologically, the condition was characterized by degeneration of the long tracts of the cord, especially the dorsal columns and cerebellar tracts, with earlier degeneration of the pyramidal tracts. There was gross loss of Purkinje cells in the cerebellar cortex, the granule cells being relatively spared. The superior cerebellar peduncles and the longer tracts in the tegmentum of the brain stem were involved in the second case. The nucleus of Luys and the strio-Luysian fibers were degenerated in both cases. The substantia nigra, nucleus ruber, nuclei pontis and olivary nuclei were unaffected and the cerebral cortex was intact. In both cases there was fairly intense perivascular infiltration in the neighborhood of degenerated tracts.

**Acquired Myotonia and Postneuritic Muscular Hypertrophies**—Krabbe summarizes the twenty cases of true muscular hypertrophy described in the literature. In six of these cases the muscular hypertrophy developed after typhoid, one developed after a lead polyneuritis, one after sciatica, one after a traumatic lesion of the sciatic nerve and one patient had suffered from pleurisy or pneumonia before developing the muscular hypertrophy. Further, some cases are described in which such polyneuritic symptoms as paresthesia, pain and weakness of the muscles preceded the muscular hypertrophy. In only two cases did hypertrophy seem to have been connected with a cerebral lesion. The relatively numerous cases developing after typhoid have been considered by the authors due to a phlebitis. If the history of the disease is analyzed it seems more probable that the preceding illness had been a neuritis caused by typhoid. On considering these cases as a whole the author observes that true muscular hypertrophy generally develops after a polyneuritic syndrome or after a disease often associated with polyneuritis, and he draws the following conclusions: 1 In the majority of cases a polyneuritis is recovered from completely or it leaves a more or less marked atrophy of the affected muscles. 2 In some cases the recovery is excessive and the muscles hypertrophy. Sometimes a muscle hypertrophies as a whole, presenting normal power or a slight weakness. In other cases the sarcoplasm especially hypertrophies, and in these a myotonic condition will be the consequence of the hypertrophy. 3 If this hypothesis is valid acquired myotonia and true muscular hypertrophy may be considered as two variations of the same abnormality: an abnormal regeneration after neuritic processes.

Bristol Medico-Chirurgical Journal

51 89 154 (Summer) 1934

- Association Between Gout and Atrophic Rhinitis E Watson Williams —p 89  
Focal Infection A J M Wright —p 109  
Diagnosis of Swellings of the Long Bones with a Case of Periosteal Sarcoma of the Femur A W Adams —p 117  
Expulsion of Bile R J Brocklehurst —p 131

British Journal of Dermatology and Syphilis, London

46 303 340 (July) 1934

- Erysipeloid J T Ingram bacteriologic report by R D Stuart —p 303  
Association of Herpes Catarrhalis with Erythema Multiforme (Hebra) L Forman and G P B Whitwell —p 309

British Journal of Physical Medicine, London

9 37 52 (July) 1934

- Treatment of Insomnia in Nervous and Mental Disorders E Hope well Ash —p 39  
Biophysical Treatment in Nervous Disorders F H Humphris —p 42  
Fibrositis: Causation and Treatment C C Anderson —p 45  
Structure of Matter Rutherford Bohr and Alternative Atom B D H Watters —p 47

British Journal of Radiology, London

7 321 384 (June) 1934

- Calcification, Decalcification and Ossification R W Jones and R E Roberts —p 321  
Elimination of Afterglow and Latent Phosphorescence from Fluorazure (Zinc Sulphide) Intensifying Screens Part I General Description L Levy and D W West —p 344  
Id Part II Physical Investigation H A Edgerton and R B Brock —p 348  
X Ray Treatment in Some Conditions of the Thyroid and Thymus H Davies —p 362  
Calcinosis Universalis with Premature Senility Case R M Beath —p 372

7 385 448 (July) 1934

- Calcification Decalcification and Ossification Part II R W Jones and R E Roberts —p 391  
\*Cineradiography R J Reynolds —p 415

**Cineradiography**—Reynolds believes that cinematography enables one to obtain a rapid, inexpensive and permanent record of the function of active organs. The continuous "band" enables one to study movement for an indefinite period, whereas an ordinary screen examination can be carried out only for a short period. These advantages are especially obvious in organs, such as the heart, of which one is desirous to examine several different parts in a state of movement at the same time. The permanent records of movements may be used for purely diagnostic purposes, comparison with former records, to watch the effects of treatment or the progress of a pathologic condition, teaching purposes and transmission abroad or elsewhere, either for the purpose of obtaining the opinions of specialists as to the nature of the case or for information purposes as to the condition of the patient in the past. The author stresses the fact that the cinematographic method of investigation will add greatly to the knowledge of the functioning of the heart, especially in the various irregularities arising in the cardiac lesion, for instance in a sino-auricular block. Apart from the clinical uses there are other fields of usefulness: the investigation of physiologic problems when opaque mediums may be injected into the circulatory system in animals.

British Journal of Urology, London

6 101 206 (June) 1934

- Clinical Value of Bladder Pressure Estimations K H Watkins —p 104  
Presacral Sympathectomy and the Urinary Bladder E D McCrea and A D MacDonald —p 119  
Function of the Testicles After Puberty T E Hammond —p 128  
Review of One Hundred and Sixty Two Consecutive Personal Cases of Stone in the Upper Urinary Tract H P Winsbury White —p 142

British Medical Journal, London

2 49 98 (July 14) 1934

- Examination of Renal Function F S Fowweather —p 49  
Review of Bladder Neck Obstructions with Especial Reference to Transurethral Prostatic Resection D M Morrison —p 53  
High Carbohydrate Diets and Insulin Efficiency H P Himsworth —p 57  
Agranulocytic Angina Case A D Briscoe —p 61  
Full Term Extra Uterine Pregnancy with Living Child W A Steel —p 62  
Notification of Tuberculosis in Great Britain Historical Note A Newsholme —p 75

Edinburgh Medical Journal

41 401 464 (July) 1934

- Studies on Prenatal Lesions of Striated Muscle as a Cause of Congenital Deformity I Congenital Tibial Kyphosis II Congenital High Shoulder III Myodystrophia Fetalis Deformans D S Middleton —p 401  
Notes on a Series of Thirty Seven Cases of Chronic Bacillus Coli Cystitis Helen A Wright —p 443  
Alkali Reserve and Fat Content of the Blood R F Ogilvie —p 448

## Glasgow Medical Journal

4 140 (July) 1934

- Madness in Literature and Life H C Marr—p 1  
 Infective Endocarditis Due to Bacillus Coli Case A M Crawford  
 and R Cruickshank—p 21

## Lancet, London

2 63 116 (July 14) 1934

- Viruses in Relation to Etiology of Tumors C H Andrewes—p 63  
 \*Perineo-Abdominal Excision of Rectum in One Stage W B Gabriel  
 —p 69  
 Cyst Formation in Ovarian Grafts Report of Case J S Hall—p 74  
 Gastric Digestion of Raw and Boiled Milk in Infants Jessie W  
 Ogilvie and Olive D Peden—p 76  
 \*Displacement of the Internal Epicondyle into Elbow Joint Four Cases  
 Successfully Treated by Manipulation N W Roberts—p 78  
 Severe Serum Shock Case and Investigation J Grant and M M  
 Scott—p 80  
 Bacillus Tuberculosis in Butter Method of Examination J W  
 Edington—p 81

**Perineo-Abdominal Excision of Rectum.**—Gabriel discusses the merits of perineal excision of the rectum compared with abdominoperineal excision. There is a field of usefulness for each operation, provided it is recognized that usually a combined abdominoperineal or a perineo-abdominal excision (the latter of which is the better method) is definitely more radical than a perineal excision. There are two possible exceptions to this rule. 1 Recent cases in which there is a single small mobile carcinoma in the middle or lower third of the rectum without glandular metastasis or evidence of related adenomas above the growth. In such cases a perineal excision is as radical and as effective in curing the patient as an abdominoperineal excision. 2 Advanced cases in which pre-operatively it is possible to demonstrate digitally extrarectal spread in the form of nodules or indurated lymph nodes outside the rectal wall. These are advanced cases with marked lymphatic spread and if considered "operable" are certainly inoperable by the perineal route and probably are equally inoperable by a combined excision. The author has performed the perineo-abdominal operation in one stage in twenty-five cases of cancer of the rectum. There have been five operative deaths, two deaths occurred on the operating table, one occurred on the fourth day and was clearly due to cardiac failure with auricular fibrillation, and two occurred on the seventh day from a combination of small intestinal ileus and bronchitis, this happened before the author had begun the prophylactic injections of ampoules of pitressin. He believes that the justification for the operation in these cases is that microscopic proof of metastases in the glands along the line of upward lymphatic spread has been obtained in fourteen of the twenty-five cases. He is now restricting perineal excision to cases of carcinoma of the anal canal or lower third of the rectum in which the tumors are either very recent or so advanced that, by reason of involvement of the vagina, prostate or ischio-rectal fossa, the extra risks of a combined excision do not appear to be justified.

**Displacement of Internal Epicondyle into Elbow Joint.**—Roberts reports four cases in which displacement of the internal epicondyle into the joint has been reduced by manipulative measures alone. He states that there is no reason to suppose that recovery of the ulnar nerve lesion or the ultimate function of the elbow will be prejudiced by this line of treatment. Stress is laid on the importance during manipulation of opening the inner side of the joint so as to allow the internal epicondyle to retrace its original displacement. In the absence of operative treatment there is the possibility of fibrous union of the epicondyle occurring, but this is of no importance, as fibrous union of the epicondyle occurred in two cases which had been submitted to open operation and in which the epicondyle had been sutured in its correct position. It appears likely that attempted manipulative reduction will be successful in a high proportion of cases seen within the first few days and that the necessity for open operation will be avoided, with consequent shortening of convalescence and prevention of any possible complications.

## Medical Journal of Australia, Sydney

1 829 856 (June 30) 1934

- Nervous Factors in Disorders of Heart C B Blackburn—p 829  
 Remarks on Diagnosis of Acute Conditions of Abdomen L C London  
 —p 836

## Medical Press and Circular, London

189 61 96 (July 25) 1934

- Bournemouth The Health Resort S W Smith—p 61  
 Some Medicolegal Gleanings W Asten—p 63  
 Some Points in Prognosis C A Basker—p 68  
 Manipulative Surgery E C Bowden—p 70  
 \*Scope of Thoracic Surgery N F Adeney—p 71  
 Eleven to 'Thirty Four Being Some Rambling Thoughts on the Past  
 Twenty Three Years G G Morse—p 74  
 Subarachnoid Hemorrhage Review D L Pugh—p 77  
 Coliform Infections Urinary and Otherwise R B Scott—p 84

**Scope of Thoracic Surgery.**—Adeney points out that it is by the understanding of one another's problems that the physician, the surgeon, the radiologist and the pathologist together have contributed to the enlargement of the scope of thoracic surgery. The main complaints for which relief is provided are hemoptysis, chronic cough, dyspnea and general toxemia. Of these, perhaps the chief pitfall that the profession is now only too slowly learning to avoid is that of attaching unjustifiably to the patient with hemoptysis or chronic cough the label of tuberculosis or chronic bronchitis, and then in the former case relegating him forthwith to the limbo of a sanatorium, or in the latter regarding him as hopeless save as a receptacle for the multitudinous inventions of the ingenuity of the manufacturing chemist. It may be that in hemoptysis it is wise to diagnose phthisis until it is disproved with the aid of negative roentgen and repeated sputum examinations. In the case of hemoptysis the wise clinician will consider the possibility of dry or hemorrhagic bronchiectasis and of neoplasm, either of which may yield to surgery. As with hemoptysis, so with chronic cough, which used to be labeled so readily chronic bronchitis or tubercle. Even now the real cause is overlooked, such as chronic empyema, lung abscess or bronchiectasis. Thoracic surgery, of all the fields of the surgeon's enterprise, is the one field of surgery prolific with perhaps the brightest prospects of future achievement, but withal one in which the wise man will learn by constant practical experience of its problems to temper his enthusiasm with a fair assessment as well of the dangers as of the benefits of his intervention.

## Japanese Journal of Obstetrics and Gynecology, Kyoto

17 185 254 (June) 1934

- Cartilage of Lower End of Human Femur in Every Fetal Stage Histologic Study E Terada—p 186  
 Cancer in Human Being Part II Abnormal Cell Division Histologic Study T Ota—p 194  
 Ovulation and Estrual Hemorrhage in Dogs T Ota—p 203  
 Polyovular Follicles of Dogs T Ota—p 207  
 Study on Birth Control with Intra Uterine Instrument T Ota—p 210  
 \*Investigation of Ferments in Uterine Cancer Part I Amylase in Uterine Cancer K Nakahori—p 215  
 Ovarian Follicle Hormone Preparation Pelanin' in Hypoplasia of the Uterus Clinical Experiences J Kosakae and T Ohga—p 224  
 Study of Icterus Neonatorum H Fujimori—p 235

**Investigation of Ferments in Uterine Cancer.**—Nakahori measured the quantity of amylase in the carcinoma tissue, lymph nodes, mucosa and muscular layer of the uterus by the twenty-four hour method of Wohlgemuth. He found that the  $pH$  optimum of amylase in these tissues lies between 6.8 and 7.4. The quantity of amylase varies greatly in each carcinoma tissue. In the carcinoma of immature type there is a greater quantity of amylase than in the mature type. The amount of amylase in some cauliflower-shaped carcinomas is very high. The amount of amylase in a lymph node is almost constant, no matter whether it is infiltrated by carcinoma or not. The amylolytic power of the endometrium of a cancerous uterus is almost the same as that of a noncancerous uterus. The quantity of amylase in the muscular layer of a cancerous uterus shows no specific change.

## Journal of Oriental Medicine, South Manchuria

20 61 68 (May) 1934

- Behavior of Carbohydrate on Antitoxic Function Against Hydrocyanic Acid C Tsuru—p 61  
 Biochemical Study on Nitrile Compound Behavior of Carbohydrate in Formation of Rhodan C Tsuru—p 62  
 Subconjunctival Injection of Hypotonic Sodium Chloride Solution in Therapy M Kawasaki—p 63  
 Biochemical Study on Nitrile Compound Part IV Influence on Carbohydrate Metabolism C Tsuru—p 64  
 Pellagroid Symptoms Following Injection of Trypaflavine (Acridine Dye) M Murayama—p 66  
 Composition of Human Hair M Fukushima—p 67

# Annales de Dermatologie et de Syphiligraphie, Paris

5 553 648 (June) 1934

Chronic Ulcer of Penis in Nicolas and Favre Disease A Cedercreutz  
—p 553

Follicleous Pemphigus of Rapid Course, with Infectious State and  
Probable Septicemic State Case G Petges A Petges and J  
Dubarry —p 559

Oriental Sore of Atypical Clinical Form New Case G Higoumenakis  
—p 568

\*Gonorrheal Serum Reaction in Cerebrospinal Fluid J Gadrat —p 576

**Gonorrheal Complement Fixation in Cerebrospinal Fluid**—As antigen in the gonorrheal serum reaction of the spinal fluid, Gadrat used the antigenococcus vaccine of the Pasteur Institute and as complement, fresh guinea-pig serum. He used a mixture of equal parts of 1:5 suspension of sheep blood cells and hemolytic serum in a dilution fixed by its dosage. The reaction is made with six tubes, three of them being controls. Five-tenths cubic centimeter of cerebrospinal fluid is added to each. Two tenths cubic centimeter of antigen is added to each, except for the three controls, to which an equal portion of physiologic solution of sodium chloride is added. To the three test tubes 0.1, 0.15 and 0.2 cc. of complement is added. The tubes are incubated for three quarters of an hour. Then 0.2 cc. of the hemolytic mixture is added throughout, and the tubes are incubated for three quarters of an hour and read. A weakly positive reaction is accepted when there is no hemolysis in tube 1, i. e., with 0.1 cc. of complement, a positive reaction when there is an absence of hemolysis in tubes 1 and 2, and a strongly positive reaction when there is no hemolysis in any of the three tubes. These tests were made on 115 patients. It was found that the reaction was positive in the cerebrospinal fluid in about 66 per cent of blenorrhagias, usually complicated. In some cases it remains positive longer than in the blood and survives both clinical and bacteriologic cure. This serologic characteristic exists without other cytologic or chemical alteration of the spinal fluid. It is independent of the Wassermann reaction. It allows the tracing of a certain number of latent gonorrheal infections.

## Paris Médical

2 4576 (July 21) 1934

Neglected Ideas of Antidiabetic Dietetics L Dautrebande —p 45

Lesions of Acute Barbiturate Poisoning G Carriere C Huriez and  
P Willoquet —p 61

Early Getting Up in Abdominal Surgery P Smith —p 68

Must One Always Tell Truth to Patients? A Schwartz —p 73

**Lesions of Acute Barbiturate Poisoning**—Carriere and his co-workers carried out experimental studies on the lesions in rabbits resulting from the oral ingestion of fatal doses of a barbiturate preparation. Different organs and systems were examined and are described in detail. The changes, which affected all the organs, were hyperemia with capillary and venous congestion, fatty degeneration and terminal infection except at the level of the lung, where a pneumonic process is often early. These are the three general characteristics of acute barbiturate poisoning. One can thus say that the barbiturates are fatal by initiating a degeneration of the entire protoplasm.

## Presse Medicale, Paris

42 953 976 (June 13) 1934

\*Action of Splenic Extracts on Diabetic Patients F Rathery I Cos  
mulesco and C E Gignou —p 953

Duodotyrosin (3:5 Duodo 4 Oxyphenylalanine) Its Use in Treatment  
of Hyperthyroidism G Laroche and B Klotz —p 955

Against Taxis in Strangulated Hernia. A Ameline —p 957

Can One Measure Arterial Pressure by Venous Road? P Goinard and  
C Bardenat —p 958

Comparative Study of Treatment of Frambesia by Different Arsenicals  
and by Potassium Iodide. S Golovine —p 959

**Action of Splenic Extracts on Diabetic Patients**—Because of the experiments with splenic extract on normal and diabetic dogs showing its influence on glycemia, Rathery and his co-workers studied the action of the extract in human diabetic subjects. This study was divided into three parts: the action of the splenic extract on free and combined blood sugar, the action on the glycemic variations following the ingestion of dextrose, and the action on the variations in glycemia resulting from the injection of insulin combined with the ingestion of dextrose. The preparation employed was an extract of defatted and deproteinized spleen. In general (eight out of ten cases) the intravenous injection of this preparation in diabetic patients produced a fall in the free sugar the

maximum being attained at the end of an hour and a half. The percentage fall varied from 5.1 to 31. The phenomenon begins to decline at the end of about three hours but exceptionally may persist. The combined sugar usually falls, the maximum being attained often during the first half hour. The association of intravenous splenic extract injection with the test of hyperglycemia produced in diabetic patients by the injection of dextrose retards the appearance of free sugar hyperglycemia but seems to increase the intensity and duration. The association of intravenous injection increases, sometimes remarkably, the effect of insulin on the free sugar during the test of provoked hyperglycemia. It would perhaps be advantageous in some cases of diabetes to use the favorable action which the extract exercises on insulin.

42 977 992 (June 16) 1934

\*Medical Treatment of Chronic Cholecystitis Personal Method M  
Chiray A Marcotte and R Le Canuet —p 977

Puerperal Azotemia Polyproteinemia and Chloremia E Estienney  
J Lasserre and P Valdiguie —p 979

42 1017 1032 (June 23) 1934

Subarachnoid Hematomas and Cerebral Aneurysms E Moniz —p 1017

Roentgenologic Aspect of Intestinal Mucosa in Colon Tuberculosis  
G Maingot R Sarasin and H Ducloux —p 1019

Accumulation of Their Sclerotic Effects by Association of Liquids  
Employed for Curative Fibrosis of Varices Sodium Benzoate G  
Delater and M Chailly —p 1022

**Medical Treatment of Chronic Cholecystitis**—Chiray and his collaborators found by accident the sedative effects exercised by certain calcium salts injected intravenously and parathyroid extract intramuscularly on painful cholecystitis. Patients with chronic cholecystitis obtained an improvement in general condition by calcium intravenously, a spontaneous decrease in pain (often even disappearance of pain on palpation) and a modification of painful attacks which became less frequent and less severe. The method that they used was the daily, or alternate daily, injections of 5 cc. of a 10 per cent solution, each treatment comprising from ten to fifteen injections. The parathyroid extract was administered subcutaneously in daily doses of 1 cc., each series consisting similarly of from ten to fifteen injections. Sometimes these substances were alternated in the same patient, and sometimes only one was used. Nine cases are reported in which this method caused important improvement in almost all. It is probable, they believe, that the sedative action on the biliary passages is due to increase in the biliary calcium. This method may be used either as a preliminary to surgical intervention, with the advantage of increasing the blood coagulability and improving the general state, or as basal medical treatment in the course of various painful conditions of the gallbladder.

## Revue Française de Pédiatrie, Paris

10 121 256 (No 2) 1934

Cytologic Evolution of Cerebrospinal Fluid in Meningococcal Meningitis  
Treated by Serum B Tassovatz —p 121

Importance of Pathology of Twins in Pediatrics E Stransky —p 159

\*Chlorides in Meningitis L O Finkelstein and F S Merson —p 204

Gastric Ulcer in Childhood H L Rocher —p 218

\*Chronic Abdominal Pains in Childhood II Angiocholecystitis of  
Children A Guersstein and I Reydermann —p 225

Analysis of Some Symptoms of Tuberculosis of Bronchial Lymph Nodes  
in Young Children A S Levine —p 241

**The Chlorides in Meningitis**—If there is a possibility of using the quantity of chlorides in the cerebrospinal fluid in meningitis as a prognostic sign, Finkelstein and Merson recognize the necessity of observing the oscillations of the chlorides in the course of meningitic processes of different types. The material for their studies comprised twenty-three cases of epidemic meningitis, nine of tuberculous meningitis, one of purulent meningitis, four of aseptic serous meningitis, one of syphilitic meningitis and the remaining without alteration of the meninges, a total of forty-one cases. The procedure was as follows. The urine was collected for twenty-four hours the same day the gastric secretion was examined after a test breakfast. After this, blood was drawn for chloride determinations, and finally lumbar puncture was performed. The quantity of chlorides found in the spinal fluid normally varied from 720 to 740 mg per hundred cubic centimeters. They concluded that the quantity of chlorides of the spinal fluid in serous meningitis did not deviate from normal. In mild cases of epidemic meningitis the chlorides were only slightly lowered.

The decrease in chlorides progresses with the severity and duration of the process. In dangerous cases, values even lower than that of the blood are obtained. In tuberculous meningitis the diminution of chlorides is more accentuated than in epidemic meningitis. The quantity of cerebrospinal fluid chlorides may often serve as a good differential sign between meningismus and serous meningitis on the one hand and tuberculous meningitis on the other. Increase in the chlorides of the spinal fluid is a favorable prognostic sign, decrease is unfavorable. Diminution of cerebrospinal chlorides in meningitis depends not only on demineralization of the blood plasma but on the general demineralization of the entire organism. To hinder the demineralization of the organism with meningitis, it is important to look after the food and reinforce it as much as possible with mineral constituents.

**Abdominal Pains in Childhood**—Guerstein and Reydermann believe that careful history taking and abdominal palpation of children with abdominal pains will often permit the diagnosis of angiocholecystitis. The best confirmation is given by the method of duodenal sounding with evacuation of the gallbladder with the help of concentrated solutions of magnesium sulphate described by Lyon. Most of the patients examined had an angiocholecystitis without calculus. The authors feel that in an important group of children with abdominal pain, especially in the region of the umbilicus or higher, a simple angiocholecystitis is the explanation and that the duodenal sound method is a valuable accessory diagnostic aid.

### Schweizerische medizinische Wochenschrift, Basel

64 677 700 (July 21) 1934 Partial Index

Role of Roentgen Rays in Experimental Carcinogenesis A. Beclere —p. 679

Mitogenic Permeability of Cells A. Gurwitsch —p. 681

\*Infectious Polyarthritides in Adults and Children with Involvement of Hip Joints and Protrusion of Floor of Acetabulum R. Kienbock —p. 688

Roentgen Examination of Diseases of Pancreas M. Ludin —p. 692

Ray Treatment of Carcinomas of Larynx and Pharynx F. R. Nager H. R. Schinz and A. Zuppinger —p. 695

Discussion of the Cancer Problem and the Public A. Soland —p. 698

**Involvement of Hip Joints in Polyarthritides**—Kienbock calls attention to the fact that occasionally the hip joints become involved in infectious polyarthritides and that it may happen that the floor of the acetabulum is forced toward the pelvis, so that a pelvic protrusion of the acetabulum results. The arthritis may be of various types; it may be a nonspecific infectious arthritis, which is generally acute but may also be chronic, it may be the acute, chronic arthritis of gonorrhea, or it may be an articular tuberculosis, in which there are recurrent inflammatory attacks. Roentgenologic and anatomic observations have revealed that in the course of inflammation of the articular capsule and of the destruction of the cartilaginous coverings by the formation of granulation tissues and pannus the osseous acetabular floor becomes decalcified, softened and occasionally partly destroyed. The pressure from the head of the femur deepens the acetabular floor and forces it toward the center and slightly upward. Following cessation of the inflammation, the acetabular floor hardens again and the roentgenogram reveals a pelvic protrusion. The author points out that Breus in 1913 differentiated three stages in the development of this disorder, and he shows that the process is a sort of wandering of the acetabular floor, which may progress gradually. The joint either becomes fixed in contracture and ankylotic, or its motility may be reestablished; the latter is possible only in rather mild cases, and later there often appear progressive changes of the bones, which are noticed in primary deforming arthrosis. The author reports the histories of two patients. In both cases there existed a bilateral, infectious inflammation of the hip joint with partly slight and partly severe protrusion of the acetabular floor. The first patient was a woman, aged 54, and the second a boy, in whom the pain of the hip joint set in at the age of 13. This second case is especially worthy of note because the disorder is comparatively rare in children and young persons. The author calls attention to similar changes in the hip joint, which develop in other diseases, such as tabetic arthropathy, Paget's disease, osteomalacia and osteolytic cancer metastases. However, these rather extensive skeletal changes should be differentiated from the described local changes caused by articular disease.

### Minerva Medica, Turin

2 132 (July 7) 1934

Relations Between Morphologic Constitution and Tuberculosis G. L. Fegiz and R. Rimini —p. 1

Takata Reaction in Pulmonary Tuberculosis C. Zach and L. Brancolini —p. 6

\*Oleoathorax in Treatment of Pleuropulmonary Diseases L. Capani —p. 9

Catarrhal Icterus in Pulmonary Tuberculosis P. Marin and O. Del Piero —p. 16

**Oleoathorax in Treatment of Pleuropulmonary Diseases**—Capani found that in antiseptic oleoathorax the late results have always been satisfactory in cases treated for tuberculous empyema. Two cases of septic empyema with pleuropulmonary fistula treated with oleoathorax afforded excellent results. In adhesive oleoathorax, late observations also confirmed the immediate success of the treatment. The author was constantly successful in keeping the pleural cavity and the collapse effective with the subsequent hypertensive pneumothorax. He attributes little importance to the collapsing action of the oleoathorax in lesions opposing pneumothoracic collapse. In one case of pleuropulmonary fistula complicated with valve and empyema in full oleothoracic treatment the oleoathorax was repeated after emptying, and closure of the fistula and sterilization of the pleural cavity were obtained. On lesser indications of the oleoathorax, such as flexible mediastinum and insatiable pneumothorax, the method seems to be responsive if applied prudently and only in cases of extreme necessity. In all cases the observations after a lapse of some years from the suspension of the oleoathorax revealed a constant and strong secondary sclerosis of pleuritic origin, which has always been increasing. Since this phenomenon is so constant, the author maintains that the cause of it may be found in the action of the aromatized oil that is used in the oleoathorax. It cannot be determined how much of this action may be attributed to the aromatized oil and how much to the simple mechanical action of the liquid, which seems to have great importance. Pleuroscopic observations after the suspension of the oleoathorax revealed considerable pleural reaction, which rendered the serosa completely opaque; the pleural surfaces seemed to be covered with layers of fibrin. The aspect of the pleura must be interpreted as a reaction that has its beginning in the process of pleuritic fibrosis observed long after the suspension of the oleoathorax.

### Dermatologische Zeitschrift, Berlin

69 193 304 (July) 1934

Significance of Experimental Research on Syphilis for Human Syphilology R. Brandt —p. 193

\*Occurrence of Invisible Form of Causal Agent of Syphilis J. Van Haelst —p. 212

Ulcers of Vulva Following Tonsillectomy in Child K. Steiner —p. 220

Leukoderma Following Relapsing Herpes Simplex F. Kalz —p. 226

**Invisible Form of Causal Agent of Syphilis**—Van Haelst states that there is a granular, ultraviolet-visible form of the causal agent of syphilis. From the fact that spirochetes are rarely demonstrable in the lymph nodes of rabbits and that in spite of this these organs are highly infectious, it has been assumed that the spirochete represents only one phase of the developmental cycle of the causal micro-organism of syphilis. The discussions on the invisible form of the organism induced the author to investigate whether there is a difference in the manifestation developing after the inoculation of organs containing large numbers of spirochetes and of those that are free from spirochetes. He found that the incubation period is the longer as the quantity of the infectious inoculation material is smaller. Studies on the threshold of infection revealed that in rabbits the threshold is higher in the syphiloma than in the lymph nodes, however, the difference in the two thresholds does not correspond to the number of spirochetes contained in the two structures. The infectiousness of the lymph nodes of the knee is generally from ten to fifteen times less than that of the syphiloma, in spite of the fact that the ratio between their content in spirochetes is still smaller (1:200). The infectiousness of the inguinal lymph nodes that have been removed during the stage of the florid chancre approaches that of the syphiloma, in spite of the great difference in the number of spirochetes contained in the two. To determine whether these differences justify the assumption of the existence of an ultraviolet-visible form of the pathogenic agent of syphilis, the author

subjected the emulsions from the fresh organs to careful studies and succeeded in demonstrating the presence of spirochetes in nearly all the infectious organs, although the tissues were apparently free from spirochetes. The author reaches the conclusion that the syphilis infection is always due to infection with *Spirochaeta pallida*. For the apparent contradiction between the nearness of the thresholds of infection of syphilomas and lymph nodes and the great difference in the number of spirochetes that are present in the two structures, the author assumes that the few organisms that are present in the lymph nodes have acquired a high resistance by being exposed to the influence of antibodies. However, the majority of the organisms present in the syphiloma have been influenced only by the locally formed antibodies and their resistance has decreased, so that their infectiousness has been partly lost.

### Deutsche medizinische Wochenschrift, Leipzig

60 1039 1074 (July 13) 1934 Partial Index

- \*Pathogenesis and Therapy of Psoriasis O Grutz—p 1039  
Treatment of Pulmonary Abscess K Machold—p 1043  
Irritated Stomach and Peptic Ulcers Their Etiology and Therapy A Westphal and W Kuckuck—p 1046  
Medicinal Plants in Therapy of Diseases of Digestive Organs K Nissen—p 1050

**Pathogenesis and Therapy of Psoriasis**—Grutz recapitulates his studies on psoriasis (*Klin Wchschr* 12 373 [March 11] 1933, abstr *THE JOURNAL*, May 27, 1933, p 1729), in which he proved that psoriasis is caused by a disturbance in the fat metabolism and that it can be counteracted by a diet deficient in fat. He gives instructions about the foods that should be avoided. He stresses particularly all types of fats (bacon, lard, butter, cream, oil and so on), meats with a high fat content (pork, mutton, goose, duck and so on), certain fish (eel, herring, salmon, carp and all fish roe) and egg yolks, the latter on account of their cholesterol content. Cakes and other baked foods containing fats must likewise be avoided. Permitted are lean meats, fish with a low fat content, soups and vegetables, provided they have been prepared without fat, fruits and berries, preserves and fruit juices and various breads that have been prepared without fat. On such a diet, obese patients with psoriasis frequently lose weight, while patients of normal weight do not, provided their calory requirements are adequately supplied in the form of carbohydrates and proteins. Emaciated persons with psoriasis have even been known to gain in weight under the influence of the fat deficient diet. The author discusses the possibility that just as the carbohydrate tolerance differs in diabetic patients there may be a difference in the fat tolerance of psoriatic patients. On the basis of clinical manifestations this seems probable, for in some patients a slight reduction in the fat intake is effective, while in others a more strict regimen is necessary. Moreover, it is advisable to investigate whether the fat synthesis is disturbed in psoriatic patients. The author reports that in some patients the results of the fat deficient diet are already noticeable after two or three weeks, while in others six weeks or even several months are necessary to reveal the effects. In some patients the psoriatic lesions spread in area but decrease in depth shortly after the onset of the treatment, and there may also be a temporary increase in scaling but this should not tempt the physician to interrupt the treatment, for this "becoming acute" is only temporary and the continuation of the diet will finally effect the complete disappearance of the lesions.

### Klinische Wochenschrift, Berlin

13 1009 1040 (July 14) 1934

- Heavy Hydrogen and Its Biologic Significance W Brandt—p 1009  
Diabetes Insipidus and Interbrain R Gaupp—p 1012  
Method of Gas Analysis of Blood in Presence of Nareylen E Derra and J Korth—p 1014  
Endocranial Complications Following Pharyngeal Phlegmon E Grabscheid—p 1017  
Elimination of Follicular Factor and Anterior Pituitary like Principle in Older and Aged Men (Problem of Climacteric in Men) III Quantitative Determination of Sex Hormones in Healthy Persons and in Patients with Mental and Nervous Disorders W Österreich—p 1019  
\*Treatment of Meningitis with Roentgen Rays H Hippe and F Lickint—p 1022  
Encephalopathic Complications of Exophthalmic Goiter J Krotoski—p 1024  
Simplified Method for Differentiation of Subgroups A<sub>1</sub> and A<sub>2</sub> N Blinov—p 1025

**Diabetes Insipidus and Interbrain**—Gaupp reports the case of a man, aged 35, who, after an automobile accident that resulted in a concussion of the brain, loss of consciousness and vomiting, developed a severe diabetes insipidus and a mild hemiplegia of the left side. Substitutional hormone therapy was effective in the beginning, but after several months it failed completely. In addition to slight psychic disturbances (alteration of hypothymic and hyperthymic phases) and insomnia, the patient had attacks of headaches, perspiration, increase in temperature, vomiting, anesthesia of the paralyzed side, anginous cardiac disorders, mild ileus and, in the beginning under the influence of medication with the hypophyseal preparation, also an inhibition of the diuresis, apparently of spastic origin. During and after these attacks, a state of excitation became manifest with a tendency to destruction, aggressiveness and irresponsible running away. During one attack the patient attempted suicide. The author points out that many aspects of this psychoneurologic syndrome resemble those of acute epidemic encephalitis, in which the inflammatory changes are limited to the interbrain and midbrain. The author points out that in epidemic encephalitis the water and sodium chloride metabolisms are likewise occasionally involved. The psychic changes are known as symptoms of the interbrain. The insomnia, the temporary increases in temperature and the symptoms indicating changes in the autonomic nervous system (spastic contractions of the smooth muscles) can be traced to an involvement of the third ventricle. The clinical symptoms alone do not permit definite conclusions about the type and extent of the traumatic injury of the brain, but it is probable that considerable impairments in the region of the interbrain must have resulted from the trauma. It is likely that the pathologic process extends into the right peduncle, but whether beyond that the tuber cinereum or even the hypophysis is involved is unknown. He reviews the experimental results and the pathologic changes in diabetes mellitus reported by Staemmler. He reports his own observations based on the studies of Scharrer, who first called attention to the fact that in fishes reptiles and amphibians the interbrain contains ganglion cells that have a secretory activity. Similar observations were made in mammals, and in collaboration with Scharrer the author has made studies on a human subject. He concludes that the hesitation to speak of a hormone formation in the brain has been overcome.

**Treatment of Meningitis with Roentgen Rays**—A review of the literature convinced Hippe and Lickint that roentgen rays have produced favorable effects in some cases of serous meningitis. Opinions still differ regarding the efficacy of roentgen rays in tuberculous meningitis, but most of those who have tried it report unsatisfactory results. Epidemic meningitis, particularly the subchronic and chronic form, has been known to be influenced favorably by roentgen treatment. The authors relate the history of a man, aged 24, in whom the meningitis involved more and more the spinal portion, so that extreme pain was felt along the entire spinal column. In spite of repeated lumbar and cistern punctures and of continued medication with methenamine, the symptoms became more severe. Gradually, in the course of several months, the aspects of chronic spinal meningitis developed. Since all other measures proved ineffective, it was decided to resort to roentgen treatment. The entire spinal column and the occiput were divided into seven fields measuring 10 12 cm, and 20 per cent of the unit skin dose was applied to each field. The tension was 160 kilovolts, the current strength 6 milliamperes, the filter 0.5 mm of copper and 1 mm of aluminum, and the distance 30 cm. The irradiations were given at intervals of from two to four days. Four series of seven sessions each were given in the course of three months. Thus each field received 80 per cent of the unit skin dose. The result of this treatment was that quite early in the treatment the pain in the spinal cord was considerably reduced. After approximately one half of the treatments had been given, the fever decreased and the appetite increased. The patient gained in weight and the sedimentation speed (Westergren) fell from 48 to 16 mm. After sixteen months the patient was discharged from the hospital and was able to work. During a period of two years he has been free from relapse. The authors recommend roentgen therapy for similar cases of chronic meningitis.



**Medizinische Klinik, Berlin****30** 889 920 (July 6) 1934 Partial Index

- Cancer Problems L. Aschoff—p 889  
 Sources of Error and Possibilities for Mistakes in Ordinary Laboratory Methods Employed by the General Practitioner W. W. Siebert—p 895  
 \*Indications for Nonspecific Therapy of Neurosyphilis A. Kral—p 898  
 Action of Epinephrine on Bone Marrow Hormone Regulation of Hematopoiesis K. Paschalis and Annie Schwoner—p 900  
 \*Treatment of Bullous Oral Exanthems by Means of Liver Preparations M. Sebba—p 902

**Indications for Nonspecific Therapy of Neurosyphilis**

—Kral says that the best protection against a late involvement of the central nervous system is thorough treatment of the syphilitic patient during the early stage of the disease. His neurologic clinic stresses the necessity of subjecting the syphilitic patient to spinal puncture five years after the infection. Patients who then have a positive reaction in the cerebrospinal fluid should be subjected to an effective prophylactic treatment. The specific therapy is not sufficient, and the author thinks that in these latent cases, with a positive reaction in the cerebrospinal fluid, fever therapy with subsequent antisyphilitic treatment gives the best results. Malariotherapy with arspenamine and bismuth compounds subsequently is the method of choice for these patients. The author considers malariotherapy advisable in all cases of late latency in which no special contraindications exist, such as decompensated cardiac defects, active tuberculosis, renal diseases, great obesity or severe cachexia. He suggests that in the latter cases the malariotherapy be replaced by treatment with bacterial proteins.

**Liver Preparations in Treatment of Bullous Oral Exanthems**—Sebba points out that the bullous, pemphigus-like processes of the oral mucous membrane have proved virtually incurable. He classifies with the bullous processes all those disorders that appear in the form of large or average bullae in the buccal and palatal mucous membranes. The bullae burst readily and the roundish, readily bleeding foci of the mucous membrane frequently merge, so that considerable areas of the mucous membrane are denuded of epithelium. The bullous stage is not often observed, but remnants of the burst foci are occasionally seen. Improvements and exacerbations alternate, but there is never a complete cure. After discussing the differentiation from erythema exudativum multiforme, pemphigus, ulcerous stomatitis and allergic bullous disorders of the mucous membrane usually caused by certain medicaments, the author gives the clinical history of a man, aged 78, who, in addition to a severe angina pectoris, had a bullous exanthem on the chest, the left leg, the inguinal region, the scalp, the nostrils, the pharynx and the palate. The oral bullae ruptured and swallowing became difficult. Since painting with a 1 per cent solution of acriflavine hydrochloride was of slight benefit, the author resorted to oral liver therapy. At first a liquid preparation was given and later natural liver. Under the influence of this treatment the patient's general condition improved noticeably and after several weeks the oral symptoms had entirely disappeared. The author cites another case that took a similar course, and he recommends a trial with liver preparations in the bullous exanthems and enanthems of the mouth, the skin and the nose. The lesions of the mucous membrane should either be left alone or should be painted with a 1 per cent solution of acriflavine hydrochloride. Corrosives are injurious and should be omitted.

**Monatsschrift f. Geburtshilfe u. Gynakologie, Berlin****97** 189 252 (July) 1934

- Modern Care for Pregnant Women in Campaign Against Declining Birth Rate F. Stahler—p 189  
 Course of Delivery Following Fracture of Pelvis K. Welsch—p 197  
 Efforts to Reduce Obstetric Maternal and Infantile Mortality K. Traube—p 208  
 Influence of Prolonged Administration of Hormone of Anterior Lobe of Hypophysis from Urine of Pregnancy on Vital Organs in Guinea Pigs O. Hajek and K. Wepschek—p 217  
 \*Habitual Hydramnion J. Beaufay—p 221  
 Histopathology of Sclerocystic Ovaries E. E. Gigowsky—p 226

**Habitual Hydramnion**—Beaufays reports the history of a woman, aged 35, who had been pregnant six times. The first pregnancy ended normally. During the second pregnancy she developed edema, and the child died two days after the delivery. The following pregnancy terminated with the birth of a macerated fetus. During this pregnancy the woman again had severe

edemas and she stated that on rupture of the bag of waters an unusually large amount of fluid had been passed. During the fifth pregnancy the woman was first seen in the author's clinic. On admission she showed severe edema. The protein test of the urine was weakly positive and the sugar test was negative. The blood pressure was 145 mm of mercury. The edemas disappeared after several days of a special diet and of limitation of fluid intake. The blood pressure decreased likewise. Fetal movements and heart sounds were not perceptible. After the death of the fetus had been established, delivery was induced. A macerated fetus was born and large amounts of greenish amniotic fluid were discharged. During the sixth pregnancy there were no edemas during the seventh month, but the patient's abdomen was already of considerable size and the urine again contained protein. The condition was diagnosed as nephropathia and hydramnion. At her request she was discharged from the clinic, but she was ordered to keep a strict diet and rest in bed. She returned to the clinic after one month, complaining of nausea and vomiting. The circumference of the abdomen had increased and respiration was difficult. The fetal movements had ceased. Delivery was induced and on the rupture of the bag of waters, 3,300 cc of greenish fluid was discharged. The fetus was macerated but its necropsy revealed no abnormality. The placenta was unusually large. Repeated tests had never revealed signs of syphilis. The author reviews the literature on habitual hydramnion. Reports of the habitual form are rare. The following factors have been cited as causes: (1) on the part of the mother: placenta praevia, large placentas and nephropathia of pregnancy, (2) on the part of the fetus: repeated occurrence of hydrocephalus or of dropsy and changes in the umbilical cord. The children are always born dead and macerated, but death of the mother is mentioned only in the case of placenta praevia. Nothing definite is known about the etiology.

**Munchener medizinische Wochenschrift, Munich****81** 1045 1080 (July 13) 1934 Partial Index

- \*Hypophyseal Plethora (Cushing's Disease Pituitary Basophilism) F. Jamin—p 1045  
 Helminthiasis or Epigastric Hernia? H. Schwenicke—p 1048  
 Psychiatry and Race Hygiene Rudin—p 1049  
 Varicose Syndrome H. Doerfler—p 1055  
 \*Treatment of Asthenia K. Backmund—p 1059  
 Cure of Keratomalacia with Vitamin A Preparations and Requirements of Their Successful Application H. Brugsch—p 1062  
 Technique of Unpadded Plaster of Paris Bandage of Forearm W. Schmid—p 1063

**Hypophyseal Plethora (Cushing's Disease Pituitary Basophilism)**—Jamin describes a case of the syndrome (obesity, osteoporosis, genital hypoplasia, hypertension and adynamia) that Cushing ascribes to the basophil adenoma of the anterior lobe of the hypophysis. The author emphasizes that circulatory disturbances, acrocyanosis, angiospasm and hypertension play a determining part in the syndrome, and for this reason he suggests the term "hypophyseal plethora" as an antithesis to the term "hypophyseal cachexia." He points out that the disease is the manifestation of an endocrine hyperactivity of the adenohypophysis. This hyperfunction is to be differentiated from the effects of the growth hormone, for it is rather the result of an excessive, unchecked hypophyseal stimulation of subordinate endocrine glands, particularly of the suprarenals, the posterior lobe of the hypophysis and the parathyroids, which becomes manifest as a pluriglandular disturbance involving the appearance as well as the functional activities of the organism. High voltage roentgen irradiation has been known to influence the syndrome favorably. The endocrine hyperfunction is probably the result of adenomatous or diffuse proliferation of the basophil elements of the adenohypophysis.

**Treatment of Asthenia**—Backmund calls attention to the treatment of asthenia by means of Bucky's borderline rays. He abandoned Bucky's original method of generalized irradiation and gave instead eight irradiations on eight different fields. Each field receives 300 roentgens. The rays are applied by means of a borderline ray apparatus. The focal distance is 15 cm., the strength of the current 10 milliamperes and the tension 9 kilovolts. The dose of 300 roentgens (measured in the air) produces a temporary erythema but rarely, after from one to two weeks, however, a pigmentation often becomes visible and persists for longer periods. The author

employed the borderline ray treatment in thirty-five cases manifesting the signs of the hypotonic syndrome. The treatments were given in the course of a sanatorium cure (generally of three weeks' duration). In addition to the borderline ray therapy the patients received only the usual physical and dietary treatment. The borderline ray therapy increased the low blood pressure, the low blood sugar and the basal metabolism. The vasomotor and dyskinetic disorders disappeared and the general condition improved. In discussing the action mechanism of borderline ray therapy in asthenia the author expresses the opinion that its efficacy is due to the modification of the sympathetic nervous system by way of the skin, for in the asthenic person the regulation of this system is disordered.

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- Paralysis of Plexus Innervating Shoulder and Arm Following Prophylactic Vaccination with Tetanus Serum Ridder—p 1085  
\*Hypophyseal Plethora (Cushing's Disease Pituitary Basophilism) F Jamn—p 1085  
\*Demonstration of Protein in Urine by Means of Sulphosalicylic Acid Paper (Protein Test Paper) New Method for Practitioner F A Wahl—p 1090  
\*Removal of Needle from Lung by Incision into Chest M Lebsche—p 1094  
Intestinal Motility in Icterus Gutzeit and Kuhlbaum—p 1095  
Duodenojejunal Flexure Stimulating Ulcer in Roentgenogram of Stomach G Radwansky—p 1099  
\*Generalized Xanthomatosis K Herman—p 1100

**Simple Method for Demonstration of Protein in Urine**—Wahl emphasizes the importance of sulphosalicylic acid in the demonstration of protein in the urine and describes a new simple method that employs a specially prepared paper as a reagent. The paper can be prepared by the practitioner in the following manner. A piece of blotting paper is placed on a piece of glass and is saturated with a 20 per cent solution of sulphosalicylic acid. After the fluid has evaporated, the blotting paper is cut into strips 7 by 0.5 cm. A small bundle of these strips is carried by the physician. In order to effect flocculation of the protein contained in a specimen of urine, it is sufficient to dip a strip of the paper into it. The paper is a highly sensitive reagent, by means of which a protein content of less than 0.025 per cent can be detected. The paper may be kept for a long time; several months of exposure to light and air did not impair its efficacy.

**Removal of Needle from Lung by Incision**—Lebsche advises that needles that have penetrated into the deeper air passages and cannot be removed by means of bronchoscopy be removed by incision into the chest. The dangers of the intervention have been reduced since bronchotomy has been replaced by pneumobronchotomy. Sauerbruch advises the same procedure for removal of foreign bodies from the bronchi as he does for the removal of bullets from the lung. The thoracic cavity is opened widely, the lung collapses and the foreign body can be felt. The surgeon holds the region of the foreign body with the left hand and makes the necessary incision to remove the foreign body. Blood, mucus and pus are removed, the wound is dabbled with iodine and then carefully closed with several button sutures. Lung and pleura are sutured in two or three further layers, and the thoracic wall is closed under differential pressure. The author maintains that the dangers of this method are comparatively slight. He describes two cases. One report proves that the outcome of the intervention is largely determined by the localization and course of the accompanying inflammation. The second case shows that postponement makes the treatment more difficult.

**Generalized Xanthomatosis**—Herman maintains that generalized xanthomatosis is essentially an infiltration of the various organs with cells containing cholesterol. The process produces a granulation tissue and for this reason is referred to also as lipoid granulomatosis. Deposits of keratin or of phosphatides, respectively, produce Niemann-Pick's disease and Gaucher's disease. Deposits of cholesterol produce xanthomatosis. Schüller-Christian's disease is not a disease entity but belongs to the group of xanthomatoses. The author gives a detailed description of the clinical history of a woman who had a generalized xanthomatosis. The diagnosis proved difficult for the patient had diabetes insipidus, xanthoma of the eyelids and ulcerous lesions of the skin and the cholesterol content of her blood was greatly increased. The latter factor finally decided the diagnosis of generalized xanthomatosis.

## Wiener klinische Wochenschrift, Vienna

47 865 896 (July 13) 1934 Partial Index

- \*Clinical Aspects and Etiology of Purely Traumatic Fatal Shock and Remarks on Nature of Shock R Herbst—p 868  
\*Differential Diagnostic Significance of Specific Dynamic Protein Action F Hogler—p 871  
Diagnosis of Tumors of Corpus Callosum K Erb—p 876  
\*Treatment of Vasoneurotic Disturbances with Preparations of Anterior Lobe of Hypophysis with Especial Consideration of Blood Pressure Reaction in Changed Postures K Rudsit—p 878  
Spontaneous Cure of Renal Tuberculosis? R Chwalla—p 882  
Alleviation of Pain in Obstetrics W Weibel—p 884

**Traumatic Fatal Shock**—Herbst shows that the circulatory disturbances produced by traumas not causing tissue injuries are nervous vascular crises, which, according to the circumstances, produce different changes in the periphery. He rejects a differentiation between shock and collapse and applies the term shock to all traumatic circulatory crises. However, he differentiates purely traumatic from wound shock and points out that there is also an erethistic form of traumatic shock. On the basis of a case of shock ending fatally, he discusses the various manifestations that are possible in case of traumatic shock and also its genesis and therapy.

**Significance of Specific Dynamic Protein Action**—Hogler calls attention to the reports of investigators who recommended the determination of the specific dynamic protein action as a differential diagnostic aid in endocrine, particularly hypophyseal, disturbances. Another group of workers pointed out that the specific dynamic protein action not only is dependent on the state of the endocrine system but is influenced by the rapidity of the evacuation of the stomach and by the speed of the resorption. The author's studies disclosed that the secretory activity of the stomach plays a part. He found that the specific dynamic action may be reduced in cases of hypoadicidity or of anacidity. However, the specific dynamic protein action can almost be normalized in these persons by administering larger quantities of hydrochloric acid-pepsin. The fact that this was possible even in a hypophyseal dwarf shows that disturbances in the gastric secretion may weaken or suspend the specific dynamic action in persons with or without endocrine disturbances. Further studies revealed that even the preparation of the food influences the specific dynamic protein action. The author reaches the conclusion that the determination of the specific dynamic protein action may aid in the differential diagnosis of endocrine disorders only if disturbances in the gastro-intestinal function can be excluded.

**Blood Pressure and Posture**—Rudsit studied the blood pressure in the reclining, sitting and erect positions. With the change in position he observed among the examined persons three distinct types of blood pressure reactions, but he detected no relation between the reaction and the disorder existing in the examined person. Of the three types observed, he attaches the greatest significance to that one in which the blood pressure is lower in the erect than in the reclining position. Persons in whom this type of blood pressure reaction is most pronounced have severe vasomotor disorders on the basis of an endocrine disturbance. The author describes five cases of vasoneurotic disturbance and shows the favorable influence produced by preparations of the anterior lobe of the hypophysis. The improvement in the subjective symptoms was accompanied by a reversion from the pathologic to the normal blood pressure reaction.

## Zentralblatt für Gynäkologie, Leipzig

58 1633 1680 (July 14) 1934 Partial Index

- Closure Reimplantation and Inflation of Uterine Tubes While Abdomen is Open L Fraenkel—p 1634  
\*Abortion Between Two Periods K Heim—p 1641  
Semmelweis and Modern Bacteriology K Burger—p 1649  
\*Diagnosis of Interstitial Pregnancy F Drzacic—p 1653

**Abortion Between Two Periods**—Heim points out that the question as to whether menstruation may still take place following impregnation of the ovum has been answered variously in recent times. After reviewing some of these contradictory opinions he gives the detailed description of a case in which it could not be doubted that following impregnation, that is, during pregnancy, a normally profuse menstrual bleeding occurred. The woman menstruated regularly after intervals of twenty-five or twenty-six days. The last menstruation (in February) did not essentially differ from the preceding one. On the twelfth

day after this menstrual period the woman observed an almost negligible discharge of blood, but, since she had had this intermenstrual discharge occasionally in former years, it was interpreted as a manifestation of ovulation. However, two days later there occurred an unusually profuse discharge of light red blood. In the course of this bleeding a formation the shape of a lentil was discharged. The histologic examination of the lentil shaped body revealed embryologic structures. The subsequent development of the woman's cycle was normal, for a regular menstrual bleeding set in on the end of the twenty-fourth day after the last menstruation. Of especial significance is the outcome of the Aschheim-Zondek test on the urine that was evacuated ten hours after the expulsion of the embryo. This urine produced in infantile mice reactions I (follicle maturation) and III (formation of corpus luteum). Reaction II was only microscopically perceptible in the form of incipient follicular bleedings in two animals. This outcome of the Aschheim-Zondek test corroborates the diagnosis of early abortion. The author is not quite certain about the age of the ovum, but on the basis of available data he assumes that impregnation took place approximately three weeks before the expulsion. After attempting a theoretical explanation of the menstruation after the impregnation, he reviews a case that somewhat resembles the described one and then calls attention to the eventual forensic significance of these observations.

**Diagnosis of Interstitial Pregnancy**—Dražancic maintains that the diagnosis of implantation of the ovum in the intramural portion of the tube, as well as that of advanced interstitial pregnancy, usually encounters great difficulties. This is due to the fact that this form of ectopic implantation of the ovum may become manifest with such variable symptoms. As a rule, the interstitial pregnancy perforates suddenly in the third or fourth month, so that an immediate operation becomes necessary and there is no opportunity for observation. However, there are certain symptoms of interstitial pregnancy that some observers have detected. The author mentions the broad-based connection of the ovisac with the uterus, which was described by Baart de la Faille and the so called Ruge-Simon sign, namely, the nearly vertical sloping of the fundus uteri. Nevertheless, cases have been reported in which Ruge-Simon's sign was missing. The author describes a case in which, in addition to the two signs mentioned, he observed another symptom that he considers characteristic for interstitial pregnancy, namely, a free mobility of the section of the tube containing the interstitial pregnancy, which is independent of that of the uterus. A review of the literature revealed that Zimmerman likewise had observed this sign. He thinks that the three signs may aid in the early diagnosis of interstitial pregnancy and also in its differentiation from ovarian tumors and subserous myomas.

#### Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

78 3419 3526 (July 28) 1934

- Mycosis Fungoides and Parapsoriasis. W. L. J. Carol—p. 3420  
How Anopheles Maculipennis entered the New Marshes of Lake Wieringen. J. A. Nijkamp and N. H. Swellengrebel—p. 3427  
\*Agranulocytosis (Malignant Neutropenia) Due to Medicaments. J. Groen and C. J. Gelderman—p. 3444  
Results of Treatment of Sterility of Women with Salpingography. W. M. J. Schellekens and A. J. M. Duyzings—p. 3468  
Atrophy of Both Frontal Lobes of Brain. G. P. Frets—p. 3476

**Agranulocytosis Due to Medicaments**—Groen and Gelderman sought to determine what drugs were used by patients who were treated for agranulocytosis. Of thirteen cases observed during the last three years, neoarsphenamine was a causative factor in two. Nine patients had been taking some drug containing antipyrine or amidopyrine, often in combination with some other compound, before the onset of their symptoms. In one case recovery of the number of leukocytes and of the necrotic angina was observed after discontinuance of the amidopyrine medication. In two cases an inquiry among the physicians who had been treating the patients before their admission revealed only the use of acetylsalicylic acid sodium salicylate and quinine sulphate, but the possibility that other drugs had been taken could not be excluded. Five additional cases, observed elsewhere, are described. In each case some compound containing amidopyrine had been used. The authors maintain that an outbreak of agranulocytosis may follow the use of various drugs. Among those antipyrine and amidopyrine

have a definite etiologic significance. The possibility of a similar effect of other antipyretics and hypnotics (especially the two barbiturates) must be borne in mind. The danger of an agranulocytotic syndrome occurring after the use of drugs is probably restricted to certain allergic individuals. Many present conceptions about agranulocytosis must be revised, a toxic etiology of agranulocytosis appears to be the rule rather than the exception. During the administration of antipyrine or amidopyrine, a continuous supervision of the leukocyte count is imperative.

#### Acta Chirurgica Scandinavica, Stockholm

75 185 272 (June 18) 1934

- Necrosis of Femoral Epiphysis Owing to Insufficient Nutrition from Ligamentum Teres. Clinical Study Mainly Based on Experiences of Treatment of Epiphyseolysis Capitis Femoris. H. Waldenström—p. 185  
\*Examinations for Alcoholic Intoxication in Accidents. J. Hindmarsh and P. Linde—p. 198  
Technic of Partial Gastrectomy (Billroth I). G. Bohmanson—p. 221  
\*Blood Changes After Gastric Resections. J. Dedichen—p. 242  
Chordotomy in Tabes Dorsalis. E. Platou and H. Sathre—p. 258

**Alcoholic Intoxication and Accidents**—Hindmarsh and Linde report a study of alcoholic intoxication in accident cases admitted for the past year to the surgical clinic in Stockholm. The clinical examination was supplemented by Widmark's micromethod of determination of alcohol in the blood. The results of clinical examination approximated rather closely those of blood examination. The authors emphasize that one should refrain from rendering an opinion as to inebriety in severe injuries. The incidence of accidents while under the influence of alcohol is quite high. It is not uncommon to find in men injured while at work that a considerable amount of alcohol has been consumed. Of 283 male patients admitted to the hospital because of injuries sustained in an accident, 41 per cent were found to have alcohol in the blood. Those injured in traffic showed about the same rate. Accidents while under the influence of alcohol were most frequent among elderly people. The number of accidents tends to increase over week ends and during bank holidays. More than half of those who have overturned while driving an automobile or a horse, as well as pedestrians who were knocked down, had alcohol in their blood. This supports the view that not only the driver of the vehicle but the injured person as well should be examined for inebriety.

**Blood Changes After Gastric Resection**—Dedichen studied blood alterations in a group of 164 patients in whom a partial gastric resection was performed and, for comparison, in another group of nineteen patients in whom only a gastro-enterostomy was performed. In the first group eighty-three, or about 50 per cent, developed anemia, while in the second group only three developed a mild degree of anemia. The average hemoglobin reading (Sahl) in the latter group was 92 per cent, a much higher figure than that obtained in the former. The tendency to anemia was much greater in women than in men. Thus of ninety-three men, twenty-five, or 27 per cent, developed anemia, while in a group of seventy-one women there were found fifty-eight, or over 80 per cent with anemia. Of women whose age was below 40, only one failed to show anemia. The hemoglobin was as low as 24 per cent (Sahl) in some of the cases. Two men showed distinct symptoms of pernicious anemia. Comparison with Faber's figures on the incidence of anemia in cases of spontaneous achylia indicated that the tendency was greater in achylia following gastric resection. Anemia may likewise develop after a gastric resection in the absence of achylia. Thus it appears that achylia is not the sole factor of importance in the development of anemia after resection. The author considers that, if the views regarding the hematopoietic significance of the stomach are correct, an extensive resection may be a contributing factor. The results of his gastric analyses showed that four out of 107 had free hydrochloric acid. Complete achylia does not take place even after extensive resection, owing possibly to the presence of some pyloric glands in the fundal mucosa. The rapid emptying of the stomach after resection with the resultant abnormal stress on the function of the upper jejunum may be another contributing factor in anemia. In selecting the operation for a gastric ulcer, particularly in a young woman, one should take into account the tendency to anemia.

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## THE DIAGNOSIS AND TREATMENT OF THE IRON-DEFICIENCY ANEMIAS

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A lack of sufficient iron available for the requirements of hemoglobin formation leads to anemia of the hypochromic or "secondary" type. Such an anemia may properly be attributed to iron deficiency, even though this element is supplied in usual quantities in the diet.

The most frequent cause of iron-deficiency anemia is continued or recurrent excessive loss of blood. The replacement of hemoglobin lost by hemorrhage depletes and finally exhausts the body's reserves of iron.<sup>1</sup> In such cases the dietary iron is insufficient for the increased demand, and anemia results.

A "secondary" anemia, occurring most often in middle-aged women, and frequently not associated with excessive loss of blood, has recently attracted a great deal of attention. Its commonly accepted designation is idiopathic hypochromic anemia.<sup>2</sup> Achlorhydria or marked hypochlorhydria is an invariable accompaniment of this condition. The anemia is presumably due to defective absorption of dietary iron, dependent on the lack of acid in the stomach. However, in the normal individual the conservation of iron is so efficient and in the adult the requirement of food iron so small that, even in the presence of achlorhydria, anemia rarely develops unless there is an additional factor,

such as blood loss or pregnancy.<sup>3</sup> It appears that, in some women with achlorhydria, normal menstruation results in sufficient loss of blood to cause anemia.

Anemia due solely to a lack of iron in the food occurs most commonly in infants and young children.<sup>4</sup> It may develop in elderly persons living on grossly abnormal diets, although in these cases vitamin deficiency also probably plays an important role.<sup>6</sup>

The term "iron-deficiency anemia" is based on etiological considerations with their therapeutic implication and in no sense denotes a constant clinical entity. The symptoms and physical signs associated with this condition are those of any anemia and comprise fatigability, weakness, faintness, dizziness, palpitation, dyspnea on exertion, pallor, tachycardia, hypotension and dependent edema. Some patients with achlorhydria complain of difficulty in swallowing (Plummer-Vinson syndrome), caused apparently by esophageal spasm. Enlargement of the spleen is sometimes present.<sup>6</sup> In a considerable number the clinical picture bears a certain resemblance to that of pernicious anemia. There may be recurrent glossitis with subsequent atrophy of the papillae of the tongue. Digestive disorders consisting of anorexia, distention, flatulence and alternate constipation and diarrhea are not uncommon. Some patients complain of numbness and tingling of the extremities, although objective neurologic changes have not been reported.

Of thirty-three patients having hypochromic anemia with achlorhydria studied at the Simpson Memorial Institute, five mentioned dysphagia as one of their most troublesome symptoms, thirteen patients complained of periodic soreness of the tongue and mouth, six had paresthesia of the extremities.

The sex, age and duration of anemia of twenty-seven patients with acid gastric secretion and of thirty-three patients with anacidity studied consecutively are shown in charts 1 and 2. Of the latter

From the Thomas Henry Simpson Memorial Institute for Medical Research, University of Michigan.

Read before the Section on Pharmacology and Therapeutics at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

1. Whipple, C. H., and Robscheit-Robbins, F. S. Blood Regeneration in Severe Anemia. I. Standard Basal Ration Bread and Experimental Methods. *Am J Physiol* 72: 395 (May) 1925.

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4. Josephs, H. W. Diagnosis and Treatment of the Anemias of Infancy. *South M J* 23: 1135 (Dec) 1930.

5. Koessler, K. K. Maurer, Siegfried, and Loughlin, Rosemary. The Relation of Anemia, Primary and Secondary, to Vitamin A Deficiency. *J A M A* 87: 476 (Aug 14) 1926.

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6. McCann and Dye.

group all but two were females, their average age was 42.9 years, and 85 per cent were known to have been anemic for more than three years. In contrast, the group secreting hydrochloric acid showed a slight predominance of males, their average age was 33.3 years, and 78 per cent had been anemic for less than three years.

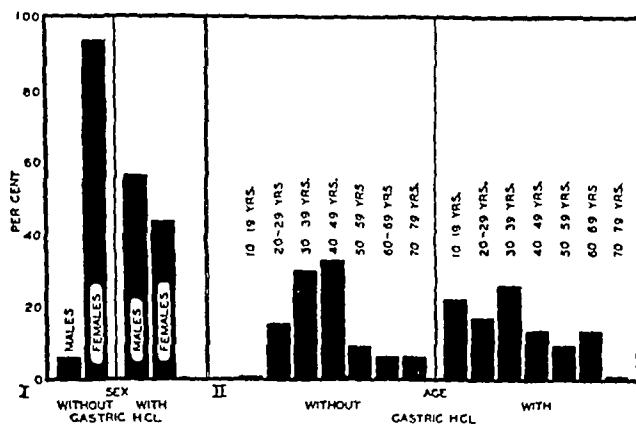


Chart 1—Sex and age of patients with iron deficiency anemia

In conjunction with the routine blood count, the estimation of erythrocyte size is of great importance in the study of iron-deficiency anemia. The measurement of cell diameters, on stained blood films, according to the method of Price-Jones, makes possible the determination of the mean diameter and gives information regarding the percentage distribution of cell sizes. The use of the hematocrit in conjunction with the erythrocyte count affords a more delicate method of measuring cell size, as it deals with volume rather than with diameter, but it fails to differentiate variations of corpuscular volume in any given blood sample. It is a characteristic of the form of anemia under consideration that together with the decrease in corpuscular hemoglobin there is, but to a relatively less degree, a diminution of cell size. Thus the color index, mean erythrocyte diameter, volume, hemoglobin and hemoglobin concentration are all lowered. When there has

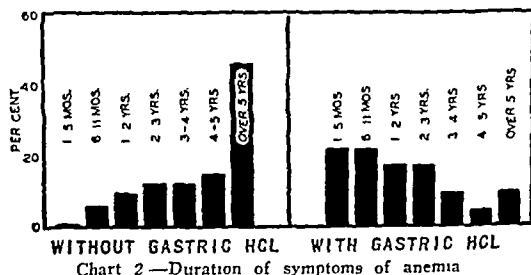


Chart 2—Duration of symptoms of anemia

been recent and relatively acute hemorrhage, these values are less characteristic and the red blood cells may vary but little from normal. A group of cases in

which these determinations were made is shown in table 1.

The blood examination of patients with iron deficiency reveals a secondary type of anemia of all grades of severity. In contrast to the low hemoglobin, the red blood cell count, in long-standing cases without recent acute hemorrhage, is usually within or near normal limits if the hemoglobin is above 7 Gm per hundred cubic centimeters. With lower hemoglobin values there is generally a progressive decline in the number of erythrocytes per cubic millimeter. In our series of cases the lowest blood count was found in a woman, aged 36, with achlorhydria and without a history of an abnormal loss of blood. The red blood cell count was 1,920,000 per cubic millimeter, the hemoglobin 1.83 Gm per hundred cubic centimeters (11 per cent). After five weeks of treatment with iron the erythrocyte level was 4,420,000 per cubic millimeter, the hemoglobin 8.13 Gm (49 per cent) (chart 5). The range of the color index in these cases without recent hemorrhage is about 0.4 to 0.7. When there has been continued loss of blood the depression of the erythrocytes is more commensurate with that of the

TABLE 1—Diagnostic Blood Studies in Representative Cases of Iron-Deficiency Anemia\*

Case	Red Blood Cells per Cc Mm	Hemo- globin		Color Index†	Mean Erythrocyte Diameter Microns	Volume per Cent (Hematocrit)	Mean Erythrocyte Volume, Cubic Microns	Mean Erythrocyte Hemoglobin†	Mean Erythrocyte Hemoglobin Concentration %
		Per Cent	Gm						
1	2,770,000	46	7.97	0.87	7.22	27.4	99	23.8	29.1
2	2,380,000	40	6.64	0.91	6.88	20.0	84	27.9	33.2
3	2,060,000	12	1.99	0.34	6.03	8.5	41	9.7	23.3
4	2,990,000	30	5.98	0.60	6.64	23.0	77	20.0	26.0
5	3,800,000	43	7.14	0.57	6.72	23.9	60	18.8	31.0
6	4,060,000	56	9.70	0.69	6.87	31.1	77	22.9	29.9
7	4,220,000	38	6.31	0.45	6.64	25.1	59	14.9	25.1
8	4,410,000	49	8.13	0.56	7.16	33.2	75	18.4	24.5
9	4,940,000	43	7.14	0.44	6.89	26.0	53	14.5	27.3
10	4,960,000	68	11.29	0.69	7.21	40.3	81	23.8	28.0

\* Cases 1 and 2 presented severe continued bleeding shortly before the counts were made. The others showed long standing anemia for the most part with achlorhydria.

† Uncorrected.

‡ Expressed in micromicrograms.

hemoglobin, and the color index and mean erythrocyte volume are greater. In the latter type of case the first effects of treatment may result in a lowering of the color index, as the red blood cells regenerate at a more rapid rate than the hemoglobin. In one of our patients, a woman, aged 39, with a normal degree of gastric acidity, anemia developed as the result of bleeding hemorrhoids. The duration of the illness was at least one year. On admission the red blood cell count was 2,230,000 per cubic millimeter, hemoglobin 5.48 Gm (33 per cent), color index 0.74. After three weeks of treatment the erythrocytes numbered 4,450,000 per cubic millimeter, hemoglobin value 9.13 Gm (55 per cent), color index 0.62 (chart 6).

The estimation of the response to treatment of persons with iron-deficiency anemia depends on the clinical improvement and on characteristic changes in the blood picture. The earliest effect is commonly an increase in the percentage and concentration of reticulated red blood cells. As was pointed out by Minot and Heath,<sup>8</sup> there is an inverse relationship between both the erythrocyte count and the hemoglobin value at the beginning

7 These phenomena have been discussed by Price-Jones, C. The Variation in the Sizes of Red Blood Cells. Brit. M. J. 2: 1418 (Nov. 5) 1910.  
Murphy, W. P. and Fitzhugh Greene. Red Blood Cell Size in Anemia. Arch. Int. Med. 46: 440 (Sept.) 1930.  
Haden, R. L. Clinical Significance of Volume and Hemoglobin Content of the Red Blood Cell. Arch. Int. Med. 49: 1032 (June) 1932.  
Osgood, E. E., Haskins, H. D. and Trotman, T. E. The Value of Accurately Determined Color Volume and Saturation Indexes in Anemias. J. Lab. & Clin. Med. 17: 859 (June) 1932.  
Wintrobe, M. M. The Size and Hemoglobin Content of the Erythrocyte. Methods of Determination and Clinical Application. J. Lab. & Clin. Med. 17: 899 (June) 1932.  
Heath, C. W. The Volume and Hemoglobin Content of the Red Blood Corpuscles in the Light of Recent Knowledge of Anemia. New England J. Med. 209: 173 (July 27) 1933.

8 Minot, G. R. and Heath, C. W. The Response of the Reticulocytes to Iron. Am. J. M. Sc. 183: 110 (Feb.) 1932.

of treatment and the height of the reticulocyte percentage response. However, the peak of the response in a given case of iron-deficiency anemia is much less predictable than in one of pernicious anemia, probably because the etiologic basis of the former type may vary so widely. Reticulocyte counts, on patients with secondary anemia treated with iron, are of clinical value only in that they indicate early in the course of therapy

normoblasts and macronormoblasts,<sup>9</sup> but it is probable that the obstacle to maturation operates at all stages of the developing erythrocyte. The accumulation of normoblasts may be the result of a general retardation of development of cells, poorly equipped from the outset for their functional role in the organism. The availability of additional iron probably accelerates erythrocyte maturation from the beginning of the

TABLE 2—Fourteen Patients with Anemia and Normal Gastric Acidity Treated with Ferrum Reductum or Ferric Ammonium Citrate

Case	Age	Initial Red Blood Count	Initial Hemoglobin, per Cent	Initial Hemoglobin, Gm	1 Week		2 Weeks		3 Weeks		4 Weeks		5 Weeks		6 Weeks		7 Weeks		8 Weeks		Final Red Blood Count	Final Hemoglobin, per Cent	Weeks
					Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase			
1	56	2.78	47	7.80	8.96	1.16	9.30	1.50	12.45	4.65											3.63	75	3
3	34	4.23	53	9.63	10.79	1.16	12.62	2.99	14.11	4.48											4.59	85	3
4	15	2.57	50	8.30	8.80	0.50	12.12	3.72													4.40	73	3
5	23	3.27	39	6.37			8.03	1.66			11.30	4.98									4.64	85	8
19	32	1.18	17	2.82	4.65	1.83	6.31	3.49	7.47	4.65											3.01	45	3
21	27	2.13	33	6.31	7.30	0.99	7.97	1.66	8.47	2.16											3.45	51	3
27	39	2.23	33	5.48	6.14	0.66	6.97	1.49	9.13	3.65			11.90	6.47	12.90	7.47					4.32	78	6
29	34	2.67	31	5.10	7.30	2.20	10.70	5.60			11.90	6.80									5.11	72	4
30	14	3.51	37	6.14	8.47	2.33	10.20	4.15	11.29	5.10	11.70	5.60					13.78	7.64			4.34	83	7
37	20	2.69	36	5.93	7.14	1.16	8.80	2.82	10.29	4.31	10.96	4.98			12.28	6.30					4.32	74	6
38	39	3.94	34	5.64	5.64	0.0	7.14	1.50	8.30	2.66			10.79	5.15							4.75	60	5
39	29	3.16	31	5.10							8.63	3.53			11.90	6.85					4.47	72	6
43	14	3.62	50	8.30	9.30	1.00	10.96	2.66	12.45	4.15	13.78	5.48									4.19	83	4
44	63	2.78	41	6.81	6.97	0.16	8.63	1.82	10.29	3.48											4.86	62	3
Av	32.6	2.91	38.7	6.41	7.62	1.10	9.23	2.70	10.42	3.93	11.41	5.24	11.37	5.61	12.36	6.87	13.78	7.64	14.11	7.74			

TABLE 3—Twenty-Eight Patients with Anemia and Achlorhydria Treated with Ferrum Reductum or Ferric Ammonium Citrate

Case	Age	Initial Red Blood Count	Initial Hemoglobin, per Cent	Initial Hemoglobin, Gm	1 Week		2 Weeks		3 Weeks		4 Weeks		5 Weeks		6 Weeks		7 Weeks		8 Weeks		Final Red Blood Count	Final Hemoglobin, per Cent	Weeks
					Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase	Hemoglobin Gm Total	Hemoglobin Gm Increase			
1	45	4.00	42	6.97	6.81	-0.16	6.97	0	8.30	1.33	9.46	2.49	10.46	3.49							4.94	63	5
6	23	3.20	33	6.31	6.31	0	7.47	1.16													3.45	45	12
7	39	3.87	37	6.14	7.14	1.00	7.64	1.50													5.11	46	12
8	40	4.55	47	7.80	8.63	0.83	8.63	0.83													5.20	52	2
9	42	5.25	52	8.63	9.06	1.33	9.69	1.06	10.46	1.83	11.12	2.49	11.62	2.99	12.12	3.40	13.78	5.15			4.45	63	7
10	30	4.23	33	5.48	5.81	0.33									13.29	7.48					5.66	68	6
11	44	3.17	51	8.46	8.80	0.44	9.13	0.67	9.46	1.00	10.33	1.87	10.79	2.33							4.14	74	8
12	71	2.29	20	4.15			5.98	1.83							11.62	7.47			12.28	3.82	4.14	74	8
13	32	3.46	23	4.65	3.82	-0.83	7.30	2.65													3.92	44	2
14	36	1.92	11	1.83	2.66	0.83	4.48	2.65	4.65	2.82			8.03	6.20							3.42	40	6
15	42	4.66	40	7.47	8.80	1.33	9.46	1.99													4.42	40	5
16	29	3.51	23	4.65	6.14	1.49	7.80	3.15	8.80	4.15							13.61	6.14			5.22	82	8
17	47	3.16	28	4.65	5.10	0.50	6.37	1.72	7.47	2.82			10.99	5.04					13.40	8.80	4.38	81	8
18	79	4.16	47	7.80	8.80	1.00	8.96	1.16	9.96	2.16							12.78	8.13			4.36	77	7
20	50	3.52	36	5.93	5.93	0	6.64	0.66					10.29	4.31							4.60	60	3
22	30	4.32	33	6.31	6.51	0.50							9.69	3.38					11.79	5.48	4.76	62	5
23	46	4.22	34	5.64	7.80	2.16	9.30	3.66					13.94	8.30							4.82	71	8
26	32	3.10	34	5.64	7.30	1.66	9.30	3.66			13.20	7.65									5.73	84	5
28	48	3.72	40	6.64					9.30	2.66											3.87	68	4
31	41	2.70	25	4.15	4.71	0.56	5.81	1.66			7.97	3.82									4.79	56	3
32	43	4.87	33	6.31					10.62	4.31											4.79	48	4
33	41	4.24	31	5.15	5.31	0.16					10.96	5.81			13.01	7.70					4.64	79	6
34	49	4.94	38	6.31	6.81	0.50	8.30	1.99													5.63	66	4
36	60	4.16	28	6.31	8.80	2.49					11.62	5.31					14.28	7.97			5.58	86	8
36	24	5.33	42	6.97									11.30	4.38			13.28	7.47			4.41	83	8
40	42	4.62	36	5.93	6.64	0.66			9.63	2.66											4.62	80	7
41	66	3.50	32	5.31							9.13	3.15									4.52	55	4
42	20	3.89	47	7.80	7.14	-0.66					8.46	3.10									4.64	51	4
Av	41.5	3.88	36.5	6.05	6.79	0.70	7.74	1.77	8.87	2.37	10.26	3.97	10.72	4.56	12.76	6.33	13.36	6.43	13.16	6.71			

whether or not the anemia will be benefited by iron or, in the case of a preparation of unknown value, they may yield information regarding its potency. Reticulocytosis in iron-deficiency anemia is explained by the apparent stimulatory effect of this element on erythrocyte maturation. In that iron is lacking, a defect of blood formation may be considered to exist, even though the erythrocyte level in the circulating blood is not appreciably depressed. Bone marrow studies in this type of anemia reveal a large number of

process, the partially developed corpuscles being forced into the circulation by the pressure of antecedent activity. This hypothesis is supported by the clinical observation that, during the early period of the reticulocyte response, although there may be a gain in erythrocytes and hemoglobin depending on the influx of new cells, there is commonly little or no change in the

<sup>9</sup> Dameshek, Doan, C. A. Current Views on the Origin and Maturation of the Cells of the Blood. J. Lab. & Clin. Med. 17: 887 (June) 1932. Isaacs, Raphael. Mechanism of the Production of Anemia. J. A. M. A. 101: 2077 (Dec. 23) 1933.



color index or mean corpuscular hemoglobin. On the other hand, the appearance of immature and abnormal red blood cells in the circulation may, in part, result from the rapid "cleaning out" of the extramedullary centers of hematopoiesis commonly accompanying severe anemia.<sup>10</sup>

Observations on so limited a series of cases as is presented here does not justify detailed conclusions regarding the rate of increase of hemoglobin and red blood cells throughout the course of iron therapy. The response of forty-two patients treated orally with either 4 Gm of ferric ammonium citrate or 15 Gm of ferrum reductum daily, is shown in tables 2 and 3. The cases have been separated into those with and those without hydrochloric acid in the gastric contents. Histamine stimulation was used during each gastric analysis and for the present purpose, no distinction between degrees of acidity is made. All members of both groups had anemia with low color index. Cases of acute hemorrhage, continued bleeding during treatment, obvious infection, malignancy, nephritis and cirrhosis of the liver are not included. Most of the recorded observations were made while the patients were in the hospital and partaking of the usual house diet, from which liver and kidneys were excluded.

Erythrocyte counts were made with apparatus certified by the U S Bureau of Standards and hemoglobin estimations were done by a modified Sahli technic, the standard used being equivalent to 16.6 Gm of hemoglobin at 100 per cent, as determined by the oxygen capacity method. Included in the tables are the patients' ages, initial red blood cell counts in millions per cubic millimeter, initial hemoglobin values in terms of both percentage and grams per hundred cubic centimeters, and available weekly determinations of the hemoglobin with the consequent total gain in hemoglobin, the two latter values being expressed in grams per hundred cubic centimeters. The observations cover a maximum of eight weeks following the institution of iron therapy, but the greater number of patients were followed for a shorter time. Erythrocyte counts, except those taken at the first and last recorded

patients, which illustrate the characteristic types of erythrocyte response to iron in those forms of anemia amenable to its use.

By subtracting from the average total hemoglobin gain registered each week the average total gain at the preceding week, values are obtained that represent the average increase in hemoglobin, expressed in grams per hundred cubic centimeters, during each of the first eight weeks of iron therapy. These values are plotted

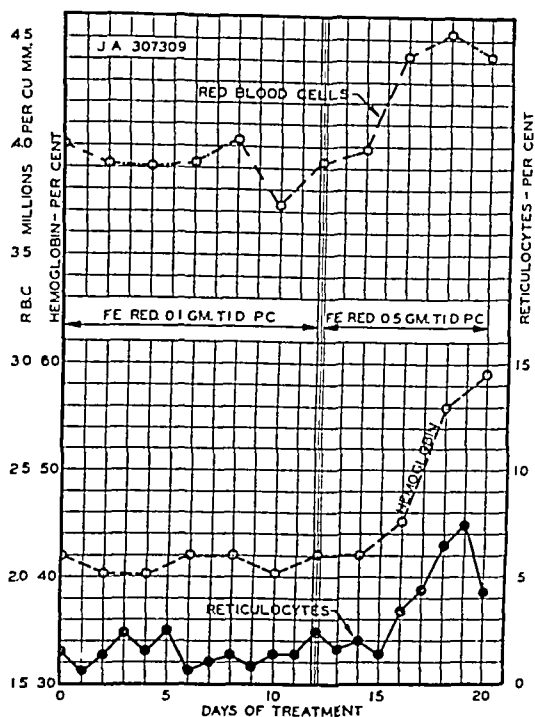


Chart 4—Comparative effect of 0.3 Gm and of 1.5 Gm of ferrum reductum given daily in three parts after meals to a patient with achlorhydria.

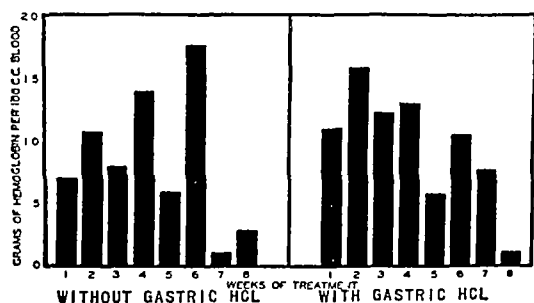


Chart 3—Weekly average hemoglobin increase during treatment with iron preparations.

observation, are not shown, because an effective correlation of the data involved is not possible without further subdivision of the groups, a procedure which the limited number of cases renders impractical. The patients were selected for the present report primarily on the basis of their hemoglobin deficiency, and they comprise a very wide range of erythrocyte values. On charts 4, 5 and 6 are recorded, in association with other data, successive red blood cell counts made on individual

in the form of histograms (chart 3). It should be noted that the rate of increase of hemoglobin during the first three weeks of treatment is appreciably greater in those patients who secrete hydrochloric acid into the stomach than in those with achlorhydria. Recovery from anemia is attained sooner by the members of the former group, but the ultimate results of treatment with iron are equally satisfactory in the two groups. The values for weekly gain, taken in conjunction with the weekly average hemoglobin totals, compare favorably with the results reported from the use of iron and copper,<sup>11</sup> iron and "secondary anemia liver extract,"<sup>12</sup> iron and intramuscular liver extract,<sup>13</sup> and iron and desiccated stomach.<sup>14</sup> The apparent value of whole liver with supplementary iron in the treatment of anemia associated with malnutrition and vitamin deficiency<sup>15</sup> can probably be attributed to its protein and high content of vitamins A and B rather than to any specific hematopoietic substance.<sup>16</sup>

11 Mills E S. The Treatment of Idiopathic (Hypochromic) Anemia with Iron and Copper. *Canad M A J* 22: 175 (Feb) 1930.

12 Cheney G and Niemann F. The Treatment of Secondary Anemia with Secondary Anemia Liver Extract and Iron. *Am J M Sc* 184: 314 (Sept) 1932.

13 Murphy W P. Treatment of Secondary Anemia with Special Reference to the Use of Liver Extract Intramuscularly. *Arch Int Med* 51: 656 (May) 1933.

14 Sharp E A. Secondary Anemia. A Preliminary Report on Stomach. *J Michigan State M Soc* 30: 927 (Dec) 1931.

15 Keefer C S and Yang C. The Treatment of Secondary Anemia. A Study of the Results in 126 Cases. *Arch Int Med* 48: 537 (Oct) 1931.

16 Farrar G E. Nutritional Requirements for Blood Regeneration. personal communication to the authors.

10 Brannan D. Extramedullary Hematopoiesis in Anemias. *Bull Johns Hopkins Hosp* 41: 104 (Aug) 1927.

With reference to the value in iron-deficiency anemia of supplying erythrocyte "stroma building substances," it is of course conceivable that in some patients with achlorhydria and simple anemia there may be a diminished production of the intrinsic factor shown by Castle<sup>17</sup> to be essential for erythrocyte maturation. Such patients might be expected to benefit from the administration of liver, liver extract or desiccated stomach in conjunction with adequate amounts of iron. However, the fact that there is usually little or no increase in the color index during the most active period of blood regeneration in response to iron, and that the color index rarely attains unity before the count becomes normal indicates that in the great majority of patients with iron-deficiency anemia there is no dearth of stroma building material.

Evaluation of therapeutic iron preparations will not be attempted in the present report, since in the treatment of iron-deficiency anemia our aim has been to achieve maximum absorption and utilization of iron by administering the metal in excess quantities.<sup>18</sup> Iron in a soluble salt is apparently more efficiently utilized than the same quantity as ferrum reductum, but the latter will produce equally good results if given in adequate dosage and possesses the advantages of small bulk and comparative freedom from irritative effects on the

for daily administration, and in these dosages the two forms of iron are quite comparable in their effects. Continued iron medication is usually necessary in order to prevent recurrence of anemia in patients with achlorhydria. Apparently there is less tendency for relapse to occur after the menopause.

That relatively large quantities of iron are required by the patient with achlorhydria is illustrated by the blood studies depicted in chart 4. J. A., a woman,

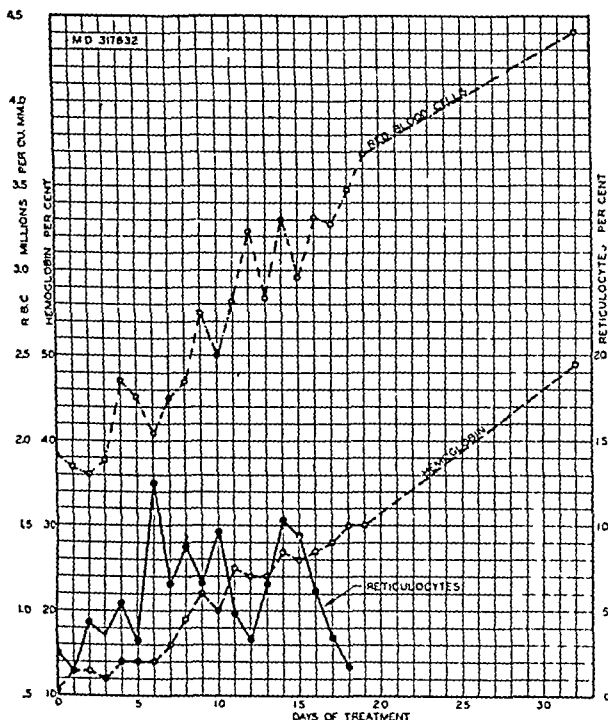


Chart 5—Effect of 0.3 Gm of purified ferrum reductum given daily in ten doses hourly of 0.03 Gm to a patient with achlorhydria

alimentary tract. In our experience 4 Gm of ferric ammonium citrate, representing about 0.8 Gm of iron, or 1.5 Gm of ferrum reductum, is an optimum amount

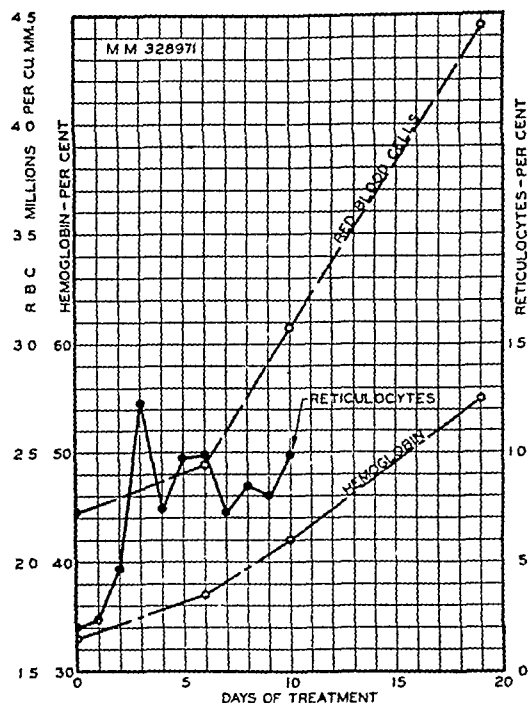


Chart 6—Effect of 0.3 Gm of purified ferrum reductum given daily in three parts after meals to a patient with normal gastric acidity

aged 45, received 0.1 Gm of ferrum reductum three times a day for fourteen days. There was no definite reticulocyte response or increase in the red blood cells or hemoglobin. When the dosage was augmented to 0.5 Gm three times a day a prompt effect was noted. That this increase was not due to a delayed response to the preceding small dosage of iron is indicated by the behavior of the reticulocytes, which followed a characteristic course during the second period of treatment. It is probable that the time of administration of iron and the division of the daily dosage are factors almost equal in importance to the total amount given to patients with achlorhydria. Mettler and Minot<sup>19</sup> have shown that iron is absorbed more rapidly from an acid than from an alkaline medium.<sup>20</sup> Our patients received their iron immediately after each meal, when the gastric contents presumably were at the greatest degree of acidity. Of physiologic interest is the observation, recorded in chart 5, that a daily quantity of iron, ordinarily ineffective in the presence of achlorhydria when given in the usual three doses, is markedly efficacious when administered in relatively minute amounts hourly throughout the day. The patient in question, M. D., a woman, aged 36, received 0.03 Gm of ferrum reductum ten times a day, the same

17 Castle W B Town end W C and Heath C W Observations on Etiologic Relationship of Achylia Gastrica to Pernicious Anemia. Nature of Reaction Between Normal Human Gastric Juice and Beef Muscle Leading to Clinical Improvement and Increased Blood Formation Similar to Effect of Liver Feeding. *Am J M Sc* 180 305 (Sept) 1930

18 Meulengracht E. Large Doses of Iron in the Different Kinds of Anemia in a Medical Department. *Acta med Scandinav* 55 594 1923  
Coddall A. Treatment of Anemia Chlorosis and Secondary Anemia. *Lancet* 1 1216 (June 19) 1926  
Schulten H. Zur Behandlung hypochromer Anemien mit maximalen Eisendosen. *München med Wchnschr* 77 355 (Feb 28) 1930

19 Mettler S R and Minot G R. The Effect of Iron on Blood Formation as Influenced by Changing the Acidity of the Gastrointestinal Contents in Certain Cases of Anemia. *Am J M Sc* 181 25 (Jan) 1931

20 Riecker H H. The Relation of Available Iron to Acid and Alkaline Diet. *Am J Clin Investigation* 10 657 (Aug) 1931

total amount as that first given to J A, which in her case failed to induce a response. A definite reticulocyte response and a sustained rise of erythrocytes and hemoglobin were obtained. It would seem that a larger proportion of the iron ingested is absorbed when the metal is allowed to pass through the alimentary tract in an almost continuous stream than when administered in more concentrated doses. That such considerations are not valid for patients with normal gastric secretion is indicated by the response of the blood in the case of a woman, M M, aged 39, who received 0.3 Gm of ferrum reductum given daily in three parts. Here the presence of hydrochloric acid has made possible a more efficient utilization of the iron than occurred in the two previously described cases of anacidity (chart 6).

In order to exclude, so far as could be done, the possible effect of copper on blood regeneration in iron-deficiency anemia, a number of our patients were treated with minimal effective amounts of ferrum reductum, especially prepared and purified so as to contain less than 0.001 mg of copper per gram of iron. Furthermore, for at least one week prior to treatment and throughout the course of iron therapy such patients received a diet supplying approximately only 0.5 mg of copper daily. The usual diet supplies about 4 mg of copper daily. The two patients M D and M M, whose blood records are depicted in charts 5 and 6, were treated in this manner. The low copper intake apparently made no difference in the responses of these patients to iron. While such observations do not take into account the possible influence of copper already stored in the body, they suggest that in the treatment of the usual case of iron-deficiency anemia, whether or not associated with achlorhydria, no advantage is gained by including copper in therapeutic preparations of iron.

#### CONCLUSIONS

Iron-deficiency anemia results from a lack of sufficient available iron for normal hemoglobin formation. Such a lack may be induced by (1) depletion of the iron reserves from continued blood loss, (2) inadequate intake of food iron and (3) improper absorption of the element from the alimentary tract and, as a rare possibility, (4) from inability to utilize available iron.

In women with achlorhydria, anemia may develop as the result of the physiologic loss of blood. In such cases a "conditioned deficiency" dependent on the lack of hydrochloric acid may be said to exist.

The clinical features presented by patients with iron deficiency anemia are not specific. They include the effects of lack of hemoglobin supplemented by the manifestations of whatever associated condition may be present. By contrast, the blood in such patients possesses certain definite characteristics that are of diagnostic value. The relative decrease of hemoglobin exceeds that of the erythrocytes, and the average size of the red corpuscles is reduced, although proportionately to a less extent than the diminution of hemoglobin. Consequently, the color index and the mean erythrocyte diameter, volume, hemoglobin and hemoglobin concentration are below normal.

The effects of treatment with simple iron preparations of forty-two cases of iron-deficiency anemia, twenty-eight with achlorhydria, are shown in tabulated form. These results compare favorably with those reported by others employing combinations of iron with other substances in the treatment of the same type of anemia.

Relatively large amounts of ingested iron are required for satisfactory clinical and hematologic improvement. Ferrum reductum, 1.5 Gm daily, or ferric ammonium citrate, 4 Gm daily, administered in three divided doses after meals, in our experience, is therapeutically optimal. Following the institution of treatment a latent period, during which no change in the peripheral blood picture occurs, is attributed to the time required for maturation by the primitive erythrocytes in the bone marrow. In general, the blood of patients with acid gastric secretion responds more promptly to iron medication, and a smaller dosage of the element is required than is the case of those with achlorhydria. In both groups the erythrocyte and hemoglobin values are usually restored to normal after from six to eight weeks of therapy. Patients with achlorhydria often require continued treatment with iron in order to prevent recurrence of anemia.

Administration of highly purified ferrum reductum in conjunction with a "low copper" diet did not detract from the efficacy of the iron, as evidenced by the rate of hemoglobin formation.

## ASSAY OF COMMERCIAL EXTRACTS OF LIVER FOR PARENTERAL USE IN PERNICIOUS ANEMIA

### METHOD OF SUCCESSIVE RETICULOCYTE RESPONSES IN THE SAME PATIENT

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AND

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Much water has run under the bridge since the report in 1926 by Minot and Murphy<sup>1</sup> that a hitherto fatal disease, pernicious anemia, could be effectively treated by the use of large amounts of liver. The preparation of an effective fraction or extract of liver was soon announced by Cohn, Minot and their associates.<sup>2</sup> Since 1927, various commercial extracts have been available for clinical use. These have been in the form of a simple aqueous concentrate or as the material soluble in 70 per cent but insoluble in 95 per cent alcohol (fraction G of Cohn), prepared as a powder or in water-alcohol solution. Lately this fraction has been prepared in aqueous solution suitable for parenteral administration. The organs of a variety of animals have been used: the cow, the sheep, the pig, the horse, and even the codfish. After the discovery that pernicious anemia was a disorder usually dependent on defective gastric secretion,<sup>3</sup> Sturgis and Isaacs,<sup>4</sup> in collaboration with Sharp,<sup>5</sup> used the desiccated and defatted

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<sup>1</sup> Minot G R, and Murphy W P. Treatment of Pernicious Anemia by a Special Diet. *J A M A* 87: 470 (Aug 14) 1926.

<sup>2</sup> Cohn E J, Minot G R, Fulton J F, Ulrichs H F, Sargent F C, Weare J H, and Murphy W P. The Nature of the Material in Liver Effective in Pernicious Anemia. *J Biol Chem* 74: ixix (July) 1927.

<sup>3</sup> Castle W B. Observations in the Etiologic Relationship of Achylia Gastrica to Pernicious Anemia. I. The Effect of the Administration to Patients with Pernicious Anemia of the Contents of the Normal Human Stomach Recovered After Ingestion of Beef Muscle. *Am J M Sc* 178: 748 (Dec) 1929.

<sup>4</sup> Sturgis C C, and Isaacs Raphael. Desiccated Stomach in the Treatment of Pernicious Anemia. *J A M A* 93: 747 (Sept 7) 1929.

<sup>5</sup> Sharp E A. An Antianemic Factor in Desiccated Stomach. *J A M A* 93: 749 (Sept 7) 1929.

gastric tissue of swine in its treatment. As another by-product of the experimental observations on the hematopoietic effects of the interaction of beef muscle with normal gastric juice has come "extralin," which is prepared by the interaction of liver or liver extract with fresh hog gastric tissue.<sup>6</sup>

The clinician faced with a patient having pernicious anemia has lately been in the rather pleasant position of choosing one of the several effective extracts rather than of attempting to decide on a medication that might be of possible value. Recently the use of the parenteral extracts has been in the ascendency. Gansslen<sup>7</sup> in 1930 was the first to prepare an extract suitable for intramuscular use. Castle and Taylor<sup>8</sup> in 1931 and Strauss, Taylor and Castle<sup>9</sup> in the same year reported the successful preparation of extracts suitable respectively for intravenous and intramuscular use from an already available extract for oral use (fraction G of Cohn et al). It was soon found that material given by the parenteral route was at least thirty times as effective as when given by mouth, since the same results could often be accomplished by giving parenterally the material derived from 10 to 20 Gm as from 300 to 600 Gm of liver given orally. Various investigators, particularly Murphy,<sup>10</sup> soon pointed out that the parenteral method was more regular in its effectiveness, less expensive to the patient, certainly easier to tolerate than continued oral administration, and more amenable to careful supervision of the patient by the physician.

The first parenteral extracts proposed contained a relatively small amount of extract (20 cc of solution contained the material derived from 100 Gm of liver), but attempts at concentration were soon made. Then certain companies produced extracts in which as much of the material as possible derived from 100 Gm of liver was dissolved in 5 cc of liquid, later in only 3 cc of fluid.<sup>11</sup> Another company produced an extract of equine liver suitable for subcutaneous or intramuscular usage which contained material derived from 100 Gm of liver in 10 cc of fluid.<sup>12</sup> There has been much vagueness in the phraseology descriptive of the various products, so that it has frequently been most difficult for the practicing physician to choose the most efficient and economical source of active material. The probability, furthermore, that some loss of potency would take place during preparation and especially during concentration has not been commented on in the literature regarding these products.

Even in the 1934 edition of New and Nonofficial Remedies no information regarding these questions is available. Therein, several liver preparations for parenteral use (and for that matter for oral use) are described as being derived from and also representing the antianemic potency of the original amount of liver used in their preparation.<sup>1</sup> Since it is known that the fraction used as the starting point in the preparation of most of the parenteral products has already sus-

tained a loss of 35 per cent of the original potency of the whole liver, one or the other of the foregoing statements must be in error. Judging from the observations of Cohn<sup>13</sup> and of West,<sup>14</sup> even more serious would be the losses of potency likely to occur in attempts at further purification or concentration of the material. Fortunately the effectiveness of active material given by injection is so much greater than when given by mouth that a relatively inefficient process of preparation would still give reasonably good clinical results with the large dosage usually advocated. Since little if any attempt has been made to determine the smallest dose of the different extracts necessary to produce a maximal hematopoietic response, it was considered desirable to attempt a comparative assay of various commercial (parenteral) extracts of liver on that basis.

#### METHODS AND MATERIAL

The various extracts of liver on the market must at present be tested on the human subject, since no suitable animal method for standardization has yet been found. The usual method is to test a batch of extract by observing its effect, when given in fairly large dosage, in increasing the numbers of reticulocytes and red blood cells in a group of patients with pernicious anemia. Average results are then computed. However, the scarcity and variability of suitable patients renders such observations less satisfactory than a comparison of effective materials in the same patient. Furthermore, unless submaximal dosage is used, losses of potency will not be detected unless the amount of active principle is reduced so greatly that a maximal reaction is not obtained. For these reasons, the method of investigation described here depends on the use in individual patients of comparative ten to fourteen day periods, during each of which the daily injection of a uniform suboptimal dose of a given product is carried out and the reticulocyte (and erythrocyte) responses are studied.

Suboptimal doses must naturally be used in a comparative study in the same patient, since, if optimal or maximal doses are used, a maximal response will usually be obtained, thus making subsequent responses impossible. Castle and his associates<sup>9</sup> had previously shown that a maximal reticulocyte response could be obtained following the daily intramuscular injection of as much of the amount of Liver Extract-Lilly, N N R, derived from 10 Gm of liver, as could be dissolved in 2 cc of water. Our comparative observations were therefore usually based on the daily injection of the amount of extract in various products derived from 5 Gm of liver. When a suboptimal dose of liver extract is given a shower of reticulocytes roughly proportional to the amount of extract given is obtained. The reticulocyte "peak" is definitely lower than when a maximal dosage is given and may not be followed by a significant rise in the red blood cell count. However, the door is left open for further testing.

When a uniform daily suboptimal dosage of liver extract has been given, the reticulocyte response is either completely concluded in from ten to twelve days or is definitely on its downward course. This allows for the observation of a possible second response of reticulocytes when another more potent extract or a larger dosage of the same extract is given in a similar fashion. Not only has the principle of the "double" response, in determining whether a given form of therapy is maximal, been utilized in macrocytic anemia

6 Fouts P J and Zerfas L G. Liver Gastric Tissue Preparations in the Treatment of Pernicious Anemia. *J A M A* 101: 188 (July 15) 1933.

7 Gansslen M. Ein hochwirksamer injizierbarer Leberextrakt. *Klin Wchnschr* 9: 2099 (Nov 8) 1930.

8 Castle W B and Taylor F H L. Intravenous Use of Extract of Liver. *J A M A* 96: 1198 (April 11) 1931.

9 Strauss M B, Taylor F H L and Castle W B. Intramuscular Use of Liver Extract. *J A M A* 97: 313 (Aug 1) 1931.

10 Murphy W P. The Advantages of Intramuscular Injections of a Solution of Liver Extract in the Treatment of Pernicious Anemia. *Am J M Sc* 196: 361 (Sept.) 1933.

11 Murphy W P. The Parenteral Use of Liver Extract in Pernicious Anemia. *J A M A* 98: 1051 (March 26) 1932.

12 Meyer A E, Richter Oscar and Lys A C. Pernicious Anemia Treatment with Equine Liver Extract Injectable Either Subcutaneously or Intravenously. *Arch Int Med* 50: 538 (Oct.) 1932.

13 Cohn E J. Personal communication to the authors.

14 West Randolph. Personal communication to the authors.

by Minot and his associates<sup>15</sup> but Heath,<sup>16</sup> Dameshek<sup>17</sup> and others have used this method in the determination of the optimal dosage of various preparations of iron in the treatment of the hypochromic anemias. The conditions of our observations are thus sufficiently established to make it certain that, if a uniform suboptimal amount of active principle is administered daily until the reticulocytes have reached and declined from the peak of their rise, a second response in reticulocytes will take place only if the potency of the second material given is greater than that of the first. Moreover, under these conditions a greater potency of the second substance is demonstrated if this second response in reticulocytes is greater than, equal to or even less than the first. If the potency of the second substance is not sufficiently greater than that of the first, no second reticulocyte response whatever will appear. Daily injections must be used since, if only one, even very large, injection is given and is not followed by another for several days, a second reticulocyte

Hemoglobin and red blood cell counts were performed at least twice weekly, and frequently more often. The injections were usually given deeply into the deltoid muscle, at times in the gluteal muscle. The volume of the extract to be given was carefully measured in a tuberculin syringe and then diluted to 1 cc with physiologic solution of sodium chloride or distilled water before injection. After from ten to fourteen days of the daily injection of a uniform dose of one type

Summary of Results of Reticulocyte Responses with Dilute and Concentrated Liver Extracts for Parenteral Use in Pernicious Anemia

Patient's Initials	Period 1		Period 2		Period 3		Interpretation
	Preparation Used	Peak of Reticulocytes per Cent	Preparation Used	Peak of Reticulocytes per Cent	Preparation Used	Peak of Reticulocytes per Cent	
E S	B 5	17.4	D 5	20.2	D 5	6.6	D 5 > B 5
C B	D 5	10.4	B 7	No rise	B 33	6.6	B 33 > B 5
E F	B 5	9.8	C 5	7.4	D 5	5.9	C 5 > B 5 D 5 > C 5 D 5 > B 5
R I	B 5	24.0	D 2.5	5.7			D 2.5 > B 5
F F 2	B 5	14.4	D 2.5	No rise			See case R I
L D	B 5	12.9	D 5	8.4			D 5 > B 5
H M	D 10	23.6	B 35	No rise			Dosage too great for conclusions
A L	F 5 (subcutaneous)	1.5	D 5	9.4	E 5 (intramuscular)	No rise	D 5 > F 5 (subcutaneously)
M K	E 10	6.4	D 10	11.9	B 33	No rise	D 10 > F 10
M N	F 10	10.5	D 5	22.0			D 5 > L 10

D = a dilute commercial extract  
B, C and E = concentrated extracts prepared by different drug firms  
> = greater in potency than  
A number following the letter for an extract denotes the amount of extract given in terms of the original weight of liver from which it is derived

response can be obtained after a short period (from five to ten days) with an identical amount of active material. The stimulus to the bone marrow must therefore be continuously applied during the estimation of the comparative potency of each product.

Satisfactory observations in ten patients with classic Addisonian pernicious anemia were made in a study of four different extracts. The patients either were in their first relapse or had been subject to one or more relapses. A basal diet containing no liver and but little meat was used. The erythrocyte counts at the beginning of the assay varied from 780,000 to 2,000,000. Daily reticulocyte counts were performed. They were usually made with the "dry" method, a thin film of brilliant cresyl blue on a cover slip being used and counterstaining being done with Wright's stain.

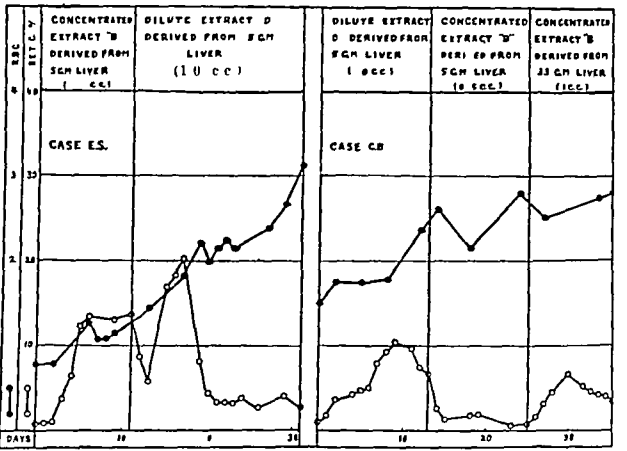


Chart 1—Patient E S. Definite response in reticulocytes when the amount of concentrated extract B derived from 5 Gm of liver is given daily intramuscularly. When however dilute extract D is given daily in identical dosage a second even greater response in reticulocytes occurs indicating that there has been loss of active principle in preparation of the concentrated extract. Patient C B. The procedure is reversed in this case dilute extract D being given first. Note the lack of a second response when concentrated extract B is given in identical dosage. When the dosage of concentrated extract B is greatly increased in a third period another response in reticulocytes occurs.

of extract, the patient was given a second type of extract derived from the same amount of liver. The study is still under way and is being somewhat modified at present by the attempt to determine if the amount of active material retained in one extract has been found to be greater than in another. What is the extent of that difference? This necessitates the use of different doses of different extracts in the same patient.

RESULTS

The liver extracts studied were in general of two main types "dilute" and "concentrated." The "dilute" type D contained the material derived from 100 Gm of liver dissolved in 20 cc of solution. The "concentrated" extracts were three in number B and C, two extracts containing the material derived from 100 Gm of liver in 3 cc of solution, and a third extract E containing the amount of material derived from

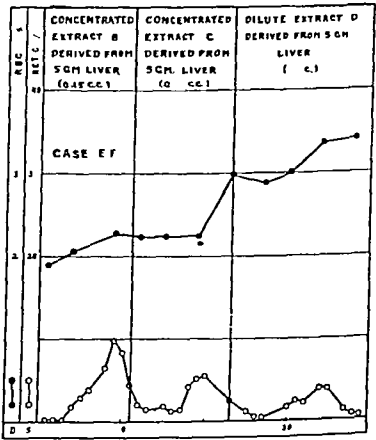


Chart 2—A response in reticulocytes occurs when the amount of concentrated extract B derived from 5 Gm of liver is given daily. However a second response occurs when another concentrated extract C is given in identical dosage indicating greater potency of the second concentrated extract. When dilute extract D is given in identical daily dosage in a third period a third response occurs indicating the greater potency of the dilute extract.

15 Minot G R, Murphy W P and Stetson R P. The Response of the Reticulocytes to Liver Therapy. Am J M Sc 175: 581 (May) 1928.  
16 Heath C W. Oral Administration of Iron in Hypochromic Anemia. Arch Int Med 51: 459 (March) 1933.  
17 Dameshek, William. Primary Hypochromic Anemia (Hypoferrism). III. A Comparison of Certain Compounds of Iron (Including Ferrous Glutamate and Ferrous Chloride) in the Treatment of Hypochromic Anemia. West Virginia M J 30: 193 (May) 1934.

100 Gm of liver dissolved in 10 cc of solution. The results of the observations are summarized in the accompanying table.

Concentrated extract B was assayed in seven cases. In one of these cases (E S) the material (0.15 cc) derived from 5 Gm of liver was given daily for ten days followed by another ten-day period in which the amount of dilute extract D (1 cc) derived from 5 Gm of liver was given daily. A second reticulocyte response occurred, indicating that the dilute extract D derived from an identical amount of liver contained more of the active material than did the concentrated extract. This result was confirmed by observations of a similar type on patient L D. In another case (C B) the dilute extract D derived from 5 Gm of liver was given first, resulting in a significant reticulocyte response (104 per cent). When the concentrated extract B, derived from the same amount of original liver, was then given, no second reticulocyte response occurred. The results of the observations on patients E S and C B are shown in chart 1.

Concentrated extract C proved to be more potent than concentrated extract B in another case (E F), as shown in chart 2. The third rise of reticulocytes shown in chart 2 occurred as a result of the daily administration of dilute extract D, derived from the same amount of liver as were the concentrated extracts. Dilute extract D was thus shown to be more potent than concentrated extract C. In another case (R I) concentrated extract B in daily dosage derived from 5 Gm of liver produced a good response of reticulocytes (24 per cent). However, when dilute extract D was given in a daily dosage derived from only 2.5 Gm of liver, a second significant rise to 57 per cent of reticulocytes occurred, as shown in chart 3. This observation suggests that concentrated extract B had suffered a loss of active material during the process of manufacture of more than 50 per cent. Since a repetition of this test on another patient

of liver, was injected daily. This result is shown in chart 5. These observations indicate that the amount of active material in dilute extract D is greater than in concentrated extract E derived from identical amounts of liver. The latter extract, when given subcutaneously, perhaps suffers some loss in effectiveness. In a third case (M N) concentrated extract E, derived from 10 Gm of liver, was injected intramuscularly each day with a resultant rise in reticulocytes to 102 per cent. When dilute extract D, derived from 5 Gm of liver, was then given, a second rise of reticulocytes to 224 per cent occurred, as also shown in chart 5. This would indicate that the amount of active material in dilute extract D is more than twice as great as in concentrated extract E derived from a similar amount of liver.

#### COMMENT

The clinical and economic advantages of parenterally given liver extract in the treatment of pernicious anemia are so numerous and so striking that they outweigh for most patients the slight disadvantage attending the use of a syringe and needle. Some of these advantages may be cited: 1. Use in treating a refractory case when even massive doses (extract from 600 to 900 Gm of liver) are without much effect when given orally. 2. Use in treating the central nervous manifestations of the disease, especially has the outlook

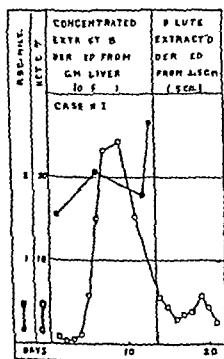


Chart 3—A good response in reticulocytes occurs when the amount of concentrated extract B derived from 5 Gm of liver is given daily. When, however, the amount of dilute extract D derived from only 2.5 Gm is given daily a second definite response in reticulocytes to 57 per cent occurs. This indicates that dilute extract D may possibly have more than twice the potency of concentrated extract B and that the latter has suffered a marked loss of active principle during concentration.

(E F 2) gave no detectable second reticulocyte response, further observations are indicated before this can be stated with certainty.

Concentrated extract E was assayed in three cases. In one case (A L) no response whatever occurred when the material derived from 5 Gm of liver was daily injected subcutaneously according to recommendation. A reticulocyte response, however, followed the immediately subsequent daily administration of dilute extract D derived from 5 Gm of liver given intramuscularly. In a third ten-day period concentrated extract E was injected intramuscularly in the same dosage without a further response, as shown in chart 4. In a second case (M K) the daily intramuscular injection of concentrated extract E, derived from 10 Gm of liver produced a reticulocyte peak of 62 per cent. This was followed by a second peak of 119 per cent when dilute extract D derived from 10 Gm

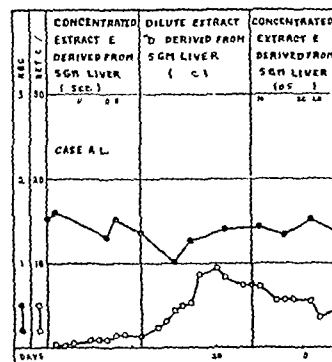


Chart 4—No rise in reticulocytes occurs when the amount of concentrated extract E derived from 5 Gm of liver is given daily subcutaneously. When however a dilute extract D is given intramuscularly in identical dosage a definite response occurs indicating (a) the ineffectiveness of subcutaneously given concentrated extract in suboptimal dosage and (b) the greater potency of dilute extract D.

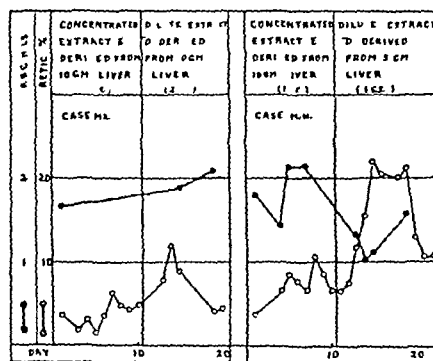


Chart 5—Patient M K. A slight rise in reticulocytes occurs when the amount of concentrated extract E derived from 10 Gm of liver is given daily intramuscularly. When dilute extract D is given in identical dosage a second even greater response occurs indicating a greater potency of the dilute extract. Patient M N. A rise in reticulocytes occurs when the amount of concentrated extract E derived from 10 Gm of liver is given daily intramuscularly. When dilute extract D is given in one half this dosage (derived from 5 Gm of liver) a second even greater response occurs indicating that dilute extract D has more than twice the potency of concentrated extract E.

for patients with ataxia been made immeasurably brighter since the introduction of extract for parenteral use. 3. Use in treating a patient with a severe infectious state such as sepsis or pneumonia, or when swallowing is disturbed, as after dental extraction or tonsillectomy. 4. Use during conditions associated with impaired functioning of the gastro-intestinal tract.



—nausea, vomiting, diarrhea— or even with simple anorexia, especially when an aversion to oral liver occurs. Unfortunately, these advantages have as yet not been fully utilized, owing in part to the obscurity surrounding the specifications of the available parenteral products and in part to the relative novelty of the method. The emphasis placed on “purification” and “concentration” has undoubtedly obscured the obvious fact that in the long run the simplest process in which the greatest amount of the original activity of the liver is conserved will be the most economical to the consumer.

The preparation of effective extracts of liver for parenteral use from the fraction G of Cohn is relatively simple and is already being carried out by several large hospitals. Desiccated commercial preparations of fraction G weigh about 4.2 per cent of the original bulk of the fresh liver and have already lost about 35 per cent of the original potency. This powdered extract may be dissolved in hot water, neutralized with sodium hydroxide, and allowed to settle for a week in the ice-box after a preservative has been added. The supernatant fluid when passed through a Berkefeld filter results in a solution suitable for parenteral administration. The “concentration” of commercial preparations may be emulated if desired by dissolving as much of the original 4.2 Gm. of powder as will stay in solution in from 3 to 20 cc. of water.

If an attempt is made to dissolve 4.2 Gm. of fraction G in each of such volumes of water as will result in final volumes of liquid of 20, 15, 10 and 5 cc., respectively, increasing amounts of precipitate appear on sedimentation as the volumes decrease. Under these circumstances, the volumes of centrifugated sediments are about 2.5, 3.5, 7.5 and 90 per cent, respectively, of the foregoing final volumes. A picture of the inherent difficulties of concentration is afforded by this simple experiment. The evidence presented, which indicates losses of potent material with concentration, suggests that these visible residues are not altogether composed of inert material.

Solutions of the material derived from 100 Gm. of liver in 20 cc. of water should be of such potency that the extract derived from 10 Gm. of liver given daily or from 100 Gm. of liver given weekly is ordinarily sufficient to produce a maximal response of reticulocytes and red blood cells and to keep the patient in constant remission. A certain amount of the active material in more concentrated preparations will be lost. These apparently simple procedures result, curiously enough, in a tenfold increase in cost in certain of the available commercial products, not to mention an actual loss of active principle, which is often considerable. We fail to perceive, therefore, the advantage of further refinements, which may add to the cost of the process and conceivably diminish the quantity of active principle. As seen from our data, the dilute extract used was always more potent and in two instances was probably more than twice as potent, as concentrated extracts derived from identical amounts of liver.

It should be noted that this does not mean that concentrated products of identical volume, but derived from greater amounts of liver, may not contain more active material, as shown in case C. B. Indeed, it cannot be denied that, by dissolving a large amount of the powdered extract in a small quantity of water, a definite advantage is gained. Let us assume that a concentrated extract in which is dissolved material derived from 100 Gm. of liver in 3 cc. of liquid contains only about

50 per cent as much of the active principle as a dilute extract that is derived from the same amount of liver, although dissolved in 20 cc. of liquid. It then follows that the 3 cc. of “concentrated” liver extract will be equivalent in potency to 10 cc. of “dilute” extract.

The objectionable features of the present situation are simply that no quantitative statement of these differences in potency is available, and that each extract is stated to contain all the potency of the original liver. It is self-evident that the simplest process that conserves the greatest amount of the original active principle of the liver will in the long run produce the most economical product. If concentration means the loss of considerable amounts of the active principle of the original liver, the consumer will naturally have to pay more for the remaining amount of active material. The specifications of a liver extract should not be based, as at present, on the amount of active principle with which the manufacturer began to work but on how much remains in the finished product. A discussion of the bearing of similar inadequacies on the economics of the oral therapy of anemia will be presented elsewhere.<sup>18</sup>

#### SUMMARY

The commercial extracts of liver for parenteral use are prepared in various concentrations, and descriptions of their potency are often vague. It was considered desirable to attempt comparative assays of the different products, using the principle of the “double” reticulocyte response on the same patient. This method necessitates the use of uniform suboptimal doses of liver extract given daily in successive ten to fourteen day periods.

Use of this method demonstrates that certain “concentrated” and “refined” solutions of liver extract for parenteral use have suffered a marked loss in the active principle, amounting possibly in certain cases to more than 50 per cent of the potency of the fraction G of Cohn, commonly used as the starting point in these preparations.

Until the specifications of the various commercial extracts for parenteral use are clearly defined in terms of what is a just maximal dose, it will be impossible for the practicing physician to obtain an accurate impression regarding the relative potency of the various extracts.

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#### ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. BETHELL, GOLDHAMEY, ISAACS AND STURGIS AND DRs. DAMESHEK AND CASTLE

DR. L. G. ZERFAS, Indianapolis. I wish to bring out two points: first, the importance of the diet in the treatment of idiopathic hypochromic anemia, in addition to the iron, and, second, the desirability of correcting any pathologic condition that may be causing a loss of blood. Regarding the paper of Drs. Dameshek and Castle, certainly whole raw liver is the basis of all the liver extract fractions. Unfortunately it is difficult to administer, and various fractions derived from a given amount of liver indicate that not all of the active principle is obtained. Minot has estimated the loss to be from 30 to 35 per cent. There are other experiments which bear out what Drs. Dameshek and Castle have said. Dr. Ryman has taken 10 Gm. of raw liver and digested it with gastric juice with that amount of liver he was able to produce a maximum reticulocyte response in pernicious anemia. My associates and I have taken one vial of liver extract, the amount derived

<sup>18</sup> Castle, W. B. and Dameshek, William. Research for the Benefit of the Consumer of Commercial Remedies for Anemia. Tr. A. Am. Phys. 1934, to be published.

from 100 Gm of liver, incubated it with normal human gastric juice, from 50 to 100 cc, and obtained maximal reticulocyte responses. This probably means that there are other substances in the liver extract on which the intrinsic factor of the gastric juice acts to produce an additional amount of active principle. The fact that 10 Gm of raw liver incubated with human gastric juice or one vial of liver extract so treated can produce a blood response equal to that produced when from 200 to 300 Gm of whole liver is fed daily indicates that there is another substance in the extract aside from the active principle, which is lost through fractionation. It is only reasonable to assume that there must be some loss of active principle by chemical fractionation. Drs Dameshek and Castle brought out that there is a great variation in the potency of different commercial preparations largely because their potency has been based on the amount of original liver from which the fractions were derived rather than on a definitely standardized means of testing. Some such methods as they utilized should be employed. When the diagnosis of pernicious anemia is made and liver extract or stomach tissue or other potent substance is recommended, the patient may simply go to the drug store and buy the material, in which instance he regulates his own treatment. When the patient receives injectable liver extract, the physician has an opportunity to regulate the therapy and to observe the clinical condition of the patient, all of which is vitally important to the patient's welfare.

DR CYRUS C STURGIS, Ann Arbor, Mich. I wish to emphasize two points. If one wishes to obtain an effect from iron in the treatment of any anemia, there are two things one must consider. The first is that iron will do no good unless there is an iron lack or deficiency in the patient. Secondly, an effect on the anemia will not be produced by the use of iron medication unless very large doses of this drug are given. The dose in the Pharmacopeia is very much too small. For instance the dose of reduced iron is 1 grain (0.065 Gm). I give 0.5 Gm three times a day, or  $22\frac{1}{2}$  grains (15 Gm) of iron daily in order to produce an effect. Drs Dameshek and Castle may be criticized by some because they have placed a great deal of dependence on the reticulocyte response as a criterion of the efficacy of the preparations which they have injected. However, I believe they are entirely correct. It is true that one criterion of the effectiveness of a drug in pernicious anemia is the amount of hemoglobin and red blood cells produced in a given period of time. After six or seven years' experience with the reticulocyte response I am convinced that it is likewise a very accurate method of assay of any preparation employed in the treatment of pernicious anemia. Various criticisms have been offered in rejecting the reticulocyte response as a method of assay, but I think that experience over these years indicates that it gives valuable and correct information. Some say that the methods of staining reticulocytes are ineffective, others that too much dependence is placed on the peak of the reticulocytes to tell whether the drug is effective or not, but despite these criticisms I believe that the value of this method has been demonstrated.

DR W P MURPHY, Boston. There are three means of testing the potency of a liver substance for use in pernicious anemia: (1) the rate and magnitude of the reticulocyte rise, (2) the rate of the erythrocyte increase and (3) the determination of the amount of material necessary to maintain the blood at a normal level in patients observed over long intervals of time. Owing to individual variations, perhaps because of complicating factors or even seasonal variations, data concerning the actual potency of material are of value only if obtained in a large series of cases uniformly treated and, in the case of maintenance treatment only, if followed for relatively long periods. Observations of the magnitude of the reticulocyte rise are not a reliable means of testing the potency of actively potent material. Although the method used by Drs Dameshek and Castle may eliminate some of the difficulties observed in the use of this method if used in a large series of cases, there are obvious reasons why it may not be reliable. The two latter methods offer an accurate and reliable means of determining the potency of and recording the actual value to the patient of any liver substance used. Last year I presented data showing the rate of increase of the erythrocytes following the use of a concentrated solution of liver. In a consecutive

series of more than forty cases showing initial red blood cell counts below the 2,000,000 level, the average daily increase was 100,000 cells during a period of one month. The amount of material used ranged from four to seven vials of 3 cc each prepared from 100 Gm of liver (Lederle). In the 1934 Scientific Exhibit a series of ninety cases is presented followed for periods varying from one-half to two and one-half years, in which the blood level was maintained at 5,000,000 or more cells per cubic millimeter, the average interval between injections of one vial, or 3 cc, of the concentrated solution was a little over one month. It may be seen from these data that the patients are being treated and maintained in excellent condition with a minimal dose of material and with the least disturbance to the individual. This is of particular interest because many patients come from long distances and more frequent dosage would be a considerable expense and inconvenience to them. Considering the small cost of the material and the fact that few injections are necessary, it is obvious that these patients are being maintained at a minimum of expense and inconvenience to them. I believe that these methods should be used not only to determine the purely academic question as to the relative potency of various concentrations of liver extract but the more important one, both to the patient and to the physician, of the most efficient and most satisfactory extract to use for the patient.

DR ADOLPH SACHS, Omaha. In the various forms of iron deficiencies whenever iron decreases the whole blood copper increases. As the anemia improves, the iron increases and the whole blood copper decreases. This offers another guide by which one can follow the benefit of any therapeutic measure. In 250 determinations made on normals, it was found that 132 micrograms of copper per hundred cubic centimeters of blood is the normal whole blood copper. This is similar in the female and in the male, with a very small variance. There are but few exceptions. In over 250 determinations a copper anemia has never been found. So in therapy I always find that copper is already present in sufficient quantity to supply the amount needed. I find in my experiments that copper is probably a great biologic catalyst.

DR C W EDMUNDS, Ann Arbor, Mich. The view in regard to the difference in potency in the different preparations derived from the same amounts of liver is, of course, of comparatively recent origin. The members of the Council on Pharmacy and Chemistry realize that the descriptions of potency in N N R at present are not strictly correct. A very serious problem has to do with the description and testing of these products under the new Pharmacopeia. It is most difficult to decide on some phrase that will describe the potency of these products. A product from 100 Gm of liver when it is in 10 cc may be of an entirely different potency from a product derived from 100 Gm when it is concentrated to 3 cc. In all the comments that have been made, I haven't heard one suggestion as to how this could be expressed in the Pharmacopeia, and that is of the utmost importance from the standpoint of the government supervision of these products. The chapters for these new monographs have all been prepared with the help of Drs Minot, Castle, Sturgis and Isaacs and are as perfect monographs as can be obtained in the present state of knowledge, except for this final phrase concerning the statement of potency. The assay is on reticulocytes, which is the only available and practical test at the present time. The statement giving the amount of liver used is not sufficient, except from the economic standpoint it is the amount of performance and potency that is important. I have suggested to Dr Isaacs and to Dr Minot that products should be labeled to show how many cubic centimeters or grams of the product would bring about the standard increase in reticulocytes. In other words, the reticulocyte increase with a certain number of red cells is the important thing. The matter is not settled. The copy is at the present moment in Dr Minot's hands and, I think, will go before the general committee of revision within the next two weeks and I hope we can come to some satisfactory solution of this really extremely difficult problem.

DR FRANK H BETHELL, Ann Arbor, Mich. Most of our patients, before coming under observation, had had a reasonably adequate and well balanced diet. However, an occasional

individual has been seen, with achlorhydria and without a history of any blood loss, who has presented an anemia of secondary type. Such patients are usually elderly, and the diet may have been inadequate over a period of many years. It is in this group that we feel dietary correction to be of particular importance. In the treatment of patients with iron deficiency anemia we do not believe that any diet is of specific benefit. In regard to copper, we have shown experimentally following the work of Hart, Steenbock, Elvehjem and Waddell that copper apparently plays an essential role in the utilization of iron in hemoglobin formation. However, any ordinary diet will supply between 2 and 4 mg of copper a day, which is as much as is supplied by the recommended dosages of many therapeutic preparations of iron and copper.

Dr WILLIAM DAMESHA, Boston. Dr Murphy's criticisms undoubtedly are correct in many respects. The reticulocyte response at times does not work, particularly in refractory patients. On the other hand, as Dr Murphy has brought out in one of his articles on the subject, the reticulocyte rise and not the red cell response is important when the liver extract is given not in maximal but in submaximal dosage. Regarding Dr Murphy's criticism of the number of cases, I wish to state that we have utilized this method of investigation in fourteen cases, in ten of which satisfactory observations were made. In each case comparisons of two or more extracts were made. This has been done over a period of a year and a quarter. We do not regard the job as finished and hope to interest others. It has been very difficult to obtain suitable patients. Many patients obtain all kinds of "shotgun" medications containing a certain amount of liver extract, and when they come to the hospital for treatment they are not suitable for testing. Dr Castle and I have felt therefore that it was necessary to test the materials out on the same patient. Individual patients may differ greatly in their manner of response. In the same patient, if the material is given in the same fashion daily the "double" responses are of great significance. These observations may possibly be considered of only academic interest since all the extracts tested work more or less well. We as physicians should, however, know as much as possible about any pharmaceutical product that we administer, especially as our patients have to pay for our services and prescriptions. Dr Edmunds has brought out some very important points. Dr Castle and I have many times discussed the question of how these products should be labeled. We have found that an easily prepared dilute liver extract almost always produces a maximal response from the daily injection of the material derived from 10 Gm of liver. Our interest in the matter is not to advocate any particular type of commercial product but to urge the definition of the potency of all acceptable products in terms of that dosage of each which will have approximately the same hematopoietic effect. Such a definition should meet no objection on the part of any reputable commercial drug firm.

**The Phylogeny of Blood-Forming Tissues.**—In phylogeny the fundamental blood-forming organ, the spleen, apporions its functions of lymphocytopoiesis and erythrocytopoiesis at the higher levels, respectively, among lymph nodes and bone marrow. It retains prominently in the mammalian adult only the functions of lymphocyte and monocyte formation. Since the lymph nodes also perform these functions to a high degree, the spleen represents as regards its primary function of blood formation only a vestigial organ. However, by virtue of its reticular stroma, its lymphocyte parenchyma and its sinusoidal venous circulation, it retains its evolutionary and fetal potentiality for the formation of the red cells. In this case of adenocarcinoma of the prostate both the lymph nodes and the bone marrow were largely eliminated from the hemocytopoietic system by reason of extensive metastases, and the spleen was stimulated to assume as a compensatory measure its original erythrocytopoietic activity. The condition roughly parallels the evolutionary level of the Amphibia in which the bone marrow has only slight erythropoietic activity, the spleen being the dominant organ in the production of red cells.—Jordan, H. E. Extramedullary Erythrocytopoiesis in Man. *Arch. Path.* 18:1 (July) 1934.

## THE EARLY HISTOLOGIC DIAGNOSIS OF CARCINOMA OF THE UTERINE CERVIX

HENRY SCHMITZ, M.D.

AND

E. L. BENJAMIN, M.D.

CHICAGO

In a previous paper the histologic changes in seventy-five cases of chronic cervicitis as revealed by serial sectioning were described.<sup>1</sup> In six of these, blastomatoid changes consisting of cellular and nuclear deviations in size, shape and chromatism, epithelial heterotopia and stroma reaction were present. We designated these changes as neoplasia. It was made clear that it was imperative to follow up the patients in whom this neoplasia was found, to determine the significance of the cellular changes. To these six cases, in the course of time, three more were added, so that we have now nine cervixes with blastomatoid changes. Eight were treated immediately with adequate doses of radiation as used in carcinomas, and normal anatomic conditions were obtained. One patient was not treated and a report of the case will now be given.

Jan 30, 1933, a low circular amputation of the cervix of Mrs. S. was done. The clinical diagnosis was leukoplakia of the cervix, and the amputation was done because the pathologic changes were extensive. The patient had lost 30 pounds (13.6 Kg.) during the last year. She had had a profuse brownish discharge mixed with blood for four or five months three years previously, and the discharge had been present continuously since May 1932. There was no odor, but the underwear was saturated daily. A cystic tumor of the ovary had been removed fifteen years previously and laparotomies for two tubal pregnancies had been performed twelve and thirteen years previously. The menstrual history was not important except that the menopause had occurred two years previously, when the patient was 44 years of age.

Pathologic examination showed that sections extending in the long axis of the cervical canal to include 10 mm of the vaginal lip of the cervix were covered with stratified squamous epithelium, and another 11 mm lined with columnar epithelium was partially eroded (fig. 1). The mucosa of the vaginal lip was thicker than normal, in spite of desquamation (artifact) of part of the superficial zone. There was a well developed stratum granulosum present, consisting of from three to four layers of flattened cells containing keratohyaline granules and interposed between a superficial clear eosinophilic cellular layer and a rete malpighii. The palisade arrangement of the basal layer was fairly constant, the basement membrane was intact. The tunica propria was edematous and infiltrated with lymphoid cells, plasma cells and polyblasts. Numerous preformed vessels, lined with a single layer of endothelium, were plainly seen (fig. 2).

As the stratified squamous epithelium approached the external os it increased in thickness to form broad flat epithelial papillae. The stratum granulosum became more distinct. The reaction within the tunica propria was exaggerated. An abrupt transition of the stratified squamous epithelium was seen exhibiting neoplastic tendencies characterized by loss of normal architecture, with a thickened stratum corneum, well developed stratum granulosum and hypertrophy of the rete malpighii. Loss of polarity, hyperchromatism and variations in size and shape were exhibited within the rete malpighii (fig. 3). The average diameter of 500 nuclei in this area was 0.020 mm, the extremes were 0.012 mm and 0.036 mm. The average diameter

Aided by a grant from the Cancer Research Institute of Chicago from the Departments of Gynecology and Pathology, Loyola University School of Medicine and the Mercy Hospital Institute of Radiation Therapy.

Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 15, 1934.

1. Schmitz, Henry, McJunkin, F. A. and Macaluso, M. A. Histopathology of Epithelial Hyperplasia and Neoplasia of the Cervix Uteri. *Am. J. Obst. & Gynec.* 27:336 (March) 1934.

of 500 nuclei in the rete malpighii of the mucosa of the vaginal lip was 0.017 mm, the extremes were 0.012 and 0.024 mm. An intense stroma reaction was present beneath the epithelium. The diagnosis was leukoplakia with early epidermoid carcinoma of the uterine cervix.

The cervix healed by first intention. The patient returned, June 26, complaining of a recurrence of the brownish discharge since June 5. However, on examination nothing of importance was found until October 26, when friable tissue was discovered at the external cervical os. A biopsy specimen was taken and the diagnosis of epidermoid carcinoma of the cervix (fig 4).

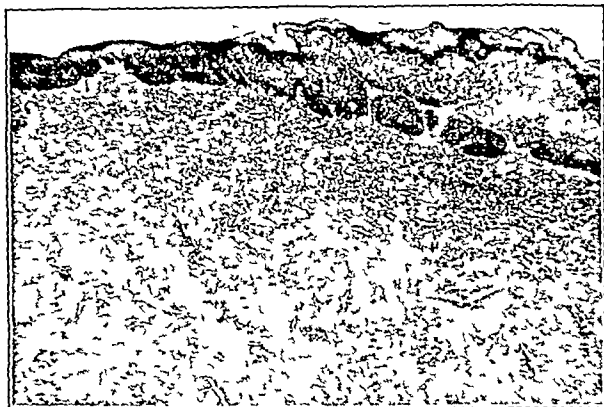


Fig 1—Leukoplakia beginning epidermoid carcinoma of the uterine cervix. Transition in the character of the mucosa downward growth and broadening of the epithelial papillae and subepithelial chronic inflammatory infiltration are shown. The lighter area to the right in the stratum mucosum is due to a technical staining defect. Reduced from a photomicrograph with a magnification of 65 diameters.

was made. The patient was treated with 50 mg of radium element placed directly in the cervical canal until 2400 milligram element hours was attained, and with the application of roentgen rays of 800 kilovolts to a suprapubic and a sacral field. The dosage applied to each field was 2,100 roentgens in ten fractional doses. Since the anteroposterior diameter was 16 cm, a dose of 2,600 roentgens was attained in the midpelvis. The patient had a rather severe reaction but overcame it gradually within two months, at which time examination revealed an anatomic healing of the cervix.

This is an instance in which ten months prior to a diagnosis of typical carcinoma, the microscopic examination of the cervix showed leukoplakia, atypia and neoplasia of the epithelial cells, a negligible amount of epithelial heterotopia and a stroma reaction. Such blastomatoid changes are apparently irreversible and should be considered as the earliest histologic evidence of carcinoma of the uterine cervix. This case is reported as proof that such blastomatoid changes should be considered malignant. We are of the opinion that, if such cases are not treated adequately at the time of their detection, they should be kept under close clinical observation. If marked heterotopia and breaking through of the basement membrane have occurred, the patient should be immediately and adequately treated by surgery or radiation. It will become the duty of the physician and pathologist to subject all cervical tissues removed at operation to serial sectioning and the changes of neoplasia should be considered as the earliest histologic evidence of carcinoma of the uterine cervix.

The detection of early carcinomas of the cervix can be attained only by employing palpation and inspection of the genital organs as part of every physical examination. Linear cauterization of the vaginal portion of the cervix will cure chronic cervicitis. If the lesion does not heal or if it recurs, low circular amputation of the diseased part of the portio vaginalis and microscopic examination of serial sections of all the tissues will lead to an early diagnosis of cancer.

## ABSTRACT OF DISCUSSION

DR EMIL NOVAK, Baltimore. In the great majority of cases, the diagnosis of cervical cancer can be made with reasonable certainty by the simple clinical methods of inspection and palpation, the microscope being used for confirmation. In the early and doubtful cases, the microscope must make the diagnosis. Since it is this early group which physicians are constantly striving to increase, the microscopic examination is becoming increasingly important but increasingly difficult. The reason for this lies in the fact that physicians are learning to recognize that certain epithelial cell characteristics which they had formerly looked on as distinctive of cancer may be found in lesions that are obviously not malignant. In the case of frank carcinoma, the microscopic diagnosis can usually be made almost at a glance, and with the low power, from the characteristic disorderly and invasive pattern of the growth. When the latter is lacking, it has been rather generally accepted that the presence of such features as mitoses, hyperchromatosis and disparity in cells and nuclei constitutes adequate evidence of a malignant condition. Many errors have been made because of this view, and, in the diagnosis of early epidermoid cervical cancer, evidence of invasiveness must usually be required to establish the diagnosis. During the past few years, the interest of gynecologic pathologists in this new field of "precancerous," "pseudomalignant" and "carcinoid" lesions has been intensified, probably chiefly because of the publications of Hinselmann and Schiller. Even in mild inflammatory lesions, mitoses in the basal layers may occasionally be found, and they are not uncommon in leukoplakia, though the latter is certainly a benign lesion, and though, in spite of a few reported cases, there has been no adequate evidence to indicate that it is a precursor of cancer. The so-called squamous metaplasia is clearly benign, and here again there is little reason to look on it as having any more influence in the development of cancer than pertains to any chronic irritative lesion. Of much greater interest, however, are the cases of what may be called intra-epithelial epithelioma, in which the epithelial layer shows unmistakable evidence of growth acceleration, with large, heavily stained nuclei, numerous mitoses, often parakeratosis, disparity in size of cells and nuclei—in short, all the histologic characteristics of carcinoma except for heterotopia. These pictures, so similar

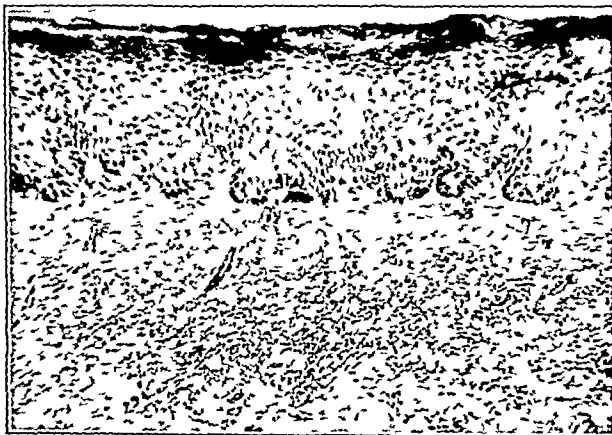


Fig 2—Mucosa of the vaginal lip showing hyperplastic epithelium with subepithelial stroma reaction. Reduced from a photomicrograph with a magnification of 210 diameters.

in many instances to the Bowen's disease of dermatologists that this term has come to be employed for lack of a better one, are being encountered more and more often. Do they represent early cancer or not? There is no way to determine this except to learn their effect on the life and health of the patients.

DR JOSEPH COLT BLOODGOOD, Baltimore. It was my privilege to hear Dr Schmitz with my classmate Dr John Clark and Dr Burnam give the first symposium on the treatment of cancer of the cervix with radium, in Chicago in 1914 or 1915. Each had a somewhat different method of treatment, but they all used radium salts or radon, and apparently at the end of five years their results were identical. They were curing

a certain percentage even of inoperable cases, and today their treatment is accepted throughout the world as the treatment for cancer of the cervix. Dr Schmitz is discussing early histologic diagnosis of cancer of the cervix, and my opinion is that, when one must use the microscope to demonstrate whether the lesion of the cervix is malignant or not, the chances of a cure are best. The fact that Dr Schmitz devotes his entire paper to this most important side is a demonstration that he is getting early cases. The cures today in the great clinics of the world are about 35 per cent, all cases being grouped together, and they vary from more than 90 per cent in the early stage to less than 10 per cent in group 4, the group of inoperable and extensive cancer. Nevertheless in the majority of cases cancer of the cervix is a preventable disease, and this prevention rests on the education of mothers and the education of physicians who take care of mothers' special troubles. Every woman should have a pelvic examination within six months and one year after the birth of her last child, and at as frequent intervals thereafter as her physician thinks best. This is as important as the protection of a child at 6 months of age against diphtheria by the use of toxoid. The early histologic diagnosis of cancer of the uterine cervix is the next most important thing. Ultimately, in the majority of cases, cancer of the cervix should be found with the microscope, and when it is found in this early stage the chances of a cure by physicians properly trained in the use of radium should be more than 90 per cent.

DR FRED WETHERELL, Syracuse, N. Y. Dr Schmitz finds early cases in his own private practice, but the cases that I see are the late cases which have been seen by the family physician. It is sad to see years go by and the cases referred to one in advanced stages, cases which have gone for months and sometimes even years. When the time comes that



Fig 3—Leukoplakia of the nonkeratinized epithelium of the portio vaginalis at the lip of the uterine cervix. Hyperkeratosis, parakeratosis and the formation of a well defined stratum granulosum are shown. Intercellular, intranuclear and perinuclear edema with variations in size and shape of the cells and hyperchromatism are present in the stratum spinosum and stratum germinativum. Reduced from a photomicrograph with a magnification of 475 diameters.

this group and other individuals interested in early diagnosis can have the patients which will make Dr Bloodgood's and Dr Schmitz's workers question the biopsy sections the answer will have been reached as Dr Bloodgood has suggested to early cure and cure in a large percentage of cases.

DR HENRY SCHMITZ, Chicago. The points I wanted to bring home are as follows. If neoplasia is found in the cervix

after surgical amputation and there is no penetration of basement membrane, it may be assumed that the surgical amputation has removed all the pathologic tissue, and follow up of these cases is all that is really necessary. On the other hand, if in these early carcinomas the penetration of basement membrane has occurred so that the classic microscopic diagnosis of carcinoma can be made, it is clear that these cases should be

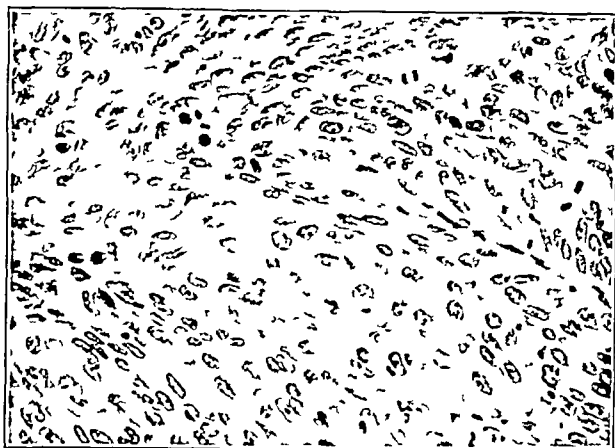


Fig 4—Primary epidermoid carcinoma of the uterine cervix from a biopsy specimen taken ten months after removal of tissue illustrated in figures 1, 2 and 3. Neoplasia, anaplasia and hyperchromatism with numerous mitotic figures are shown. Other fields show attempts at pearl formation. Reduced from a photomicrograph with a magnification of 500 diameters.

treated adequately according to established principles. I am positive in making the statement that if cases could be treated at this time and not when they are clinically recognizable, more than 90 per cent of the cases of carcinoma of the uterus would obtain a good five year end result.

## THE ESTIMATION OF FUNCTIONAL DISABILITY IN THE PULMO- NARY FIBROSES

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ALBERTO HURTADO, MD  
NOLAN KALTREIDER, MD  
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Pneumoconiosis presents a medicolegal problem of major importance. Many studies exist which deal with its etiology and pathogenesis and its diagnosis by roentgenograms, but so far little attention has been paid to its physiologic aspects, though their practical importance is obvious. Especially is this so in view of the growing tendency to adjust awards of workmen's compensation to the degree of disability. In order to do this properly it is essential that objective means of estimating disability be sought which will be fair alike to workman and employer. With this in mind we have carried out investigations on the respiratory function of fifty-three cases of pulmonary fibrosis of various types, not all of which were pneumoconioses.

The function of respiration is one jointly mediated by the heart, the blood and the lungs. It was apparent at the outset that the functional examination should be

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complete as regards all three of these factors. Our studies of the lungs have dealt with the pulmonary capacity and its subdivisions, with the tidal air, dead space, alveolar gases and response of the pulmonary ventilation to exercise. They have included the usual diagnostic roentgenographic studies together with measurements of areas of the pulmonary fields during maximum inspiration and expiration, with observations as to the behavior of the ribs and diaphragm. The blood has been carefully studied in each case as to count, hemoglobin, cell and plasma volume and gas content, particularly of the degree of saturation of the arterial blood with oxygen. The heart has been carefully measured roentgenologically. Electrocardiograms have been made in each case, and the cardiac output has been measured in a large proportion of them, Grollman's<sup>1</sup> method being used. The enormous amount of data accumulated cannot be completely presented here. It is in the process of publication elsewhere. We will confine ourselves at this time to a discussion (1) of the correlation of roentgenographic studies with the measurements of the pulmonary capacity and of the saturation of the arterial blood with oxygen, and (2) of our observations on the ventilation of the lung during exercise.

The total pulmonary capacity and its subdivisions were measured by the method of Christie.<sup>2</sup> While similar measurements have been made previously by many investigators, a search of the literature revealed data concerning few normal subjects and no basis on which to estimate the normality of the values observed. Hurtado and his co-workers<sup>3</sup> undertook to establish

between the vital capacity and the radiologic chest volume at maximum inspiration, measured with a planimeter traced on a roentgenogram made by a special technic at a distance of 6 feet. This technic involved the use of filters through which the films were doubly exposed, once at maximum inspiration and once at maximum expiration. A formula has been derived by which the normal value of the pulmonary capacities may be predicted with an agreement between predicted and observed values within 15 per cent.<sup>4</sup>

Pulmonary Capacity and Its Subdivisions in Fifty-Three Cases of Pulmonary Fibrosis

Group		Total Capacity per Cent of Normal	Vital Capacity per Cent of Normal	Residual Air per Cent of Normal	Ratio Residual Total per Cent	Arterial Saturation with O per Cent
I	Average	84	73	125	32	94.0
	Range	65-99	59-87	10-192	20-43	91.4-98.5
II	Average	95	80	135	34	89.5
	Range	75-109	36-76	139-212	37-43	81.5-92.1
III	Average	77	62	212	30	90.0
	Range	50-105	28-86	105-215	26-56	80.6-96.3
IV	Average	79	62	141	38	93.8
	Range	74-89	58-70	97-197	28-49	92.2-95.7
V	Average	82	47	205	34	90.0
	Range	69-97	42-61	138-262	44-69	87.3-92.7
VI	Average	60	43	123	56	83.8
	Range	38-64	32-57	62-176	24-61	71.9-91.9

The normal partition of the pulmonary capacity between vital capacity and residual air has also been determined, and also of the mid capacity (taken at the end of a normal expiration). The relations between these subdivisions as determined in fifty normal males and fifty normal females are shown graphically in figure 1. The grouping of dots about the lines representing mean values gives the normal limits of variation observed.

In order to determine to what extent the roentgenograms of the lungs give clues as to the degree of functional impairment of respiration, the fifty-three cases of pulmonary fibrosis were divided into six groups, according to the anatomic type of fibrosis revealed. No other satisfactory basis of classification could be found. An etiologic classification was impossible for several reasons. In the first place it is never possible to determine with certainty the etiology of pulmonary fibrosis from a roentgenogram, even when a reliable history of occupational exposure to dust is obtained. It is difficult to exclude the possibility of infectious fibroses, particularly in a group composed largely of litigants who cannot be relied on to give the full truth regarding nonoccupational illnesses. Furthermore the majority of our patients were in the fifth and sixth decades, in which cardiovascular disease has a fairly high incidence as a cause of pulmonary fibrosis and respiratory disability.

The grouping of the cases of fibrosis is as follows:

I More than usual fibrosis in patients giving no history of asthma. A typical roentgenogram of this group is shown in figure 2. The group includes incipient cases of pneumoconiosis, chronic nontuberculous respiratory infection and cases presenting cardiovascular disease making a total of twenty-two cases.

II More than usual fibrosis of linear type with emphysema in patients giving a history of asthma. A roentgenogram typical of this group of seven cases is shown in figure 3.

III Simple nodular fibrosis giving the diffuse 'snowstorm' appearance characteristically produced by miliary tuberculosis.

4 Hurtado and Fray,<sup>3</sup> Hurtado, Fray, Kaltreider and Brooks.<sup>5</sup>

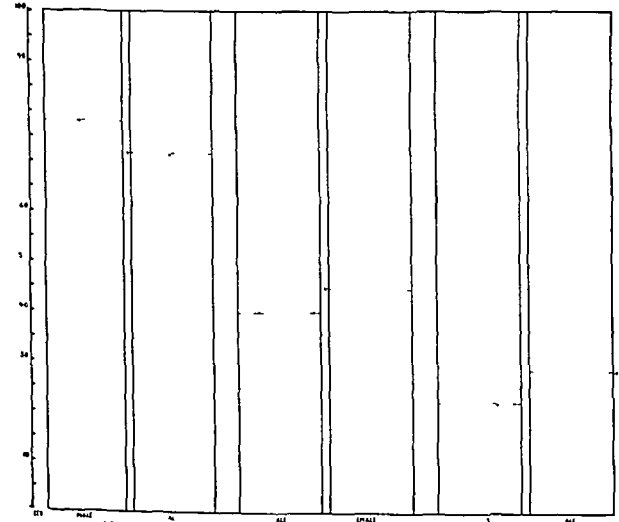


Fig 1—Relative values of the various subdivisions of the pulmonary capacity observed in sixty normal males and fifty normal females. The dots represent individual observations grouped about the mean values.

normal values by a study of sixty normal men and fifty normal women. The values of pulmonary capacity were correlated with various bodily and roentgenographic measurements. The best correlation was found to exist

1 Grollman, Arthur. The Cardiac Output of Man in Health and Disease. Springfield, Ill., Charles C. Thomas, 1932.  
2 Christie, R. V. The Lung Volume and Its Subdivisions. I. Methods of Measurement. J. Clin. Investigation 11: 1099 (Nov.) 1932.  
3 Hurtado, Alberto and Boller, C. Studies of Total Pulmonary Capacity and Its Subdivisions. I. Normal Absolute and Relative Values. J. Clin. Investigation 12: 793 (Sept.) 1933.  
4 Hurtado, Alberto and Fray, W. W. Studies of Total Pulmonary Capacity and Its Subdivisions. II. Correlation with Physical and Radiological Measurements. Ibid. 12: 807 (Sept.) 1933.  
5 L. and Brooks, W. D. W. Studies of Total Pulmonary Capacity and Its Subdivisions. I. Normal Values in Female Subjects. Ibid. 13: 169 (Jan.) 1934.



or silicosis. Figure 4 is typical of this group, which includes fifteen cases.

IV Similar to group III except that agglomeration of nodules is beginning, with emphysema in intervening areas. Figure 5 is typical of the group of three cases.

V More advanced agglomeration forming dense shadows in the midzone and upper portions of the lungs with marked emphysema of the bases, tenting of the diaphragms, and the like. Figure 6 is typical of the three cases of this group.

VI Fine, diffuse reticular fibrosis without nodulation. Figure 7 is typical of three cases of this group.

In figure 8 are graphically shown the average values for the predicted and observed values of pulmonary capacity for each group. In this, one observes a progressive tendency for the vital capacity and total capacity to diminish as the degree of fibrosis increases, except in group II, in which the total capacity is nearly normal, owing to the large value of the residual air, probably representing the emphysema induced by the repeated attacks of asthma.

The functional significance of these conditions is better appreciated by the data in the accompanying

in every case in which the ratio of residual air to total capacity is more than 49 per cent. With the ratio at 45 per cent only one patient and at 40 per cent only four patients were normally saturated with oxygen.

One might be tempted to assume that the borderline of complete disability had been reached whenever the saturation of the arterial blood at rest was less than normal. This would undoubtedly be a faulty assumption in view of the fact that Hurtado<sup>5</sup> found that the arterial blood of natives of the high Peruvian Andes is always less saturated with oxygen than is the case with normal individuals at sea level. In spite of the partial anoxemia, the Peruvian natives are capable of performing hard labor in the mines.

In the hope of finding some basis for estimating the capacity for work of our subjects, we have studied the respiration during physical work. The subjects sat in a chair-like seat from which they operated the pedals of a bicycle, which turned a metal wheel against the resistance of a simple mechanical brake. The

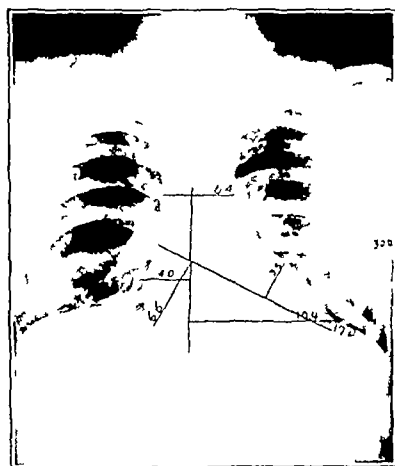


Fig. 2—Typical of group I. The total capacity was 6 per cent and the vital capacity 12.7 per cent below normal. The residual air was 17.3 per cent above normal. The ratio RA:TC was 27.5 per cent.

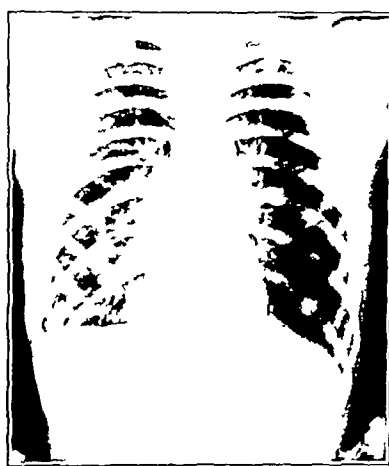


Fig. 3—Typical of group II. The total capacity and vital capacity were decreased to 85 and 41 per cent of normal respectively. The residual air was 241 per cent of normal. The ratio RA:TC was 62.5 per cent. Arterial oxygen saturation was 92 per cent.

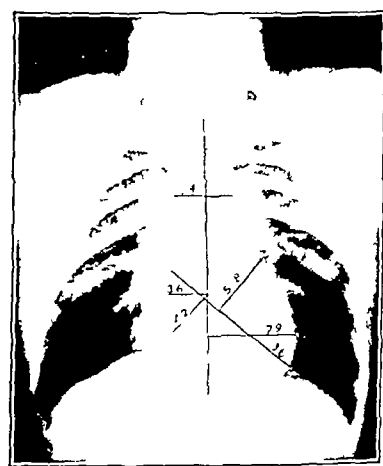


Fig. 4—Typical of group III. The total capacity was 71 per cent of normal, vital capacity 58 per cent and residual air 116 per cent. Ratio RA:TC was 36 per cent. Arterial oxygen saturation was 81 per cent.

table, in which are given the average data for pulmonary capacity and its subdivisions, and the range of variation within each group. These data are compared with values for the saturation of the arterial blood with oxygen.

The usual changes observed in these cases of pulmonary fibrosis consisted of a moderate decrease in the total capacity, a more marked decrease in the vital capacity and in most cases a moderate increase in the residual air. Not infrequently the latter volume was found to be abnormally high. It appears from this table that the average values of these changes are proportional to the degree of fibrosis, as revealed in the roentgenogram, but the wide variation within each group indicates that a very imperfect idea of the degree of functional impairment of the lungs can be derived from the roentgenograms alone. The necessity for individual and complete study of each case is obvious.

In the analysis of our data the ratio of residual air to the total pulmonary capacity appears to have great functional significance. The saturation of the arterial blood with oxygen is less than the normal 94 per cent

subjects were urged to exert themselves to the utmost, during which time the expired air was collected in a spirometer. The volume of this air and the rate of respiration was recorded graphically and charted for each half minute period. The actual work performed was not measured, the object being merely to record the maximal ventilation of the lungs to which the subject could attain in any half minute period.

Sturgis, Peabody, Hall and Fremont-Smith<sup>6</sup> observed the maximal minute volume of respiration in twelve young men. Their observations led them to suggest a formula for roughly predicting the maximal minute volume, which they found to be attained when the tidal air equals one third of the vital capacity and the rate of breathing is 34 per minute. The maximum minute volume was about twelve times that of the value observed when the subject was lying down at complete rest. This maximum value was one

5 Hurtado, Alberto. Studies at High Altitude. Blood Observations on the Indian Natives of the Peruvian Andes. *Am. J. Physiol.* 100: 487 (May) 1932.

6 Sturgis, C. C., Peabody, F. W., Hall, F. C. and Fremont-Smith, Frank, Jr. Clinical Studies on the Respiration. VIII. The Relation of Dyspnea to the Maximum Minute Volume of Pulmonary Ventilation. *Arch. Int. Med.* 29: 236 (Feb.) 1922.

that could be maintained for only short periods (one and one-half minutes of extreme effort) They observed that normal subjects were not conscious of breathing at 25 per cent of maximal capacity, and that they were conscious of it at 50 per cent and frankly short of breath when the minute volume was 75 per cent of the maximal value When the vital capacity was reduced artificially by tight binding of the chest the maximal ventilation was likewise reduced, and the percentages at which moderate and severe dyspnea were noted were relatively the same, 50 and 75 per cent, respectively These results, however, were attained with highly intelligent, cooperative, trained subjects who could be depended on to exert themselves to the utmost of their ability

In our series it was possible to select ten subjects with pulmonary fibrosis and five subjects with emphysema who were not engaged in litigation and who appeared to be highly cooperative In these cases the average vital capacity observed was 2.50 liters From the vital capacities the maximum minute

ventilation, in which the mean value of the former was 66.8 per cent and of the latter 64.6 per cent The lack of a more perfect correlation between these two values probably depends on the fact that individuals with pulmonary fibrosis attain their maximum respiration with a smaller increase in rate than is the case with normal or with emphysematous subjects In this series of twenty-five cases the average rate of respiration was 28, a range of from 20 to 32 per minute If the gross value for ventilation is corrected for dead space and rate of breathing, the effective alveolar ventilation may be obtained We have reason to believe that when correlations are made on effective alveolar ventilation and the vital capacity a closer relationship will be revealed With this in view we are continuing our observations, making improvements in the ergometer used and making determinations of the dead space both at rest and during exercise The dead space is being measured by a new apparatus which permits the taking of eight samples of air from a single expiration, from which the gradient of carbon dioxide or oxygen may



Fig 5—Typical of group IV The total capacity was 75 per cent of normal vital capacity 70 per cent and residual air 97 per cent Ratio RA TC was 28 per cent Arterial oxygen saturation was 93.4 per cent



Fig 6—Typical of group V The total capacity was 69 per cent of normal vital capacity 50 per cent and residual air 138 per cent Ratio RA TC was 44 per cent Arterial oxygen saturation was 87.3 per cent

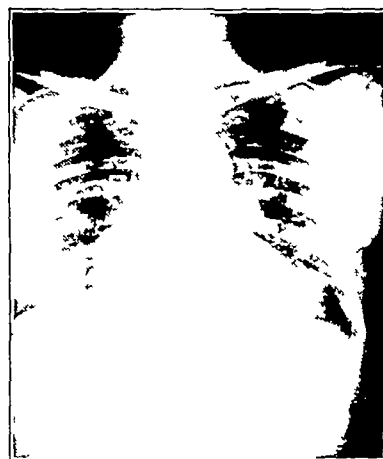


Fig 7—Typical of group VI The total capacity was 59 per cent vital capacity 39 per cent residual air 130 per cent of normal Ratio RA TC was 48.6 per cent Arterial oxygen saturation was 71.9 per cent

volumes were calculated and the average of these values was found to be 13.79 liters per one-half minute The average of the observed values was found to be 12.33 liters per one-half minute, giving an average agreement within 10 per cent between calculated and observed values These results indicate, therefore, that the Sturgis-Peabody formula gives a roughly correct method of predicting the maximal ventilatory capacity of untrained subjects with pulmonary fibrosis and emphysema

Unfortunately, in dealing with patients who were litigants it was frequently apparent that less than normal effort was exerted However, fifteen of the litigants apparently cooperated well The average maximal ventilation per one-half minute for this group was 17.83 liters for the observed values and 18.85 liters for the values calculated from the vital capacity, an average agreement within 6 per cent, with a range from minus 33 to plus 40 per cent

The correlation coefficient between the percentage of normal vital capacity observed and the percentage of normal maximal ventilation observed was found to be  $0.526 \pm 0.1349$  in twenty-five cases of pulmonary

fibrosis, in which the mean value of the former was 66.8 per cent and of the latter 64.6 per cent The lack of a more perfect correlation between these two values probably depends on the fact that individuals with pulmonary fibrosis attain their maximum respiration with a smaller increase in rate than is the case with normal or with emphysematous subjects

#### SUMMARY

Fifty-three cases of pulmonary fibrosis due to a variety of etiologic factors were studied from the functional point of view in the hope of arriving at an objective and reliable method of estimating the degree of respiratory disability resulting from fibrosis of the lungs Since the function of respiration is one jointly mediated by the heart, the blood and the lungs, in addition to careful clinical, roentgenographic and electrocardiographic studies, the following observations were made total pulmonary capacity and its partition between vital capacity and residual air, and the mid capacity, the tidal air, dead space, alveolar gases, and the response of the pulmonary ventilation to exercise, clinical and chemical studies of the blood and of its gas content particularly with reference to its saturation with oxygen Since etiologic classification was impossible, the cases were divided into six groups depending on the anatomic type of fibrosis revealed in roentgenograms of the chest

## CONCLUSIONS

1 The comparison of the observed with the normal calculated pulmonary capacity in cases of pulmonary fibrosis indicates that a decrease in the total and vital capacities and an increase in the residual air are characteristic changes in this condition. These changes tend to become more accentuated as the degree of fibrosis increases, but frequent exceptions to this correlation emphasize the fact that one cannot judge accurately the degree of abnormality in pulmonary capacity from roentgenograms alone.

2 The ratio of residual air to total pulmonary capacity is one of great functional significance, the higher the ratio the greater is the tendency to anoxemia. Thus the saturation of the arterial blood with oxygen is less than the normal 94 per cent in every case in which the ratio exceeded 49 per cent, in all but one case in which it exceeded 45 per cent, and in all but four cases in which it exceeded 40 per cent.

3 The Sturgis-Peabody formula for predicting maximal ventilatory capacity from the vital capacity is shown to be roughly correct when applied to cases of pulmonary fibrosis. In a group of twenty-five patients with pulmonary fibrosis, comparison of the percentage of normal vital capacity observed with the percentage

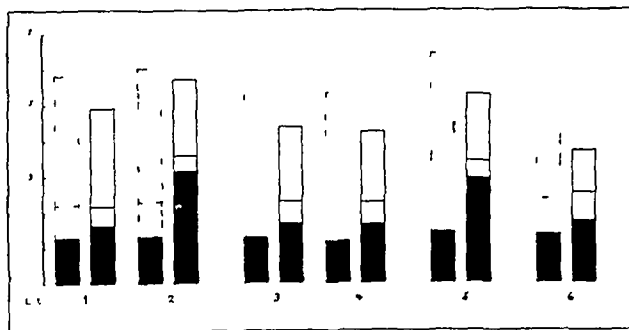


Fig 8—Average data of each of the groups I-VI. The left hand column of each pair represents the calculated normal, the right hand one the observed values. The total column is the total capacity, black representing residual air, white the vital capacity. The transverse line represents midcapacity taken at the end of a normal tidal expiration.

of normal maximal ventilatory capacity predicted by the formula gave a correlation coefficient of  $0.526 \pm 0.1349$ , indicating that further work is needed in order to devise a better formula.

4 Patients with pulmonary fibrosis attain maximal ventilation with less acceleration in rate of breathing than in the case of normal subjects or patients with heart disease or emphysema. We are continuing our observations in the belief that a higher correlation between vital and ventilatory capacity will be attained if the effective alveolar ventilation is measured.

260 Crittendon Boulevard

## ABSTRACT OF DISCUSSION

DR JAMES L. DUBROW, Des Moines, Iowa. Another approach to the problem of estimating the functional disability in the pulmonary fibroses can be made not only through the roentgen film but also by the clinical examination of the patient. Although it is difficult from the chest film alone to say what form of fibrosis a man has, correlation of the clinical with the roentgen observations is of great value. There is a widespread opinion that all forms of pneumoconiosis are due to silicosis, yet if one examines a large number of films of soft coal miners it will be noted that they present undoubted signs of pulmonary fibrosis. While the miners are able to perform their work they suffer from a certain grade of dyspnea, and

their functional and vital capacity is reduced as shown by Brownlee and his associates in England. In cases of pulmonary fibrosis actually due to silicosis, such as those encountered in granite workers and shown on the x-ray film by nodular mottling, the estimation of functional disability is complicated because many of these cases present pulmonary tuberculosis as an associated disease, but, even ruling out pulmonary tuberculosis as a complicating factor, the vital capacity is more seriously reduced. Another form of pneumoconiosis in which the degree of functional disability is even greater is in the cases that have come under my observation is asbestosis. The fibrosis shown on the roentgenogram in cases of asbestosis differs from that encountered in silicosis in that it is of a finer type and appears softer and more widespread. Clinically, even without seeing the film, one can make a good guess as to the form of fibrosis by the amount of dyspnea the patient displays, always provided the occupational history has been that of an asbestos worker. An interesting point about asbestosis is that of cardiac changes displayed on physical and electrocardiographic examination. The electrocardiogram shows a right ventricular preponderance, and some of the dyspnea noted is in all probability due to myocardial changes incident to the burden on the pulmonary circulation with the gross load being borne by the right heart. In selected cases of pneumoconiosis reported by me in the *Journal of Radiology* in February I happened to take electrocardiograms in an endeavor to explain the evident dyspnea noted in certain forms of pulmonary fibrosis. The electrocardiographic changes shown in asbestosis seem quite marked.

DR WILLIAM D. McNALLY, Chicago. Did you examine any lungs that had cavities, when you gave your vital capacity data? The test would be no good with the cavities, would it?

DR WILLIAM S. McCANN, Rochester, N. Y. No.

DR McNALLY. In Gutzeit and Groetschels work on the vital capacity and respiratory index in pneumoconiosis, the respiratory index is given as the quotient the vital capacity divided by height of the body in centimeters (20 in normal human beings).

DR BENJAMIN GOLDBERG, Chicago. I have found basal metabolic rates as high as plus 55 in patients having a marked interalveolar fibrosis with no evidence of other disease, such as thyrotoxicosis or leukemia. Apparently an anoxemia occurs in these individuals and the test has been checked several times to make certain of its accuracy. In these instances one must also consider the possibility of an increase in physical effort, associated with the dyspnea produced by the disease, as a factor in increased metabolism.

DR WILLIAM S. McCANN, Rochester, N. Y. With regard to the estimation of the degree of functional impairment from the actual test alone in the first group of patients the average observations of which were rather close to normal, quite a number were workmen between the ages of 40 and 60 who had evidence of myocardial disease (abnormal electrocardiograms). One would expect to encounter arteriosclerotic and hypertensive heart disease frequently in this age group. On the other hand, we had a considerable number of people who had abnormal electrocardiograms who did fairly well with regard to functional capacity, and it all depended, I suppose, on the amount of cardiac reserve they had left in spite of electrocardiographic abnormalities. The high incidence of cardiovascular disease in this age group makes it a bit unfair to compare such a group with normal men of a more youthful type as we have done. We hope soon to have normal standards for men between the ages of 40 and 60 selected for apparent health and from nondusty occupations. None of these patients had cavities that we could demonstrate by x-rays. There may be small cavities in some of them but they were not obvious. We were not dealing very much with the tuberculous group of pneumoconioses. We have not done anything with the formula of which Dr McNally spoke. I was not even aware of it. In regard to basal metabolism, there is one thing which I think should be borne in mind. Some of our patients had an arterial oxygen saturation as low as 70 per cent. If the basal metabolism is determined with a closed system using a rich oxygen mixture the absorption of oxygen there does not necessarily mean the use of that oxygen in

metabolism. It means in many cases building up the oxygen saturation of the arterial blood during the period of the test. It is impossible to get a true determination of the basal metabolism of a cardiac patient who is severely anoxic, or of one with pulmonary fibrosis who is severely anoxic, by the use of a closed apparatus such as the Benedict. On the other hand if the metabolism is determined by means of a Tissot spirometer that factor does not enter in. The oxygen absorption is necessarily determined in the Christie method of determining the residual air. We did not calculate the metabolism from the oxygen absorbed because we believed that a part of it was used in building up the oxygen saturation of the blood.

DR E. R. HAYHURST, Columbus, Ohio: Did you make any breath holding tests?

DR McCANN: No.

## CONGENITAL CYSTIC DISEASE OF THE LUNGS

### A CLINICAL STUDY

HARRY G. WOOD, M.D.

ROCHESTER, MINN.

In a review of the literature, I am unable to find a report of any case of congenital cystic disease of the lungs diagnosed clinically before 1925. In that year, Koontz<sup>1</sup> reported a case and was able to collect 108 other cases. These were all from the European literature and all were based on material obtained at necropsy. This article is to a large extent responsible for the increased interest in, and increased clinical knowledge of the condition existing today. Since the time this paper was published, I have been able, from the American and English literature, to collect twenty-three reports of cases exclusive of those reported in this series. I presume there are more. Of the twenty-three cases a clinical diagnosis was made in sixteen and a diagnosis based on material obtained at necropsy in seven. In one case, the clinical diagnosis was confirmed at necropsy.

Some authors have attempted a classification based on the histopathologic observations. In a general way, all cases fall into two groups: (1) those in which there are single or multiple large cysts containing air or fluid, and (2) diffuse degeneration resulting in the so-called honeycomb type of lung.

The congenital origin of this disease is still a matter of contention, but in many cases the lesions are palpably present at birth and, more important still, in specimens obtained in later life, pigment is absent almost invariably. These facts seem satisfactorily to settle this question.

Theories advanced to explain the condition have been many. Koontz concluded, however, that conjectures as to the cause only beclouded the issue, and that no simple mechanical explanation is available for what is manifestly a developmental anomaly of which many of the factors are unknown.

### MATERIAL

This paper is based on sixteen cases observed at the Mayo Clinic. They have been divided into three groups. Group 1 is composed of six cases in which the diagnosis

appears to be incontrovertible. Group 2 is composed of six cases in which the diagnosis is based entirely on the roentgenologic observations. I believe that a majority of all cases of congenital cystic degeneration can be satisfactorily diagnosed from such observations. Group 3 is composed of four cases that are atypical. In these the diagnosis may be disputed, but careful consideration of the histories and clinical and roentgenologic changes leads us at the clinic to the belief that they are also true examples of congenital cystic degeneration of the lung. This group is included to show that there is a certain group of cases that cannot be diagnosed with certainty.

### REPORT OF CASES IN GROUP 1

CASE 1—A man, aged 36, was examined at the clinic, March 15, 1932. Tuberculosis had not occurred in the family, and the family history otherwise was unimportant. The patient had had influenza in 1918 but had been healthy otherwise until the illness of which he complained. This illness had begun insidiously two years before his examination, without acute infection. Dyspnea gradually had increased and there was occasional palpitation that was worse on exertion. The man had been unable to work for six months previous to his examination. He had not lost weight and he had not had fever. His appetite and digestion were good. There was some cough for one year. When lying on his left side he raised blood-tinged sputum, and dyspnea was increased. A previous diagnosis had been spontaneous pneumothorax. Repeated aspirations (from fifteen to eighteen times) of air did not relieve the condition.

Examination disclosed emphysema on the left side. The temperature was 99.6 F., the pulse rate 93 beats per minute, the blood pressure 118 mm. of mercury systolic and 86 diastolic. The concentration of hemoglobin was 175 mg. per hundred cubic centimeters, erythrocytes numbered 5,170,000 and leukocytes 6,100 per cubic millimeter of blood. The sputum was negative for bacilli of tuberculosis. Breath sounds, vocal resonance and vocal fremitus were diminished on the right side. The heart was displaced to the left. The right side of the diaphragm and the liver were displaced downward. Succussion sounds tinkle, and amphoric breathing were absent, and the corn test was negative. On study of intrapleural pressure, the original reading was from +6 to +1. After withdrawal of 500 cc. of air the reading was from +3 to -1.

The roentgenologist made a diagnosis of congenital cystic disease of the lung. A roentgenogram disclosed cystic destruction of the entire right lung (fig. 1), a small amount of fluid at the base of the right lung, and a small cyst at the hilus of the left lung. Bronchoscopic examination disclosed that the trachea was pushed to the left, the lumen of the right main bronchus was slightly narrowed and was collapsible with respiration. A small amount of blood was seen coming from the bronchus of the lower lobe of the right lung. Roentgenograms after injection of iodized poppy-seed oil disclosed an advanced cystic condition of the entire right lung (fig. 2).

No treatment other than restriction of activities was advised.

CASE 2—A girl, aged 5 years and 4 months, was examined in February, 1924. The family history was unimportant, there was no tuberculosis in the family. Birth had been normal. The child supposedly had had mild influenza in the third month of life and bronchitis at 18 months but she had been considered to be robust and healthy until she had reached the age of 3 years. After her third birthday she had begun to have recurring attacks of nausea and vomiting with fever. Tonsillar infection had been found and the tonsils and adenoids had been removed in March, 1921. The patient had remained well and had gained weight and strength for six months. In November, 1921, however, she progressively had lost weight and strength had had marked anorexia and gradually but steadily had become more dyspneic on exertion. This condition had persisted for one year, without pain, elevation of temperature, sweats or cyanosis. In December, 1923, because of mild respiratory infection and cough for one week, she had been taken to her physician who had made a diagnosis of spontane-

From the Division of Medicine, the Mayo Clinic. Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the author's reprints.

Read before the Section on Practice of Medicine at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.

<sup>1</sup> Koontz, A. R. Congenital Cysts of the Lung. *Bull. Johns Hopkins Hosp.* 34:340-361 (Nov.) 1925.

ous pneumothorax of the right side. Air had been aspirated eight or nine times from the right side of the thorax, supposedly from the right pleural space, without relief.

When the patient was examined at the clinic in 1924 her pulse rate was 118 beats per minute, respirations were 45 per minute and breathing was labored, but cyanosis was absent. The temperature was normal. The physical signs were those of pneumothorax of the right side. The roentgenologic report was that the right lung was completely collapsed and the heart displaced to the left. The value for hemoglobin was 68 per cent, erythrocytes numbered 4,010,000 and leukocytes 12,400 per cubic millimeter of blood. Urinalysis gave negative results and the Wassermann reaction of the blood and the Pirquet test were negative. Air was aspirated on three occasions. The first time, a positive water pressure of from 24 to 32 cm was present, the pressure became atmospheric after aspiration of 550 cc of air. At the time of the second aspiration, a negative pressure of from 2 to 4 cm was found, it became positive when the child cried. At the third aspiration, a positive pressure of 20 cm was found, and exploration of the thorax was carried out. The surgeon's report is as follows: A filmy, transparent membrane was seen beneath the parietal pleura. When it was incised an empty right thoracic cavity was found, with no trace of pulmonary tissue. When the cavity was partially filled with saline solution, at two points near the hilus some bubbling was seen, which soon ceased. These areas were lightly touched with a cauterizer and the incision was closed. The patient's convalescence was successful, with some formation of fluid, which was aspirated once. Even after exploration the correct diagnosis was not recognized, and the surgeon's opinion was that he was dealing with a condition of congenital absence of the right lung. A postoperative roentgenogram was made (fig 3A).



Fig 1 (case 1)—Cystic changes involving the entire right lung. The heart and mediastinum are displaced to the left.

For the subsequent history, pathologic changes and recent thoracic roentgenogram (fig 3B), I am indebted to Dr. Birnberg to whose care the patient was returned after operation. From 1924 until February 1934, the girl developed normally, without acute illness except for one attack of what was probably acute appendicitis. There was always moderate dyspnea on exertion but otherwise she was fairly healthy. She became acutely ill, Feb. 1, 1934, with inflammatory abdominal disease, and was admitted to the hospital February 5, where immediate laparotomy was performed. Generalized peritonitis was found and the patient succumbed five days later. At the time of this illness, the right side of the thorax was more prominent than the left, it gave a tympanic percussion note, breath sounds were distant, and fremitus was absent. The heart was displaced to the left. There were negative physical changes on the left.

At necropsy, the observations were as follows: A large, air-containing cyst filled the right side of the thorax and was adherent to the thoracic wall and diaphragm. This remained inflated when the sternum was removed. The cyst herniated across the superior mediastinum, extending well into the apex of the left pleural cavity. The cyst was found to be filled with filmy strands, like cobwebs. The left pleural cavity was empty, and the left lung was composed of three lobes. Throughout the lower lobe and lower portion of the upper lobe were numerous small areas of pneumonic consolidation. The trachea was opened and water was injected. The water did not enter the large cyst but infiltrated the right lung and wall

of the cyst in the region of the apex and filled the portion of the cyst that was in the left side of the thorax.

This explanation makes me feel that in reality we were dealing with a second cyst occupying the superior mediastinum and upper left part of the thoracic cavity, rather than a portion of the large cyst herniating across

**CASE 3**—A married woman, aged 37, was referred to the clinic in June 1926 by Col. J. A. Wilson<sup>2</sup> after complete investigation and with a diagnosis of emphysematous cyst of the upper lobe of the left lung. This case has been reported by Colonel Wilson, who apparently was the first to induce pneumothorax for diagnosis in this condition.

On examination at the clinic, the physical changes were those of pneumothorax involving the left side. The mediastinal structures and heart were displaced to the right. We repeated Colonel Wilson's diagnostic procedure and induced pneumothorax. This clearly demonstrated the wall of the partially collapsed cyst.

**CASE 4**—A boy, aged 2 years and 4 months, was examined in November 1928. There was no history of tuberculosis in the family and the family history otherwise was unimportant. Birth had been normal, and the child had seemed normal and healthy until 18 months of age. He then had had what had been diagnosed as "stomach flu," and following this gradually had lost weight and strength, although definite pulmonary symptoms had not been noted. When 22 months old, the child had had an elevated temperature, and his mother had noted that respirations were peculiar and difficult. A physician had been called, who stated that examination then had revealed a hyperresonant note over the right side of the thorax, both anterior and posterior, with almost no breath sounds, and roentgenologic examination had given evidence of what had been assumed to be pneumothorax involving the right side. The physician had aspirated air from the right side of the thorax without giving any subjective relief. As a matter of fact, the child seemed more distressed than before aspiration. The physician sent us a roentgenogram taken a few days later, which he described as follows:

"This shows what we believed to be a stripping loose of the pleura, probably as a result of the puncture, air getting behind the needle hole and stripping the pleura away from the chest wall. This rapidly fell back into its normal position."

The diagnosis can be made with certainty on the basis of this report. This picture is identical with that produced in case 2 after thoracotomy, and in case 3 after injection of air into the pleural cavity, and must have been caused by an induced pneumothorax forcing the wall of the cyst away from the thoracic wall.

**CASE 5**—A married woman, aged 19, was examined in October 1928. Her case has been reported by Harrington.<sup>3</sup> A diagnosis of intrathoracic tumor of indeterminate etiology was made, and a large cystic tumor was removed by the transpleural route. The pathologic report was as follows: Fibrous-walled cyst, filled with clotted blood, one portion composed of salivary gland tissue. There were columnar epithelial lined ducts and fibrous tubes with lining cells closely resembling bronchial epithelium. A recent review of this specimen showed that there was complete absence of pigment. The pathologic changes warrant the diagnosis of congenital pulmonary cyst.

One year after operation the patient was reported as being alive, well and able to work every day.

**CASE 6**—Harrington<sup>4</sup> has reported this case of a married woman, aged 37. A diagnosis of infected cystic tumor of the right lung was made. Jan. 16, 1932, a large cystic mass containing about 750 cc of pus was removed, and a bronchial fistula communicating with the cyst was closed.

On pathologic examination of the specimen the wall of the cyst was found to be lined by epithelium and contained car-

<sup>2</sup> Wilson, J. A. Obstructive Emphysema. A Case Report. *Am. J. Roentgenol.* 17: 432-436 (April) 1927.

<sup>3</sup> Harrington, S. W. Surgical Treatment of Intrathoracic Tumors. *Arch. Surg.* 19: 1679-1725 (Dec.) 1929.

<sup>4</sup> Harrington, S. W. Surgical Treatment of Mediastinal Tumors. Removal of Cystic Azygos Lobe from Posterior Mediastinum. *Ann. Surg.* 96: 843-856 (Nov.) 1932.

tilage and all types of pulmonary tissue. Complete absence of pigment was also noted when the specimen recently was reexamined.

In September 1933 the patient was reported to be in good health.

#### REPORT OF CASES IN GROUP 2

**CASE 7**—A man, aged 43, when first examined at the clinic in 1923 complained chiefly of functional disorders. Examination of the thorax gave essentially negative results. The value for hemoglobin (acid hematin method) was 117 per cent. Erythrocytes numbered 4,980,000 per cubic millimeter of blood. The Wassermann reaction of the blood was negative. Examination



Fig 2 (case 1)—Roentgenogram made after injection of iodized oil. The patient is in the lateral position. The fluid level in the cyst is evident.

tion of the sputum gave negative results. The roentgenologists reported bronchial thickening in the upper lobe of the right lung.

The patient returned in January 1934 because of "crusting of the right cheek" for a year or more, and the history which particularly concerns the changes relative to this paper will be given now. Both parents had had carcinoma. The patient had had whooping cough and pneumonia when 4 years of age. He stated that he had always been delicate and short winded and never had been able to work or exercise as hard as his companions. He had had two attacks of pneumonia with pleurisy, at the age of 21. At the age of 31 he had had elevated temperature, had lost weight and had had some hemoptysis. He had remained in a sanatorium for three months and stated that his sputum had been positive for bacilli of tuberculosis. He had had severe influenza when he was 39 and had always had frequent respiratory infections. However, there had been little cough or expectoration in recent years.

His finger tips were moderately cyanosed. The value for hemoglobin was 175 mg per hundred cubic centimeters of blood, erythrocytes numbered 4,730,000 and leukocytes 8,500 per cubic millimeter of blood. The lungs were emphysematous, there were changeable areas of diminished breath sounds over the right lower lobe and occasional rhonchi were heard. The roentgenogram disclosed multiple annular shadows throughout both lower pulmonary fields, more marked on the right. There were also milary calcified lesions scattered throughout the left lung (fig 4). The roentgenologist's diagnosis was multiple congenital pulmonary cysts. The cutaneous lesion of which the patient complained was diagnosed as keratosis.

The man was and had been for many years definitely dyspneic but he was not at all worried about this or interested in the pulmonary examination. Further investigation did not seem warranted.

The most remarkable fact about this case is that an individual who had had pulmonary tuberculosis repeated pneumonia, many acute respiratory infections, and apparently secondary cystic infection with progressive destruction of pulmonary tissues, did not have increasing disability.

The other five cases in this group will be reported more briefly.

**CASE 8**—A man, aged 29, was examined at the clinic in June 1933. There was no tuberculosis in the family and otherwise the family history was unimportant. The patient had had measles and whooping cough as a child, influenza at the age of 19 years, and questionable pleurisy three years previous to his examination at the clinic. Five and two years before, for a period of three or four weeks, there had been moderate cough and expectoration but never hemoptysis. No other history of respiratory infection was obtainable.

The patient had been in good general health until five years before examination, and until then he had been able to participate in any form of active sport. At that time he had begun to experience dyspnea on exertion. This had been constant thereafter and had steadily increased in severity. At the time of his examination he had been able to walk slowly for a considerable distance but not more than two blocks rapidly.

On examination, rather marked pulmonary emphysema was noted. No sputum was obtainable. The roentgenologist's diagnosis was congenital polycystic degeneration of the lungs (fig 5).

**CASE 9**—A man, aged 39, examined in November 1932, came to the clinic because of backache and made no complaints referable to the lungs. There was no history of tuberculosis in the family, and the family history otherwise was unimportant. The patient had had influenza in 1918 but no other acute illness. He had moderate palpitation on exertion. His history otherwise was essentially negative.

The observations made on examination were retraction and lagging of the left upper part of the thorax, with diminished vocal fremitus, diminished resonance and diminished breath sounds over the same area. The heart was displaced to the right. The roentgenologic report read as follows: absence of pulmonary structure of the left upper lobe, heart displaced to the right, cystic degeneration of the left lower lobe and of the region of the right hilus.

In the absence of all pulmonary symptoms, further investigation did not seem warranted.

**CASE 10**—A man, aged 38, was examined in February 1932. There was no history of tuberculosis in the family, and otherwise the family history was unimportant. The patient made many complaints. He was a heavy smoker. He stated, also, that he had had cough, palpitation and dyspnea on exertion for years but did not regard this as important.

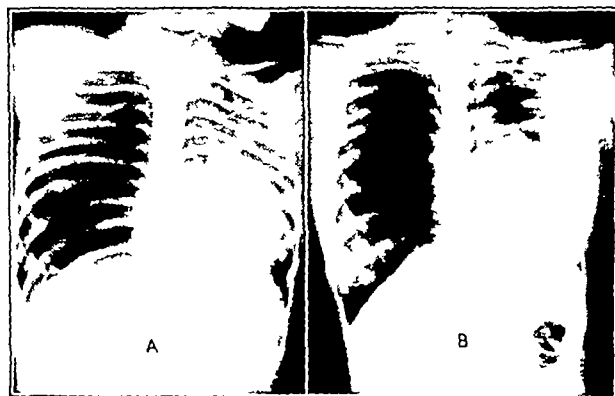


Fig 3 (case 2)—A, appearance in 1924 after thoracotomy. The outline of a balloon cyst partially collapsed as a result of induced pneumothorax is evident. The heart and mediastinum are displaced to the left. B, appearance in 1934: a large cyst fills the entire right side of the thorax and a second smaller cyst is in the upper left portion of the thorax.

On physical examination, the observations referable to the thorax were essentially negative. Evidences of achlorhydria, pyuria, prostatitis, dental sepsis and tonsillar infection were discovered. The normal pulmonary markings were absent in the area of the right upper lobe and the pulmonary margin could not be defined. The roentgenologist made a diagnosis of congenital cystic degeneration.

The patient did not care to submit to the bronchoscopic investigation that was suggested. Accordingly, reduction in



smoking with a better regimen of life, and elimination of foci were advised

#### REPORTS OF CASES IN GROUP 3

**CASE 13**—A girl, aged 10 years, was examined at the Mayo Clinic, Jan 5, 1931. The family history was unimportant, there was no history of tuberculosis. The patient had had measles and mumps and supposedly had had pneumonia at the age of 7 years, followed by left empyema, resection of a rib, and drainage. She had made a good recovery. Two months previous to her examination at the clinic, cervical adenitis had

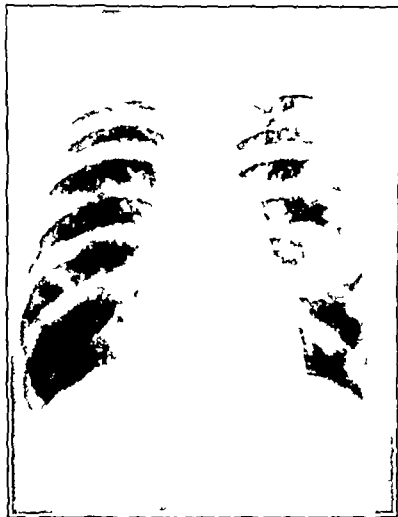


Fig. 4 (case 7)—Old calcified tuberculous lesions in both pulmonary fields with multiple cysts throughout the lower two thirds of the right lung. The outline of one cyst shows particularly well.

been cleared up following actinotherapy. For one month she had been dyspneic on exertion. Four severe attacks had come at bedtime, after playing with her younger brother, and had consisted of severe dyspnea and cyanosis. At the onset of an attack she would scream and say she was choking. She had fallen to the floor on one or two occasions. The attacks had lasted for from forty-five to sixty minutes. She would be very tired the following day but well otherwise. She had a good appetite and digestion.

Examination disclosed a scar of old empyema drainage in

the left axilla, and physical examination of the lungs gave essentially negative results. Roentgenograms disclosed partial collapse of the upper lobe of the left lung, with thickening of the interlobar and mediastinal pleura (fig 6). A roentgenogram made three days later disclosed some expansion of the collapsed portion. The patient's temperature was 99 F, her pulse rate 108 beats per minute and her blood pressure 110 mm of mercury systolic and 78 diastolic. The value for hemoglobin was 109 mg per hundred cubic centimeters and there were 8,500 leukocytes per cubic millimeter of blood. The Pirquet test was negative, the Wassermann reaction of the blood was negative, and there was no sputum for examination.

Restriction of activities was advised, and a report received fifteen months later stated that the patient had had no further attacks of dyspnea and cyanosis. She had gained 20 pounds (9 Kg) and appeared to be in good health. Information has not been obtained during the past year, and further roentgenograms have not been obtainable.

Although the diagnosis made at the time of examination was spontaneous pneumothorax, review of the history and examinations, in my opinion, warrants a diagnosis of solitary congenital cyst of the upper lobe of the left lung. It would seem that the explanation of cessation of attacks and subsequent good health was that an imperfect communication of the bronchus with the cyst had become completely closed, without gross infection occurring.

**CASE 14**—A man aged 20, was examined first in May 1930. There was no history of tuberculosis in the family and otherwise the family history was unimportant. The patient was healthy, did all kinds of farm work and had no severe illnesses until the age of 19 years. He had pneumonia in August 1930. Convalescence was normal and he remained in good health until April 1931. At this time an acute respiratory infection developed, with general malaise, elevated temperature, cough

and expectoration, and a few days later he had a pulmonary hemorrhage. After this he felt better, but he returned to the clinic for examination ten days later.

At this time, roentgenologic study revealed dense infiltration of the lower lobe of the right lung, with a fluid level, and a diagnosis of pulmonary abscess was made (fig 7A). The bronchoscopic examination gave negative results. The patient lived near the clinic and returned at frequent intervals. The urine was normal and the Wassermann reaction of the blood was negative. Repeated blood counts were normal, and many examinations of sputum failed to reveal bacilli of tuberculosis. In the period from May 1931 until February 1933 the patient was able to work and remained in fairly good health except for two episodes. In July 1931, for one month, there was general malaise and weakness, and some rather foul expectoration. In December 1931, after violent exertion and chilling, there was general malaise, pain in the right side of the thorax, painful respirations, and some night sweats. Physical examination at this time revealed signs of moderate effusion at the base of the right lung. These physical signs and symptoms gradually subsided, and in about a month the patient had regained his former health. Repeated roentgenologic examinations gave little evidence of change (fig 7B), and the diagnosis made was either pulmonary abscess or cystic tumor of the middle lobe. Because of the similarity in the history and progress of this case to the history and progress in case 6, Dr. Vinson suggested that we were dealing with a congenital cyst of the right lung, probably of the middle lobe, and in February 1933, on bronchoscopic examination, a small amount of pus was seen exuding from the bronchus to the right middle lobe. Iodized poppy-seed oil was injected and entered the cyst, after which roentgenograms were made which the roentgenologists reported as giving evidence of cystic tumor of the right middle lobe. Since the iodized oil has been injected, the patient subjectively has felt remarkably well and has been able to work every day. However, I do not feel that this marked subjective improvement can be explained entirely on the basis of the injection of the iodized oil.

I believe that this case is an example of a congenital cyst which was filled with fluid, the patient remained free from symptoms until after an acute respiratory

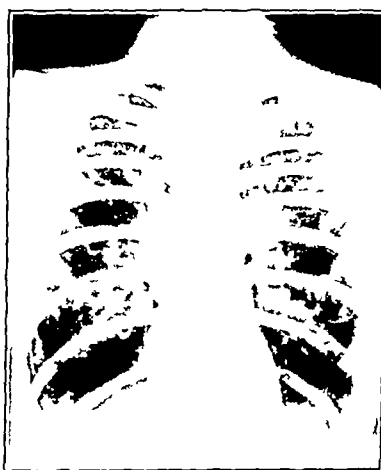


Fig. 5 (case 8)—Diffuse cystic changes throughout both pulmonary fields.

infection in April 1931, at which time infection of the content of the cyst occurred. Surgical removal of the cyst in this case should be considered, if evidence of infection and constitutional manifestations are progressive, but is not warranted so long as the patient remains free of symptoms, as at present.

**CASE 15**—A girl aged 1 year and 3 months, was examined in December 1931.

When she was 7 months old right otitis media developed, and a diagnosis of tuberculous otitis media was made. She had seemed healthy in every other way. The Mantoux test was positive in a dilution of 1:200. Physical examination and laboratory tests otherwise gave essentially negative results. The roentgenologist reported a localized area of increased density in the right upper lobe, suggesting a cyst and calcified hilar glands. A diagnosis of probable congenital cyst was made.

The possibility that we were dealing with a tuberculous pulmonary lesion was considered, but the roent-

genologic observations were not suggestive of such a condition and the positive Mantoux reaction is explainable on the basis of the otologic changes. In the absence of all pulmonary symptoms, the lesion that most satisfactorily explains the roentgenologic changes would be congenital pulmonary cyst. It is fair to assume that we were dealing with a solitary cyst of the left upper lobe, containing fluid and without bronchial communication also, it can be assumed that there is no infection of the contents of the cyst. Further examination in this case is to be desired. Unchanged roentgenologic changes would do much to confirm the diagnosis.

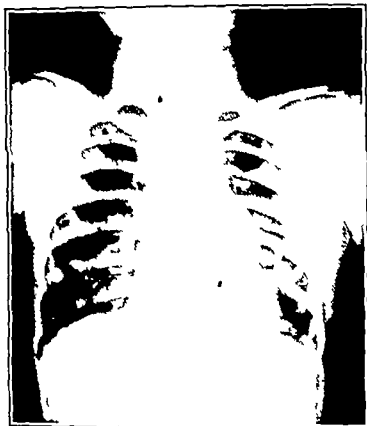


Fig 6 (case 13)—Large, solitary cyst of the upper lobe of the left lung

CASE 16—A youth, aged 19, was examined in June 1932. He had had three febrile attacks, diagnosed as pleurisy, the first at the age of 6 years, the second when he was 16, and the third in January 1932, which had begun with acute tonsillitis. Aside from these illnesses, the patient's general health always had been good. Since the illness in January 1932 he had never been well.

Cough had developed, with creamy, purulent secretion occasionally blood tinged, and on two occasions, in May and July, there had been a profuse pulmonary hemorrhage.

Physical examination of the thorax gave essentially negative results. Many roentgenologic examinations were made, which sometimes disclosed a dense, somewhat circular, shadow in the right upper lobe, and at other times a fluid level was manifest. The right upper part of the thorax, posteriorly, was explored November 26. While the patient was going under the anesthetic he coughed up a very large amount of purulent material. The abscess, or cyst, was found to be collapsed and could not be removed surgically. It was entirely in the substance of the right upper lobe. Bronchoscopy was performed on two occasions in April 1933, and purulent material was again seen to exude from the opening near the bronchus to the right upper lobe. Iodized poppy-seed oil, 15 cc, was injected. The patient was again subjected to bronchoscopy September 15, and no pus could be seen. He had gained weight, had practically no cough or expectoration, was feeling very well, and had been able to work all summer.

The first diagnosis made was pulmonary abscess or cyst and later infected cyst of the right upper lobe. The possibility of its being an infected dermoid was considered, but there was never any evidence of hair in the secretion, and the marked improvement that followed spontaneous emptying of the cyst and injection of iodized oil makes me feel that it was, in all probability, a congenital cyst, asymptomatic until secondary infection occurred.

#### COMMENT

The experience related in this paper differs from that previously given. In this series, the lesions were wholly or chiefly limited to the right side of the thorax in eight cases and to the left in five. In three the lesions were bilateral and of the honeycomb type. In three of the others in which the lesions were chiefly unilateral, there was evidence of bilateral involvement. I believe that these variations are not of importance. It is probable that opportunity to make an anatomic examination

in all cases would considerably increase the percentage of cases in which bilateral lesions are demonstrable. In the series here reported ten patients were males and six were females. Of the thirteen cases in which the lesions were chiefly unilateral, the cysts contained fluid in five, and contained air in eight. In all cases the Wassermann reaction was negative and a history suggestive of syphilis was not obtained in any case. There was evidence of old healed tuberculosis in one case and of tuberculous otitis media in another. Both tuberculosis and syphilis seemingly can be ruled out as etiologic factors. Thirteen patients came to the clinic with complaints associated with the pulmonary lesions, but in three the pulmonary lesions were purely incidental.

**Symptoms**—Extensive lesions may be present with very few, or with no, symptoms. The clinical manifestations vary greatly and depend chiefly on the extent of the lesions, on their site, and on whether there is a change in intrathoracic pressure. There is no syndrome on the basis of which a clinical diagnosis can be made, but the history is nevertheless extremely important and in many instances should lead to a strong suspicion that pulmonary cystic degeneration will be found. Most characteristic of all is a history, obtained particularly with reference to infants and children, of recurring attacks of severe dyspnea with cyanosis. Such a syndrome should make one suspect that one is dealing with a pulmonary cyst under increased pressure. Miller<sup>6</sup> reported the first case of which I have been able to find a report in which a clinical diagnosis of congenital cystic lung was made. This case was characterized by attacks which the author ascribed to secondary spontaneous pneumothorax. Cautley,<sup>7</sup> however, in 1924 reported a similar case, with necropsy, and suggested the possibility that the dyspneic attacks occurred when air could enter the cyst through a valvelike opening, without equally free egress resulting in increased intrathoracic pressure. Eloesser agreed with this and stated

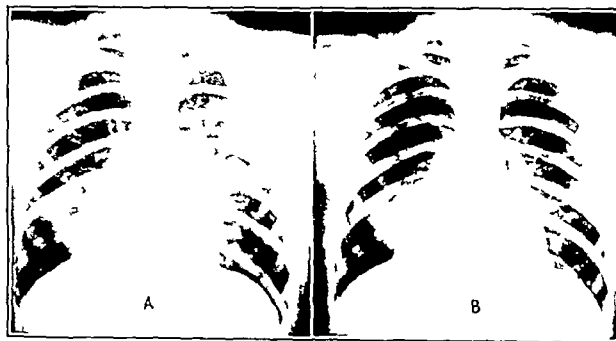


Fig 7 (case 14)—A large cyst at the right hilus with a fluid level in the cyst. B the same cyst two and a half years later filled with fluid.

that such attacks occurred only when an imperfect bronchial communication existed and would be absent when either a free communication or no communication at all existed. This explanation is most logical and is unquestionably correct.

When progressive dyspnea develops in adults, without apparent cause, and with or without a preceding respiratory infection, the possibility of congenital cystic degeneration of the lungs should be considered.

<sup>6</sup> Miller R. T. Jr. Congenital Cystic Lung. *Arch. Surg.* 12: 392-405 (Jan.) 1926.

<sup>7</sup> Cautley E. A Cystic Malformation of the Lung. *Brit. J. Child. Dis.* 21: 138-140 (April-June) 1924.

Dyspnea is the most constant subjective complaint and in our series was present in eleven cases. In eight it was severe. Cough was present in seven cases, but in only four was there any considerable amount of sputum. Cyanosis was noted in only one case but probably was at times present in several others. Severe palpitation was a complaint in two cases. In only three cases was there any pain. In two cases there was brisk pulmonary hemorrhage, and in one there was slight hemoptysis.

The heart and mediastinal structures were markedly displaced to the side opposite the lesion in five cases. Several cases in which the reverse was true have been reported, but theoretically, with increased intrathoracic pressure, the displacement should be away from the lesion unless the mediastinum is fixed by previous inflammatory disease. The reverse is true in the presence of massive atelectasis, in this, the mechanics of production necessitate the drawing of the surrounding structures toward the lesion.

**Diagnosis**—In all cases, with all types of lesions, satisfactory roentgenologic study is a necessity in making a diagnosis of congenital cystic disease of the lungs. In many instances bronchoscopic examination, injection of opaque substances, and induction of pneumothorax may be necessary in addition. The various conditions that must be distinguished from it depend largely on the type of cystic degeneration present. With fluid-containing cysts the lesions that offer most difficulty in differential diagnosis are (1) thoracic tumor, (2) pulmonary abscess, (3) empyema, (4) dermoid cyst and (5) echinococcus cyst.

The discharge of cystic secretion may at times aid in the diagnosis, but if a cyst filled with fluid, has no bronchial communication and is lacking a fluid level it may be impossible to distinguish it from a solid tumor. In such a case, the true nature of the lesion can be determined only by exploratory thoracotomy.

A cyst (particularly if a fluid level is present) may have the same appearance roentgenologically as a pulmonary abscess. The character of the secretion may aid in differential diagnosis, but secondary infection of the content of the cyst frequently occurs, and purulent secretion from a cyst may be indistinguishable from secretion from an abscess. In such an instance bronchoscopic examination and injection of iodized oil may allow the two to be distinguished. A pulmonary abscess nearly always undergoes regression or progression whereas the appearance of a pulmonary cyst probably will remain unchanged over a long period. This fact may be a diagnostic aid. Cysts have at times been mistaken for evidences of localized empyema. A few have been reported in which the diagnosis was made only following thoracotomy.

Eloesser mentioned the fact that in empyema of this type the roentgenographic shadow is wedge shaped, with the base against the thoracic wall. In a case of pulmonary cyst, this is not so. The shadow may be circular or rectangular.

It may be impossible to distinguish a dermoid from a congenital cyst, unless teeth, bone or cartilage can be demonstrated roentgenologically, or unless hair is found in the secretion. Either finding would, of course, confirm a diagnosis of dermoid. A number of cases of echinococcus pulmonary cyst have been reported in which it was impossible to make a roentgenologic differential diagnosis from congenital cyst. They can be easily distinguished, however, by a complement fixation

test. In cases of echinococcus cyst, also, urticaria is frequent and eosinophilia will be found.

In considering air-containing cysts, the diagnostic problem is different. Bronchiectasis at times may give a history and produce roentgenologic changes not unlike those of honeycomb lung, but otherwise almost the only lesion that can be mistaken for congenital cyst of the lung is spontaneous pneumothorax. If the differential diagnosis is between bronchiectasis or congenital cystic degeneration, bronchoscopic examination and injection of iodized oil generally will show which is present.

In cases in which there are fluid-containing cysts or honeycomb lungs, physical examinations are of little or no diagnostic value. In cases in which there are large balloon cysts, routine physical examinations will give results identical with those in cases in which spontaneous pneumothorax exists. However, in spontaneous pneumothorax, a well defined outline of the margin of the collapsed lung should be visible, and in cystic degeneration it is not.

Pollock and Marvin stressed the point that the walls of air-containing cysts appear roentgenologically as curving, linear shadows, whereas in pneumothorax with associated pleural adhesions the linear shadows are straight. If a bronchial communication exists, injection of iodized oil generally demonstrates successfully the outlines of the cyst. If no communication exists, however, a large balloon cyst can in some instances be differentiated from pneumothorax only by injecting air into the pleural cavity. The resulting roentgenogram, showing the outline of the partially collapsed cyst forced away from the thoracic wall, is absolutely diagnostic. I believe that Colonel Wilson was the first to employ this diagnostic measure. At the clinic we repeated the procedure in his case, and it was of value in two other cases in our series.

**Treatment**—Some observers have reported improvement following bronchoscopic aspiration followed by injection of iodized oil. A few other observers have reported cures following extirpation of a fluid-containing cyst. In two cases of our series Harrington removed such cysts with apparent cure of the disease.

In two cases in which there were infected cysts communicating with a bronchus, marked subjective improvement followed bronchoscopic aspiration and injection of iodized oil. A third such case became asymptomatic following spontaneous rupture and evacuation of the cyst.

In one case, characterized by recurring attacks of cyanosis and dyspnea, the attacks subsided, presumably as a result of complete bronchial occlusion having occurred spontaneously. In one case, the patient remained in good health for ten years following thoracotomy, at which time the bronchial orifices were cauterized. This procedure appears to have resulted in complete bronchial occlusion.

In three cases, few or no symptoms resulted from the cystic pulmonary changes, and in six cases the symptoms were progressive, and no attempts at treatment were instituted.

In most of the cases that have been reported, which were characterized by increased intrathoracic pressure (dyspnea and cyanosis), repeated aspirations or the institution of permanent thoracic drainage was necessary as a life-saving measure. In three of our series, and in the other cases reported in the literature, in which increased intrathoracic pressure did not occur, benefit was not derived from aspiration of air from the thoracic cavity.

## SUMMARY AND CONCLUSIONS

Congenital cystic degeneration of the lungs is an uncommon disease, but it occurs much more frequently than has been suspected. With modern diagnostic methods, a roentgenologic diagnosis should be made in a high percentage of cases. Secondary pulmonary infection is the greatest potential danger to which the patients are subjected. Patients who have no bronchial communication are safer and the disease is less likely to progress than if such a communication exists. In cases in which there is a bronchial communication an attempt to produce complete bronchial occlusion is a proper procedure. Complete extirpation of fluid-containing cysts has given excellent results in a number of cases. A number of patients who had infected cysts, with bronchial communications, have been greatly benefited by bronchoscopic aspiration followed by injection of iodized poppy-seed oil. This treatment should be considered in cases of this sort. Diffuse, bilateral cystic degeneration of the so-called honeycomb type is not benefited by any form of treatment.

## ABSTRACT OF DISCUSSION

DR L J MOORMAN, Oklahoma City. This condition is more common than is realized. Dr Wood has made obvious the wide variation of symptoms and the pathologic changes. These variations suggest grave diagnostic difficulties. The picture as visualized through the history, the physical examination and the roentgen and bronchoscopic observations is often colored by secondary infections and various postnatal respiratory influences, especially variations in intrathoracic pressure. If the cysts do not communicate with the bronchi or if there is free communication without secondary infection there may be no symptomatic evidence of the disease. If the cysts and the bronchi communicate with valve-like constrictions at the point of communication distressing and even fatal dyspnea and cyanosis may develop. In other cases escaping early fatal intrathoracic pressure the symptoms may range from those of a mild bronchitis to those found in cases of advanced pulmonary tuberculosis or in nontuberculous suppurative pulmonary infections. With such a marked variation in clinical and pathologic manifestations one may expect the physical signs to cover a correspondingly wide range. Roentgen studies present similar diagnostic difficulties. The existence of cough, dyspnea and cyanosis from the time of birth or for at least a period of years, with a history of periodic exacerbations of respiratory symptoms and signs, should lead one to suspect the presence of this condition. Repeated sputum examinations negative for tubercle bacilli support this suspicion. Such a history supplemented by a careful physical examination should enable one to eliminate the various pulmonary conditions that may be confused with this disease. A careful study of good stereo x-ray films may be the final diagnostic stroke. In case polycystic disease is present even though there may be areas of opacity as a result of atelectasis and associated infection the films may reveal a designless network with graceful lines falling across large areas otherwise practically devoid of lung markings. These fine lines do not correspond in location, direction or general appearance to the uniform tracings of the normal bronchial tree or those occasionally appearing as a result of thickened pleura at the interlobar fissures. In certain cases continued observation, bronchoscopic studies and injections of iodized oil may be required to make the diagnosis.

DR JAMES L DUBROW, Des Moines, Iowa. In the last twenty months I have seen three cases of cystic disease of the lung. Reviewing the literature I noted that most of the cases of congenital cyst of the lung may be grouped as follows: 1 Symptomatic. (a) Those presenting symptoms and signs simulating valvular pneumothorax wherein the mechanism is that of obstructive emphysema. This type usually occurs in children. However, Wilson reported a case of obstructive emphysema in an adult in whom periodic attacks of dyspnea necessitated the aspiration of air from the thoracic cavity with

apparent symptomatic improvement. That he was dealing with a congenital cyst was evidenced by the fact that after the induction of artificial pneumothorax the visceral pleura was outlined. In a similar case there was absence of lung tissue on the right side simulating spontaneous pneumothorax. After the induction of artificial pneumothorax the visceral pleura and the intrapulmonary hollow spaces were outlined. (b) Cystic degeneration of a whole lung simulating atelectasis. (c) Congenital bronchiectasis simulating the acquired form. In a case in which there was a demidense shadow covering the left lung, with elevation of the left dome of the diaphragm and retraction of the heart to the left, injection of iodized oil revealed grape-like sacculations in the left lung and no outline of the small bronchi of the lower lobe and those of the peripheral zone. The appearance of this lung after bronchography suggested bronchial maldevelopment rather than bronchiectasis. 2 Asymptomatic. (a) Solitary or multiple cysts with an open bronchial connection. The following points are of value in diagnosing congenital cyst of the lung: 1 The compressed lung cannot be seen fluoroscopically or roentgenographically. 2 Thoracentesis with injection of iodized oil through the center of the apparently structureless space on subsequent radiographic examination shows the bulk of the iodized oil retained at the point of injection. 3 Bronchography demonstrates bronchial maldevelopment with no outlining of the bronchioli. 4 Diagnostic pneumothorax outlines the visceral pleura.

DR J J SINGER, St. Louis. I have seen several cases of lung abscess with the bronchoscope and have even operated but found that the cyst walls did not collapse or the walls of the cavity did not collapse. It was after reviewing these histories that I suddenly discovered I had more cases of congenital cysts than I thought. The important part in the discussion is what to do for the cyst. The cyst wall because it does not collapse is pushed over *en masse* as a large sac when it ruptures into the pleura in that way displacing the mediastinal contents and producing the severe dyspnea. I want to show what may be done in the treatment of a polycystic lung. I refer to the induction of a pneumothorax. This was discovered by the following accident. A child had had a pneumothorax and fluid developed in the pleural space and the cyst wall. When the fluid was absorbed symphysis of the two pleural leaves occurred binding the cyst wall to the chest wall, so that no leakage of air into the pleura could take place, and the child became clinically well. I have attempted to treat a few cases that way. I had one case in which the opening into the cyst was not made evident by bronchoscopic examination or by injection. There may exist a connection of cysts through the trachea into the opposite lung. Unfortunately, in some of these cases there is no opening large enough between the trachea and the cyst wall as Dr Wood pointed out. In one case he cauterized the connection. I think that is an excellent idea and have attempted that in one case.

DR HARRY G WOOD, Rochester, Minn. I wish to thank all of the men for their discussion and to add that Dr Dubrow may have misunderstood me. In my experience, when there was displacement of the heart and mediastinum it was always away from the side in which the greatest pathologic change existed and not toward it although some cases have been reported in which the reverse was true. I believe this is caused by an associated atelectasis and not by the cystic disease.

Graham Lusk at Twenty-Five.—When I was twenty-five years old I found myself the head of a department of physiology at a salary of \$300 per annum with an allowance of \$150 annually for apparatus. The department consisted of one room in the old building at 150 York Street. Here Dr L. C. Sanford and I brought up some pigs on the bottle and here the phlorhizin work on rabbits was started. I did all the cleaning and I mopped up the floor myself. Later a new laboratory building was built in the yard of which I had an entire floor and at last I had some one to wash dishes. Here phlorhizin brought new information from dogs.

I never had an assistant while I was in New Haven. My salary and that of the other professors had been raised to \$500 before I left. In New Haven my life was one of peace for seven years.—Lusk, Graham, quoted by Light A. E. Graham Lusk. *Yale J Biol & Med* 6:487 (May) 1934.

## THE PATHOLOGIC CHANGES OF THE ST LOUIS TYPE OF ACUTE ENCEPHALITIS

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[EDITORIAL NOTE.—This paper, together with the papers of Dr. Eschenbrenner, Drs. Bredeck and Zentay and Dr. Jones, which follow it, concludes the symposium on epidemic encephalitis. In the last issue were published the papers of Dr. Neal, Drs. Leake, Musson and Choje, Drs. Muckenfuss, Armstrong and Webster, and Dr. Hempelmann.]

A large number of autopsies was secured during the recent St. Louis epidemic of acute encephalitis, the result mainly of the cooperation of the various public health offices, the general medical profession and the public. Sufficient material was obtained for a complete study of sixty-three cases. The thoracic and abdominal organs and portions of the spinal cord were examined in addition to the brain in about 90 per cent of the autopsies. An adequate neuropathologic study of all this material has not yet been accomplished, but a few representative cases have been studied in detail and a sufficient number of sections from the others have been examined to obtain a fair understanding of the pathologic alterations in this type of encephalitis. The essential pathologic process is an acute non-suppurative inflammation of the central nervous system characterized by severe vascular congestion with occasional petechial hemorrhages, cellular infiltration of the nervous tissue and meninges with mononuclear cells, and degenerative changes in the nerve cells.

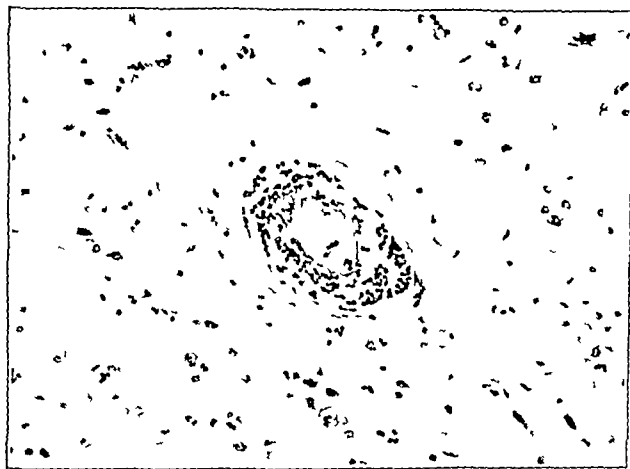


Fig. 1.—Perivascular cuff of lymphocytes about a small vein in the pons.

### GROSS PATHOLOGIC CHANGES IN FATAL CASES

The only constant macroscopic alteration in the central nervous system was vascular congestion of varying degree. Every brain showed obvious congestion of the meningeal as well as of the intracerebral blood vessels. Petechial hemorrhages were found in the pia-arachnoid in the more severe examples of the disease. Cross-sections through the fresh brain revealed

a light salmon-pink coloring of the gray substance in every instance in which the superficial vascular congestion was marked. In severe cases the entire cortex, as well as the gray substance of the midbrain, pons and spinal cord, instead of presenting the normal gray, was bright pink. In the usual case, however, this pinkish discoloration was blotchy in distribution, appearing as scattered patches in the cerebral cortex, basal nuclei, brain stem, pons or spinal cord.

The cerebrospinal fluid was noticeably increased in amount at twenty autopsies, and the clinical records of these cases showed that repeated spinal punctures had

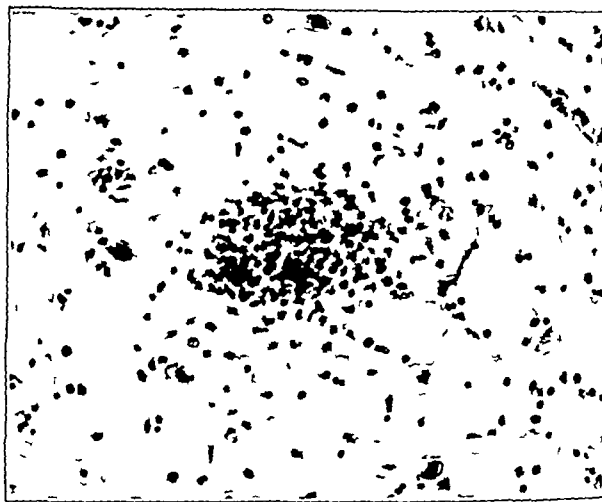


Fig. 2.—Focal collection of cells (glial nodule) in cerebrum.

not been performed during life. The fluid was always clear and an exudate was never apparent in the meninges.

The brain tissue presented an increased softness due to edema in many of the more acute cases. Thrombosis of venous sinuses or other blood vessels was never observed.

### MICROSCOPIC CHANGES

1 *Congestion and Hemorrhage*.—Congestion of the meningeal or of the intracerebral blood vessels could be found in some of the sections from every case. The pink coloring of the gray substance that was apparent to the naked eye revealed, under the microscope, the most intense congestion of the vessels down to the finest capillaries. In twenty instances the vascular congestion was intense and in each of these small subarachnoid hemorrhages were found as well as an occasional extravasation of blood into a perivascular space in the substance of the brain or a petechial hemorrhage in the brain tissue.

2 *Cellular Infiltration*.—Two types of cellular infiltration were found. One was the typical perivascular accumulations of lymphocytes, the other diffuse or focal collections of various types of inflammatory cells. In all but two of the sixty-three brains examined collections of mononuclear cells were found surrounding the smaller vessels, forming the perivascular cuffs (fig. 1) that so commonly are observed in various diseases of the nervous system. The cells were usually confined to the Virchow-Robin space and consisted principally of lymphocytes with an occasional plasma cell and large mononuclear phagocyte.

In addition to the almost constant perivascular cuffing, the more severe cases also showed cellular

infiltration which did not bear any apparent relation to blood vessels. Small focal collections of inflammatory cells (fig 2) were present in the cerebral cortex, midbrain, pons and medulla. Most of the cells comprising these foci were apparently derived from the microglia, but also a few plasma cells and polymorphonuclears could occasionally be identified. The remains of a degenerated nerve cell could often be found at the center of one of these cellular foci, and this process of neuronophagia (fig 3) was marked in all cases in which the cellular infiltration was extensive. In brains showing the most intense reactions, large areas of diffuse cellular infiltration (fig 4) were often found in the basal nuclei or in the pons and medulla.

**3 Nerve Cell Degeneration**—In almost every case, some degree of pathologic change was found in the nerve cells. Slight changes such as eccentricity of the nucleus, swelling of the nucleolus and perinuclear chromatolysis were common. All cases exhibiting extensive cellular infiltration were prone to show more marked degenerative alterations in the nerve cells (fig 5), and of these the most frequent were shrinkage of the cell body with darkly staining, homogeneous cytoplasm, pyknosis of the nucleus or almost complete disappearance of the cell, producing a faint shadow-like remnant.

Typical inclusion bodies such as are associated with many virus diseases were not found in the nerve cells, although swollen nucleoli in degenerating cells frequently stained red with eosin or fuchsin. These acidophilic nucleoli resembled inclusions and might erroneously have been regarded as such were it not

were for the most part lymphocytes, with a few plasma cells and large mononuclears. A purulent meningeal exudate was never encountered.

#### DISTRIBUTION OF LESIONS IN NERVOUS SYSTEM

The vascular congestion was fairly uniformly distributed throughout the nervous system. The pink discoloration of the gray substance due to capillary congestion was not confined to any particular area but

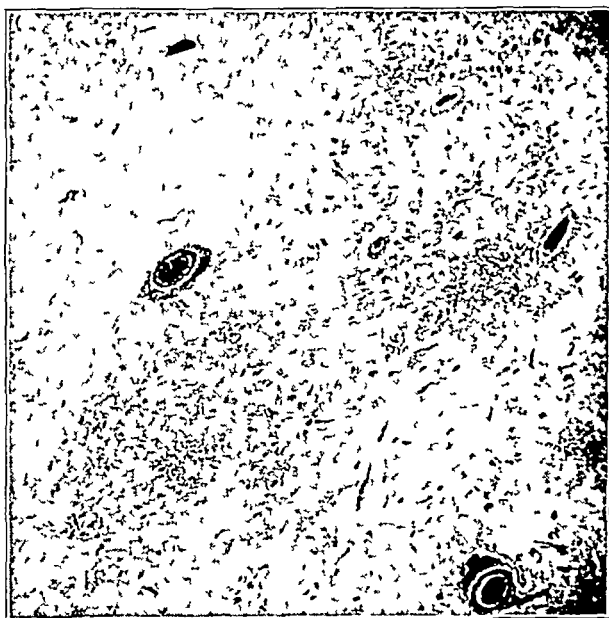


Fig 4.—An area of diffuse cellular infiltration extends diagonally across the picture. Two large vessels have perivascular cuffs.

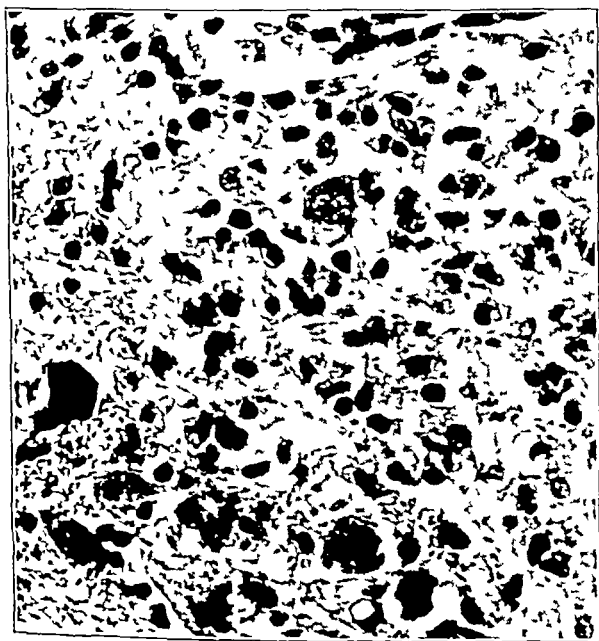


Fig 3.—Proliferation of microglial cells about degenerating nerve cells (neuronophagia).

for the fact that serial sections did not reveal a normal nucleolus in these cells and that similar red staining nucleoli have been found in a variety of diseases affecting the brain.

**4 Cellular Infiltration of Meninges**—Increased numbers of cells were found in the meninges in about three-fourths of all the brains examined (fig 6). The cells

were most frequent in the pons and medulla. Both horns of the spinal cord were bright pink at all levels in two severe cases in which the entire cord was removed.

The greatest concentration of lymphocytes in the meninges was usually found at the base of the brain.

Both the intensity and the distribution of the cellular infiltrations presented great variations in the different cases. The most severe reactions were found in the brains of those who died early in the epidemic. In these, inflammatory foci were present in all regions of the brain and often in the upper cord. Large areas of diffuse infiltration with marked nerve cell degeneration also occurred in these early severe cases.

When numerous the perivascular cuffs were found in all parts of the brain, but when few in number they usually were present in the pons.

No particular area consistently showed degeneration of the nerve cells, nor did the severity of the cellular infiltration or the vascular congestion seem to bear any definite relation to this change. Damaged nerve cells were often found in the cortex but were more frequent in the pons, basal nuclei and medulla. The cells of the nuclei of the cranial nerves were seldom affected except in a few instances when very severe reactions were widespread throughout the brain.

Cellular foci and degenerative changes in the nerve cells were found in the cervical and lumbar regions of the spinal cord in a few cases. The two horns were equally involved and the selective destruction of the anterior horn cells so characteristic of anterior poliomyelitis was not apparent.



## CHANGES IN OTHER ORGANS

Chronic changes in the heart, vascular system and kidneys were common, because most of the autopsies were performed on the bodies of older persons. Bronchopneumonia was the most frequent terminal process.

About one third of the cases showed an acute change in the kidneys which was apparently related to the

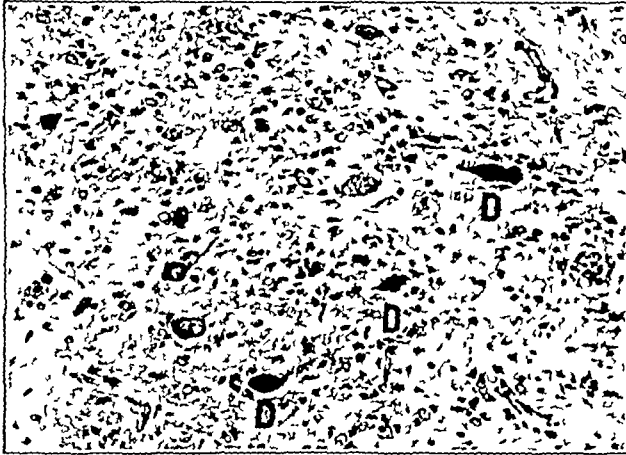


Fig 5—Degenerative changes in nerve cells of the pons. The three black irregular objects above the letter *D* represent shrunken degenerated nerve cells which stain a homogenous dark red with eosin. The nuclei no longer take a stain with basic dyes.

disease itself and not to some antecedent condition. This consisted of swelling and congestion with a hemorrhagic pyelitis. Microscopically there was cloudy swelling and necrosis of the tubular epithelium, with distention of the glomerular vessels and occasionally a small amount of blood in the glomerular space or in the tubules.

Intranuclear inclusions have been observed in about one fourth of twenty-five kidneys that so far have been thoroughly examined. These were found in the epithelial cells of the convoluted tubules and of Henle's loop. Their significance in this type of encephalitis has yet to be determined, they are not, however, present in routine material from other diseases.

## BACTERIA IN THE NERVOUS TISSUE

Small abscesses were present in the brain tissue in three cases and were amply explained by the presence of primary suppurative processes in other organs. Bacteria were demonstrated by Gram stains in the brain tissue in each of these three cases. These were the only instances in which bacteria were found in the nervous tissue with any signs of a cellular response to their presence, although bacteria that were the result of postmortem invasion were observed in several cases in which autopsy was deferred for a long time or in tissue that had been transported from a distant hospital before fixation.

Bacteria or other micro-organisms were not consistently found and this was in keeping with the negative character of cultures of the spinal fluid and of the brain emulsion used for experimental purposes.

## COMPARISON WITH OTHER TYPES OF ENCEPHALITIS

The early severe cases that first came to autopsy showed most intense inflammatory reactions in many different parts of the brain. A comparison of these

with material from fatal cases of the lethargic type<sup>1</sup> of von Economo and with published descriptions of this condition revealed several striking differences. The lesions of the two types were qualitatively similar but showed marked differences in degree and distribution. The severe cases of the St. Louis type differed from the lethargic type in the following respects:

1 The meninges showed more intense infiltration with mononuclear cells than usually was found in the lethargic type.

2 Degenerative changes in the nerve cells were more frequent and neuronophagia was more marked.

3 The inflammatory foci were more widespread throughout the brain, often occurring in great numbers in the cerebral cortex, and were not restricted to the midbrain or basal nuclei.

4 The cranial nerve nuclei, especially the third, rarely showed degenerative changes such as are frequent in the von Economo type.

5 There was more extensive involvement of the spinal cord in the St. Louis type.

As the epidemic progressed, the lesions became less intense and not so widely scattered. Many of the milder cases showed about the same degree and intensity and a similar distribution in the midbrain, basal nuclei and pons as was seen in the lethargic type. Therefore, as far as these milder cases are concerned it is impossible to differentiate them with any degree of certainty from the lethargic type on the basis of the pathologic lesions alone.

The lesions described by the Japanese in their type B encephalitis are similar in many respects to those of the St. Louis type. The intensity of the meningeal infiltration, the frequency and distribution of the focal collections of cells, the absence of cranial nerve nuclei

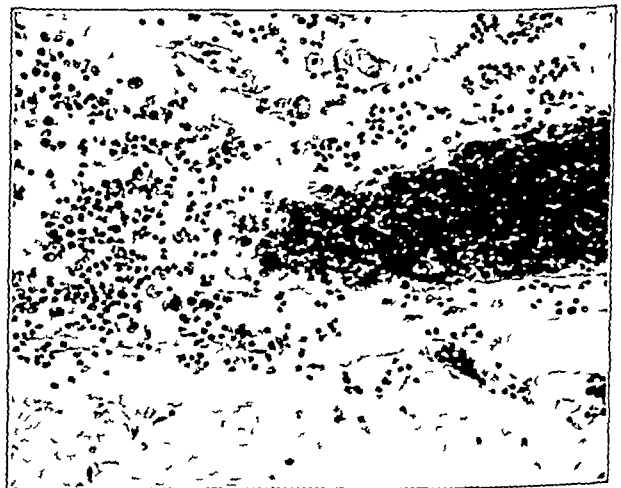


Fig 6—Infiltration of meninges with lymphocytes and large mononuclear cells. A small strip of cortex extends across the bottom of the picture.

involvement, and the frequent presence of lesions in the spinal cord, are strikingly similar in both of these types. The areas of softening (associated with the disease) and the retrogressive changes in the cellular foci (glial nodules) which they described were infrequent in our material.

<sup>1</sup> Greenfield, J. G. *Brit. M. J.* 2: 782 (Nov. 20) 1920. 2: 535 (Sept. 24) 1927. Boyd, W. *Quart. J. Med.* 18: 153 (Jan.) 1925.

SUMMARY

The essential pathologic process in the St. Louis type of encephalitis is a nonsuppurative inflammation of the nervous system characterized by intense vascular congestion, cellular infiltration, and degenerative changes in the nerve cells.

Severe examples of the disease which closely resemble the Japanese type B<sup>2</sup> can readily be distinguished from the lethargic type, although the milder cases cannot be differentiated from the latter on the basis of the pathologic lesions alone.

Washington University School of Medicine

THE ENCEPHALITIS EPIDEMIC IN  
ST. LOUIS CITY AND  
COUNTY, 1933

PROGNOSIS

ANDREW B. JONES, M.D.  
ST. LOUIS

Increasing age influenced prognosis more than any other single factor, the greatest percentage of mortality occurring in the aged, as shown in the chart. The presence of preexisting organic diseases such as nephritis, heart disease or debilitated states greatly increased the chances of a fatal termination.

No single clinical sign or symptom considered alone was of much prognostic significance. Absent reflexes and retention of urine indicated a fatal outcome regardless of the duration of the illness, age of the patient, or number of cells in the spinal fluid. The development

of the arteriosclerotic and those with senile dementia. Not infrequently, neurasthenic-like states followed immediately on the subsidence of the acute disease, persisting for weeks and months. Almost without exception, these neurasthenic-like states occurred in persons with a neurotic diathesis.

Extrapyramidal tract signs developed during the febrile stage in a very few cases, together with varying degrees of clouding of consciousness with spontaneous laughing and crying, unintelligible speech and periods of anxiety and apprehension, dragging on for many months, the majority making a complete recovery and the remainder still showing signs of improvement. The temperature of this group may have returned to normal and remained practically normal after about the second week. When death occurred it was the death of an overwhelming toxemia. More than 50 per cent of the 221 deaths occurred between the first and seventh days of the illness (table 1).

TABLE 1—Interval Between Onset and Death

Interval	Deaths
1 day	2
2 days	10
3 days	11
4 days	23
5 days	24
6 days	2
7 days	16
1 week or less	111
1 to 2 weeks	62
2 to 3 weeks	10
3 to 4 weeks	8
4 to 5 weeks	5
5 to 12 weeks	1
Onset unknown	11
Total	221

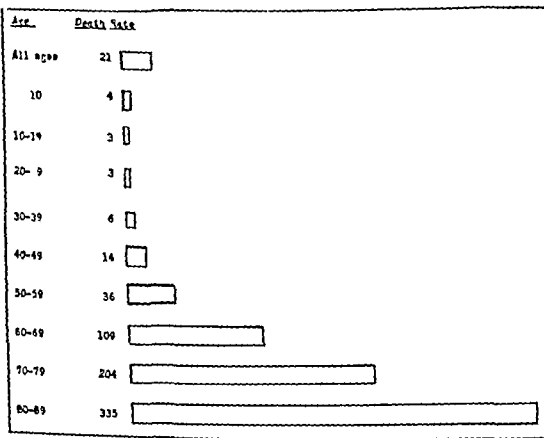
An elaborate follow up of the patients who recovered was undertaken by the Public Health Department of the City of St. Louis. This survey was begun early in December 1933 and completed the first of March 1934, comprising a total of 375 cases in the city of St. Louis. A copy of the tabulated symptoms present after the illness is presented in table 2.

TABLE 2—Follow-Up Tabulation of Patients Who Recovered

Symptoms Noted in Follow Up Reports	No. of Cases
Headaches	100
Pains in various parts of the body	90
Restless in sleep or sleepless	86
Tremor of hands or other part of body	72
Nervous	69
Impaired vision or pain or burning of eyes	66
Dizziness	56
Forgetful or confused	54
Reflexes hyperactive or sluggish	48
Personality changes—more excitable or irritable or more sullen or melancholy	45
Loss of strength weakness	29
Easily fatigued	24
Speech affected—slower, stammering or jerky	23
Drowsy lethargic	22
Paralysis of face or other part of body	21
Increased perspiration	19
Diminution of hearing	14
Impairment of ability to concentrate	13
Withdrawal from social contact	4
Ptosis of eyelids	3
Rapid decay of teeth	1
Difference in size of two legs	1
Knee bending habit	1
Weakness in legs	1
Fits	1
Postencephalitic involvement of cerebrum out of head most of time	1

In my own private cases and the cases of a number of my colleagues, in the aggregate a sizable number, recovery was complete, without residuals of any sort. Therefore, I think it is safe to say that this table is inaccurate and misleading.

3720 Washington Boulevard



Mortality rate per hundred thousand of estimated population

of rales in the chest, bronchopneumonia and the presence of albumin, casts and blood in the urine were of grave prognostic significance.

The duration and severity of the illness were extremely variable. The mild or abortive case lasted for two or three days, the ordinary case from seven to fourteen days, the chronic case from a few weeks to months. In a very small percentage of the aged there existed for days, weeks or months a state of more or less clouding of consciousness characterized by apathy or unconcern during the daytime, spontaneous whimpering or crying at nights, and in some cases the night prowling

<sup>2</sup> Kaneko R. and Aoki, Y. *Ergebnisse d. inn. Med.* 34: 342, 1928.  
Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 15, 1934.

## THE TREATMENT OF ENCEPHALITIS IN THE ST LOUIS EPIDEMIC OF 1933

JOHN W. ESCHENBRENNER, MD  
ST LOUIS

Herein is presented the treatment and care developed during the observation of 348 cases of epidemic encephalitis at the St. Louis City Isolation Hospital last summer. This group of cases of epidemic encephalitis descended on us with surprising rapidity. We were at a loss to supply any specific treatment because our knowledge of the treatment of this type of epidemic encephalitis was limited. It was thus necessary to resort to symptomatic treatment based on clinical experience with similar conditions. The toxic encephalitis that follows the contagious diseases and acute infections was the most similar condition. In presenting the treatment of encephalitis, I wish to call to mind that many of these patients, adults and children, had very mild symptoms, the course of the disease was very short, there were almost no complications in these mild cases, and therefore very little therapy was required. The most of the following deals with the more severe types of cases and those that were complicated.

As is true in other contagious diseases and in neurologic conditions in which the patients are in stupor or coma and are sometimes incontinent, good specialized nursing care is important. Graduate nurses were therefore delegated to the care of these patients. All the patients were given bed rest, a soft diet and forced fluids.

With the knowledge that in the acute stage of the disease there is an acute diffuse inflammatory reaction in the brain tissue and that the symptoms were probably due essentially to cerebral edema and increased intracranial pressure, the treatment instituted was designed to relieve this condition mechanically. This consisted in the use of spinal punctures and hypertonic dextrose solution intravenously. For the relief of symptoms and as a part of our diagnostic methods, a spinal puncture was done on admission on all patients. Those who had increased pressure in the fluid usually were given some relief of their discomfort. After the first lumbar puncture, the spinal fluid pressure was usually not sufficiently increased to warrant additional spinal punctures as a routine. However, when indicated by more marked signs of meningeal irritation or further symptoms of increased intracranial pressure, such as headache, stupor, vomiting or convulsions, a second spinal puncture was done. The spinal fluid was usually withdrawn until the pressure became normal, amounting to from 10 to 60 cc.

Hypertonic dextrose solution intravenously was given as a routine to nearly all patients. This was given as a 10 per cent solution, 750 cc. to the adults and correspondingly smaller doses to the children. This was given daily until after the severe part of the disease was past.

Those with severe signs of cerebral edema were given 50 cc. of 50 per cent dextrose solution intravenously every twelve to twenty-four hours. This was found to be most efficacious in some cases. Fluids were forced

on all the acutely ill. In the more stuporous patients it was necessary to resort to the use of a nasal tube for feedings. In the dehydrated patients, saline solution was administered subcutaneously. Though most of the patients were stuporous, some were exceedingly restless and required large doses of sedatives.

The hyperpyrexia that was present in many of the acute cases was treated with hydrotherapy, several ice bags being applied continuously to the head and body and tepid sponge baths and alcohol rubs being given every four hours. The ice bags to the head relieved the headaches considerably.

We found that the constipation, sometimes rather obstinate, was relieved better with the saline laxatives, combined with enemas. We used drastic saline purges when the stupor was more marked in an effort to further reduce the cerebral edema. Diarrhea, a less frequent complication, was controlled by the use of camphorated tincture of opium and bismuth subnitrate in fairly large doses.

We were particularly watchful for retention of urine in the women and in the older men. When present, usually it did not recur after one or two catheterizations but sometimes was of long enough duration to necessitate the use of a retention catheter for several days. In those cases we were more likely to find pyelitis or cystitis and we accordingly treated them with alkalis, alternating every several days with acids combined with methenamine.

Various other intravenous and serum medications were tried in the acute stage but were found to have little effect on the clinical course of the disease. The drugs used intravenously were arsphenamine, quinine and mercurochrome, but no beneficial effects were observed. Rosenow's encephalitis serum was used in several cases. Blood transfusions were given to other patients but seemed to have no effect on the clinical course of the disease unless complicated by bronchopneumonia. Because the blood of convalescent patients has been proved to contain neutralizing substances for the specific virus of the disease, results were expected from the use of convalescent serum in the treatment of the acute stage. However, as in other virus diseases, such as measles, convalescent serum was found to be of little value. The use of convalescent serum in exposed individuals was not indicated, because of the paucity of more than one case of encephalitis in a family.

In the acute stage of the disease, bronchopneumonia was the most frequent complication and was treated according to the individual indications. The majority were given inhalations of a mixture of 30 per cent carbon dioxide in oxygen for ten minutes every two hours. Fifty per cent dextrose solution was given intravenously every six to twelve hours in an attempt to reduce the congestion of the lungs. As in pneumonias complicating other diseases, the patient's position was changed frequently. The toxic patients were given repeated small blood transfusions. We felt that this was helpful in some cases. The older age group of patients with bronchopneumonia, showing signs of myocardial decompensation, were digitalized and then a maintenance dose was continued.

Delirium tremens, another complication occurring during the acute stage of the disease and usually in the young men, responded readily to large regular doses of paraldehyde.

Uremia was next to bronchopneumonia in incidence and seriousness but occurred late in the disease, usually

when a patient was apparently improving and over the acute signs of encephalitis. These patients were treated by forcing fluids by mouth and parenterally to the extent of 5,000 cc in twenty-four hours. Again we favored the use of dextrose intravenously.

After the acute stage was over, some of the more severe cases were followed by a mild Parkinson's syndrome. For this we gave phenobarbital, sometimes continued in fairly large doses. The greater percentage of these patients recovered from the syndrome. The other complications, much less frequent in incidence, were taken care of symptomatically.

Encephalitis is essentially a self-limited disease. Considering the fact that the Isolation Hospital received more moribund cases and that our mortality rate was practically the same as that for the city at large, I think that we can feel that the foregoing symptomatic treatment was of value.

It was fortunate, in view of the fact that specific treatment was not available, that in most cases the recovery from encephalitis was rapid and apparently without residual effects. In analyzing the results of the treatment and the mortality rate, it is more gratifying to find that the deaths were in individuals who have an exceptionally poor prognosis in the event of any illness because of various preexisting conditions.

Isolation Hospital, 5600 Arsenal Street

#### HANDLING OF THE ST LOUIS EPI- DEMIC OF ENCEPHALITIS

JOSEPH F. BREDECK, MD, DPH

Health Commissioner

AND

PAUL J. ZENTAY, MD

ST LOUIS

The handling of the St. Louis epidemic of encephalitis presented a novel situation, as we were dealing with an entirely new disease not observed previously in this country. Because of this fact we had to devise our own plans and could not rely on any precedent or previous experience. No originality or anything startling is claimed in this presentation. We maintain only that the situation was promptly recognized and accepted and rational public health measures were introduced immediately. An adequate organization was set up in the shortest possible time and the health division took and maintained the leadership in all phases of the emergency.

As soon as the first few cases were diagnosed at the St. Louis Isolation Hospital, it was evident that we were dealing with an unusual kind of encephalitis suddenly appearing in epidemic form. Although less than twenty cases were hospitalized at the time and all of them came from St. Louis County, we anticipated, as it seems, correctly, that an extensive epidemic was threatening the St. Louis metropolitan area. At that time, of course, we could not foresee that more than a thousand cases would be reported in less than two months.

On the very first day after the clinical and public health diagnosis was established, a statement was issued informing the public and the medical profession of the existing situation. Steps were immediately taken to

establish a public health organization that would be able to cope with the problem. A few words concerning the political set up in St. Louis and St. Louis County are necessary in order to throw some light on the difficulties that had to be overcome at the beginning of the epidemic.

St. Louis City is an independent political unit and has absolutely no political ties with the surrounding territory of St. Louis County. It is also situated on the eastern boundary of the state of Missouri, and the metropolitan area includes two adjoining counties of the state of Illinois. It is evident that, in case of an epidemic involving this area, success can be secured only if some kind of inclusive organization can be built up and uniform regulations can be adopted. This was still more true in the case of an unusual public health problem never seen before.

Such a public health organization was conceived by us long before the beginning of the emergency, but under the pressure of the rapidly spreading epidemic it was put into effect within the shortest time possible. The St. Louis Metropolitan Health Council was called into existence in less than four days after the outbreak of the epidemic and it was completely organized and functioning in less than a week after the first case of encephalitis was reported. Its purpose was to bridge the existing political gaps and eliminate inevitable conflicts of authority and to work out a harmonious cooperation between the various public health units in the metropolitan area. It was a consultative body, including in its membership all the constituted health officers and other public health workers and also many physicians and others who were interested in the problem of encephalitis. It met according to needs and through its prestige and through the work of its committees made the position of the health officers infinitely easier. Two important committees were appointed at the very first meeting. These were the Committee on Rules and Regulations and the Committee on Scientific Research. The Committee on Rules and Regulations devised all the necessary public health regulations and submitted them to a meeting of the council. The result of its work was that the same form of procedures was followed by all health officers in the entire metropolitan area. The value of this is perfectly clear, particularly since under the unusual circumstances there might have been many contradictions, or at least disharmonies, between the regulations of the city health division and the other health units. The same committee also recommended the use of certain blank forms in field investigations and outlined a form for clinical observations for the various hospitals.

The Committee on Scientific Research had as its main purpose the centralization of all scientific work in the hands of laboratory workers particularly interested in this type of research. All available autopsy material was carefully preserved and handled under the supervision of this committee.

The two schools of medicine of Washington University and St. Louis University cooperated in a splendid manner. Washington University School of Medicine concentrated chiefly on the study of etiology (evidently a virus). Laboratory experiments on the various animals were done in the laboratories of Washington University School of Medicine. St. Louis University School of Medicine was mainly interested in the clinical study of the disease.

The early and complete centralization of the research work by the committee brought most satisfactory

results, which progressed even beyond our boldest expectations

Later on two more committees were added to the organization of the Metropolitan Health Council. They were the Committee on Follow Up and the Committee on Scientific Publications.

The Committee on Follow Up was and is at present interested in the after-effects of the disease. It devised a follow-up questionnaire and organized the work of reexamination of patients for the first time approximately four months after the onset of the disease. The follow-up work was to have been continued every four months and every six months for the next year. The value of such an intensive study is evident, because, without such careful follow up, knowledge of the sequelae of epidemic encephalitis will never be obtained.

The Committee on Scientific Publications brought together in a community enterprise all those who were interested in the study of the epidemic and at the present time a monograph is in the press and will be published by the U. S. Public Health Service about July 1. This monograph will give a comprehensive picture of the entire problem as seen in the St. Louis epidemic and we hope it will be an unusual contribution of St. Louis medicine to American medical literature.

The public health regulations adopted by the Metropolitan Health Council were as careful and at the same time as lenient as the situation warranted them. We tried to impose as little inconvenience on the families as possible. No quarantine was established, only isolation was insisted on. No placarding was done. General hospitals were opened for cases of encephalitis. The only demand was for careful technic of isolation. Whenever the number of patients justified it, separate floors were opened for encephalitis patients. The isolation period was arbitrarily set at three weeks, but patients were often released from the hospital before this period if home conditions were such that isolation was possible there. The public schools were opened at the regular time. No restrictions were put on public gatherings or theaters. The most difficult problem for the Metropolitan Health Council was to prevent a panic and forestall unnecessary procedures that were not warranted by actual scientific facts. All kinds of fantastic suggestions were made by medical men and the public, and it was not an easy job to stay on strictly scientific grounds.

Ideal and satisfactory cooperation existed from the beginning to the end of the epidemic between the Metropolitan Health Council and the U. S. Public Health Service. The presence of the scientists sent by the Surgeon General to St. Louis was an important factor in steadying the situation. The untiring efforts of the Public Health Service scientists brought many valuable contributions in the scientific research work.

All facilities of the Metropolitan Health Council and of all the hospitals were thrown open to all visitors, who came from far and near.

The publicity work was carefully controlled by the Metropolitan Health Council. All information to the press was given out through the office of the secretary of the council. The daily press of St. Louis and the national and international news agencies represented in the city were most cooperative and were always willing to submit copies for correction. If any incorrect or distorted information appeared, the source of the news was not at fault but rather the sensational headlines or other outside influences. Complete frankness charac-

terized the policy of the health council. Daily bulletins were issued and mailed to every member of the council showing the number of new patients and the number of deaths reported to the various health departments. We feel that, owing to this complete frankness, a panic which otherwise might have prevailed was prevented.

The experiences of the St. Louis epidemic will be, we feel, an interesting and valuable contribution to public health work and also to clinical medicine and laboratory research. Looking back on the problem from a wider perspective, as it is possible almost eight months later, we may state that more was accomplished in many ways, particularly toward unraveling the problem of encephalitis, than it was even dared to hope for at the beginning of the epidemic. Also, it is fair to state that almost everything that was done during the epidemic might be repeated without a single change in a similar situation. The organization of metropolitan health councils, we feel, is invaluable to public health administration. Only in this way can uniform information be gathered and uniform regulations be initiated in the handling of public health problems extending beyond local jurisdiction.

634 North Grand Boulevard

#### ABSTRACT OF DISCUSSION

ON PAPERS OF DR. NEAL, DRS. LEAKE, MUSSON AND CHOPE, DRS. MUCKENFUS, ARMSTRONG AND WEBSTER, DR. HEMPELMANN, DRS. MC CORDOCK, COLLIER AND GRAY, DR. JONES, DR. ESCHENBRENNER AND DRS. BREDECK AND ZENTAY.

DR. W. E. CONKLIN, Paris, Ill. In August 1932 a disease of unusual and vicious character suddenly attacked some thirty people in Paris, Ill. After several conferences and consultations a diagnosis of epidemic encephalitis was made, based on the following symptoms and signs. The first symptom to appear was headache, which rapidly became more severe and was accompanied by nausea and vomiting, which was projectile in character. The temperature rose rapidly in the first twenty-four hours to 104 and 105 F. The pulse was out of all proportion to the temperature and remained between 80 and 100, the respiratory rate was also correspondingly slow, being about normal. All these occurred in the first twenty-four hours of the disease. The patients then passed into a semiconscious state, during which they were restless, picked at the bedclothes and at times required restraint. The more seriously ill patients became irrational and delirious. At no time in this semiconscious state could the patient answer questions. The less severely ill patients could reply with difficulty. These persons complained of severe headache and nausea and desired to lie in a darkened room. They also complained of double vision. This phase was followed by delirium, coma and death or recovery. The time elapsed from the onset of the disease to delirium was from twenty-four to forty-eight hours. During this stuporous state the patients also suffered from involuntary movements. The face had a masklike expression and the eyes were fixed. On moving the head the patient complained of pain. The neck was rigid and painful to the touch. The tongue showed a fine tremor but no deviation. The throat was injected but there was no complaint of soreness, cough or coryza. There was a hypertonicity of all the muscles, and extreme irritability to any kind of stimulation. The urine and the blood count showed nothing abnormal. The spinal fluid was clear and under increased pressure. The prognosis varied with the stage of the disease and the age of the individual. Those who passed from delirium into coma did not recover. These persons were invariably over 60 years of age. Younger persons seemed to have a better reaction to the disease, and the tendency to recovery was marked. The condition was confined to the higher age groups. There were no two cases in the same household. It appeared in all walks of life, there being no evident environmental factor. Treatment was entirely symptomatic. Isolation

was the only possible prophylaxis. The course of the disease was stormy. The active symptoms terminated in death in a week or recovery began. Recovery was gradual and progressive, there being no instance of relapse or recurrence, and no sequelae. There was no evidence of contagion.

DR FRANK R. FINNIGAN, St. Louis. Dr E. C. Rosenow studied the encephalitis epidemic at the DePaul Hospital in St. Louis in the early fall of 1933. He had prepared an antistreptococcus serum from previous sporadic cases of encephalitis throughout the country, and this serum was administered to some of the patients at the hospital. There were thirty-five severe cases of epidemic encephalitis admitted to the DePaul Hospital during the epidemic of 1933. Treatment other than the serum was chiefly symptomatic. The cases in which the serum was administered were not selected. The total number of cases was thirty-five. Fifteen patients received serum and twenty did not. Of the fifteen patients who received the serum, two died and thirteen recovered, making a mortality rate of 13.3 per cent. Of the patients who did not receive the serum, seven died and thirteen recovered, making a mortality rate of 35 per cent. The average age of those who died in the group treated with serum was 65. The average age of those who died in the group not treated with serum was 64. The ages of those who recovered in both groups was approximately the same. They all exhibited a slight to moderate leukocytosis with a slight shift to the left. They all had an increased spinal fluid cell count, globulin and sugar. The differential count of the fluid showed a preponderance of lymphocytes in the majority of cases. I do not feel that the spinal fluid cell count was of any prognostic aid. In a group of twelve cases of post-encephalitic headache and neuritis in which no serum was given, striking results were obtained by the use of the antistreptococcus vaccine and serum. These figures support the clinical impression that the specific treatment is of value.

DR J. W. ESCHENBRENNER, St. Louis. Three cases were treated with Rosenow's serum. Two patients received 5 cc twice and one received 5 cc once. The last mentioned patient, receiving only 5 cc, was transferred to another hospital and died later. I think that one of the patients receiving 5 cc twice also died.

DR. RALPH S. MUCKENFUSS, St. Louis. I wish to add a few statements regarding the antistreptococcus serum of Dr. Rosenow. I object to calling the antistreptococcus serum specific. A number of strains of streptococci isolated by Dr. Rosenow from encephalitis patients and considered by him capable of reproducing the typical disease in rabbits were studied in Dr. Bronfenbrenner's laboratory. The only lesion caused in experimental animals by these strains was meningitis. This was obvious on microscopic examination but not grossly. In addition, serum of convalescents known to have neutralizing antibodies for the virus had no influence whatever on the activity of these streptococci.

DR. PAUL J. ZENTAY, St. Louis. As secretary of the Metropolitan Health Council and ex-officio secretary of the follow-up committee, I can qualify some of these statements. We handled the follow-up of almost 840 cases. Anybody who tries to follow up a large number of cases of any type knows what difficulties one encounters in evaluating the reports. The follow-up was organized in such a manner that all the cases treated in the hospitals were reexamined at the same place and by the same physicians who observed the cases during the illness. In many instances in which private physicians took care of the patients during the acute illness, we had to refrain from examination of the patient and resort to the questionnaire method. Sending questionnaires to doctors and getting replies naturally involves many errors, and as we try to interpret these questionnaires we have found that many of the doctors misunderstood our questions and replied in the sense of what they found during the acute illness and not at the time of reexamination. It is planned to have another reexamination in the next few months and still another before the end of the year, and two more the following year. In this way we may be able to say something more reliable about prognosis. So far as the publications are concerned, in the monograph which is in the press now a part of the chapter on etiology is devoted to the experiments with streptococci. Any one interested in the

results of those experiments can read there just what they are worth. The statement that no publicity was given to the streptococcus theory is incorrect. The St. Louis newspapers were practically flooded with publicity on that phase of the problem.

## Clinical Notes, Suggestions and New Instruments

### CHOLECYSTITIS AND CHOLELITHIASIS OF CHILDHOOD

HOWARD B. HAMILTON, M.D., C. O. RICH, M.D., AND  
J. DEWEY BIGGARD, M.D., OMAHA

A case report of cholecystitis with cholelithiasis in a boy, aged 8 years, is here recorded to stress the necessity of consideration of lesions of the gallbladder in the differential diagnosis of abdominal disease in children. It is probable that pathologic changes in the preadolescent gallbladder are not as rare as clinical and postmortem records indicate. For this reason and for the reason that many of these cases present long and indefinite antecedent histories, we believe that children who have indefinite abdominal symptoms of epigastric pain and indigestion should be investigated more frequently with such diagnostic aids as cholecystography.

In 1928 Potter<sup>1</sup> reported four personal cases of gallbladder disease in children 4½, 6, 11 and 15 years of age, and he supplemented the report with a review of the literature. He was able to collect 226 cases in which the ages were less than 15 years, as follows: fetuses 2, new-born infants 12, 1 day old 9, infants 19, less than 1 year 18, between 1 and 5 years 26, between 5 and 10 years 55, and between 10 and 15 years 85. Other interesting facts were gleaned from this analysis. In relation to sex the division was males 62, females 74, not stated 90. Cholecystitis was associated with stones in 44, without stones in 59, with jaundice in 30, and not stated in 93 cases. Stones were present in 140, absent in 48, and not stated in 128 cases. Primary malignant neoplasms occurred in 2 cases. Jaundice was present in 64, absent in 34, and not stated in 128 cases.

#### REPORT OF CASE

A. A., a boy, aged 8 years, was admitted to the University Hospital, April 5, 1934, and related that he had been perfectly well until six days previously, when he was seized suddenly with moderately severe cramplike pain in the epigastrium. The pain was partially relieved two hours later when he vomited several times. The vomitus contained bile and some undigested food.

Twelve hours after onset, the pain shifted to an area immediately to the right of the umbilicus. No relief was obtained from ingestion of soda or from three enemas.

Twenty-four hours after the onset the pain subsided, but soreness just to the right of the umbilicus and nausea persisted until admission. Despite constant nausea, dizziness, occasional twitches of pain and weakness, he attended school for three days.

Four hours before admission he was again suddenly seized with severe pain just to the right of the umbilicus, and he vomited several times. The vomitus contained some food but no blood or coffee grounds. The pain persisted without relief.

From his second year of life to the present he had complained periodically of attacks of pain in the epigastrium and right hypochondrium associated with nausea and gaseous eructations but never with vomiting. He had never complained of pain in the back, nor had there been jaundice, clay-colored stools, or evidence of bile in the urine. With recent attacks there had frequently been an elevation of temperature to 102 F but no chills.

The family and past histories were essentially negative and there was no history of familial jaundice or gallbladder disease.

The boy was well developed and well nourished but not obese. His cheeks were slightly flushed and he was more comfortable

From the Department of Pediatrics and Surgery, University of Nebraska College of Medicine.  
1. Potter, A. H. Gallbladder Disease in Young Subjects. Surg., Gynec. & Obst. 46: 795 (June) 1928.



with the right thigh flexed. Both sclerae were slightly injected but were not icteric. The tonsils were large and infected. The lungs were clear and the heart was normal in size and had normal rhythm and no murmurs.

The abdomen was distended moderately and diffusely and there was considerable spasm of all the muscles of the right half of the abdomen, with boardlike rigidity of the right side above the umbilicus. Immediately to the right of the umbilicus, palpation elicited very acute tenderness, and from this point to the costal margin, moderately acute tenderness. There was moderate tenderness in the right lower quadrant. Pressure in both lower quadrants and hyperextension of the thigh caused pain in the region of the umbilicus. There was no tenderness in the flanks, no palpable masses, and no shifting dullness or fluid wave. There was hyperesthesia of the skin of the entire right upper quadrant. Rectal examination elicited no additional information. The extremities and reflexes were normal.

On admission the blood pressure was 95 systolic, 66 diastolic, the temperature 102 by rectum, the pulse 120 and the respiration 24.

The urine was entirely normal and contained no bile. The blood was as follows: hemoglobin 90 per cent, red blood cells 4,690,000, white blood cells 19,400, with segmented polymorphonuclears 55 per cent, staff cells 15, young cells 2, lymphocytes 23 and mononuclears 5.

With an indefinite diagnosis in which was considered acute inflammation of a high appendix, acute cholecystitis and perforated peptic ulcer, operation was performed by one of us



Gallbladder and the solitary stone that it contained in a boy aged 8 years. Note the thick densely fibrotic wall.

(J D B) immediately after admission. Under ether anesthesia the abdomen was opened through a high right rectus incision and was found to contain a moderate amount of clear, free fluid. An enlarged liver showing evidence of hepatitis presented into the wound, with its lower margin on a level with the umbilicus. A markedly thick-walled, injected and slightly edematous gallbladder was freed from the omentum and duodenum, by which it was almost completely concealed and to which it was adherent by both recent delicate and old very dense adhesions. So firm were the adhesions between the gallbladder and the duodenum that cleavage could be accomplished with safety only by peeling the gallbladder serosa off and leaving it attached to the duodenum. There were several enlarged lymph nodes in the hepaticogastroduodenal peritoneal fold. The common and hepatic ducts were not dilated but their walls were thickened. Palpation elicited no evidence of stones in the ducts. The gallbladder was aspirated of 10 cc of thick black bile containing no pus and was then removed from the bottom upward.

The appendix appeared to be normal in appearance except for mild injection. On account of the acute inflammation of the biliary tract, it was decided to defer its removal until later.

A cigaret wick was placed in the right kidney fossa and the wound was closed in layers about it.

The gallbladder wall measured between 4 and 5 mm in thickness and was densely fibrotic and somewhat edematous. The vessels on the surface were widely dilated. The mucosa was markedly injected and presented small focal areas of necrosis. It contained one stone composed of bile salts. The gallbladder and stone are depicted in the accompanying illustration.

The patient's convalescence was uneventful. Twelve days after the cholecystectomy the appendix was removed through a McBurney incision and he was discharged from the hospital five days later. Two months after discharge, he reported that he was feeling perfectly well.

1436 Medical Arts Building

## COARCTATION OF THE AORTA

WILMOT F PIERCE, M D CHICAGO

Death from coarctation of the aorta occurs sometimes from rupture of a mycotic aneurysm in the aortic wall. Hamilton and Abbott<sup>1</sup> mention four such deaths in 200 persons with coarctated aorta, and Evans<sup>2</sup> mentions two in twenty-eight. In the case reported here the aorta also broke, but it was involved from without by suppurative mediastinitis. Part of the abscess wall was formed by the aorta and esophagus.

### REPORT OF CASE

**Clinical History**—B P, an Italian laborer, aged 35, a patient of Dr F H Straus, was admitted to the Presbyterian Hospital on three occasions. The first was Sept 26, 1927, when he came in with bronchopneumonia. He had worked in coal mines at hard manual labor for many years and there had never been any symptoms referable to the cardiovascular system. Physical examination revealed, besides the bronchopneumonia, an enlarged heart, palpable and visible pulsations in both suprascapular regions and, over the carotid and subclavian arteries, rough systolic murmurs in both suprascapular regions and lateral to the vertebral column on both sides at the level of the seventh cervical vertebra. The blood pressure was 136 systolic, 86 diastolic, the blood Wassermann reaction was negative. The pneumonia and enlarged heart were confirmed roentgenoscopically. Subsequent blood pressure readings with the patient recumbent were right arm, 144/70, left arm, 148/66. Nothing significant was discovered by other laboratory examinations. It was thought at this time that the blood pressure was temporarily lowered in the midst of an influenza-like infection and that the pulsations in the upper part of the body were due to a large heart and lowered peripheral tonus. The patient was discharged as cured, October 9, thirteen days after his admission.

He returned to work in the coal mines, but two months after his discharge from the hospital he began to experience pain in the upper right abdominal quadrant and dyspnea on exertion. In September 1928 the dyspnea became more marked, and there was edema of both legs and cyanosis of the mucous membranes. These symptoms increased in severity and on November 4, thirteen months after being discharged from the hospital, he was readmitted. This time he was found to have an empyema of the right pleural cavity, edema of the lower extremities, sacrum and genitalia, an enlarged liver and an enlarged heart. Myocardial damage and abnormally dominant action of the left ventricle were displayed in the electrocardiogram. The blood pressure on admission was 140 systolic, 100 diastolic, and subsequently, November 28, it was 142/60 in the right arm and 160/60 in the left. The arteries in the left axillary space and posteriorly just below the scapulae were much enlarged and tortuous, standing out like whipcords. The pulsations and murmurs in the suprascapular regions were not so marked as on the previous admission. The femoral pulses scarcely could be made out. Dr J B Herrick in consultation diagnosed coarctation of the aorta because of the strong and plainly visible character of the pulses in the upper part of the body and the diminution of the femoral pulses.

After the chest had been aspirated several times, drainage of the empyema by the open method was established by Dr Arthur Dean Bevan. The patient left the hospital, Feb 28, 1929, with marked improvement in the pulmonary condition.

October 30, just about one year after his second admission, the patient was readmitted because of precordial distress noted particularly after exertion, and hematemesis. The latter had occurred on three different occasions. He was acutely ill, dyspneic, anemic and restless. Marked carotid pulsations were

From the Presbyterian Hospital and the Norman Bridge Laboratory of Pathology, Rush Medical College.  
1 Hamilton W F and Abbott Maude E. *Am Heart J* 3:392 (April) 1928.  
2 Evans, William. *Quart J Med* 2:1 (Jan) 1933.

noted. The heart rhythm was absolutely irregular. The hemoglobin was 36 per cent of normal, red blood cells numbered 1,680,000 per cubic millimeter, and there was blood in the stools. In the electrocardiogram, auriculoventricular conduction was prolonged to 0.22 second, there was left axis deviation, simple tachycardia, left ventricle and right ventricle extrasystoles, and auricular hypertrophy. A roentgenogram of the chest showed the heart markedly enlarged in the region of the left ventricle, infiltration of the lower right lobe with interlobar pleurisy at the level of the fourth rib anteriorly, thickened pleura, and adhesions to the diaphragm. A gastro-intestinal series of roentgenograms was reported negative.

November 5 he vomited 500 cc of bright red blood. November 13 there was another severe similar hemorrhage, and on November 14 he died six hours after a third hematemesis.

**Autopsy** (Dr C. A. Apfelbach).—The body weighed 125 pounds (56.7 Kg). The left side of the thorax was more prominent than the right, and a line drawn through the middle of the sternum curved to the left. A scar, 4 cm long, was present below the lower border of the right scapula. The teeth at their junction with the gums were covered with clotted blood.

*Circumferences of the Mouths of Arteries Forming the Collateral System*

	Right	Left
Innominate	6.0 cm	
Common carotid	3.0 cm	2.5 cm
Subclavian	3.0 cm	5.0 cm
Internal mammary	0.9 cm	2.0 cm
Costocervical trunk	0.5 cm	0.8 cm
Thyrocervical trunk	0.8 cm	1.6 cm
First intercostal	1.2 cm	1.2 cm
Second intercostal	1.0 cm	1.0 cm
Third intercostal	1.0 cm	1.0 cm
Esophageal	0.5 cm	0.5 cm

The abdominal cavity was small, measuring 24 cm from the superior border of the symphysis pubis to the tip of the xiphoid process, whereas the length of the thorax from the root of the neck to the tip of the xiphoid process was 24.5 cm. The left lung was free. Fibrous adhesions, especially firm close to the spine, obliterated the right pleural cavity. The stomach contained foul smelling, dark purple-brown fluid and clotted blood.

The aorta, 18.2 cm beyond its cusps, was constricted. There was no remnant of a ductus arteriosus. The lumen of the aorta at the constriction ended in a pouch directed downward and to the right. The wall of the aorta thickened gradually from the junction of the arch and thoracic portions to a maximum width at the point of occlusion of 4 mm. The septum at the apex of the pouch was less than 1 mm thick and was soft and gray-green. Immediately distal to the coarctation, the aorta was bound firmly to a gray-red and gray-green abscess 6 cm. in diameter, adherent to the bodies of the fourth and fifth vertebrae, the posterior wall of the aorta, the esophagus, and the trachea at its bifurcation. A portion of the right posterior wall of the aorta was torn in freeing the abscess from the vertebrae, and a gray-green, soft walled cavity containing purulent fluid and a friable blood clot was opened. The wall of the aorta where it formed the posterior wall of the cavity, a region 3.5 cm in diameter was soft, friable, gray-green and adherent to the blood clot contained within the cavity. Many gray-red thrombi, from 1 to 2 mm in diameter, were adherent to the inner surface of the aorta in this region. The esophagus formed a portion of the wall of the cavity 1.5 cm in diameter and its wall was soft, friable, gray-green and adherent to the blood clot. The lymph nodes in this region were heavily loaded with black pigment and a purulent fluid appeared at once on surfaces made by cutting.

The circumference of the root of the aorta was 9 cm, its wall 2 mm thick. Eight centimeters distal to the attachment of the cusps, the ascending aorta was 7 cm in circumference, the transverse portion averaged 9.5 cm. The circumferences of the mouths of the arteries forming the collateral system are shown in the accompanying table. The inner surfaces of the larger arteries were altered by slightly elevated gray-yellow to bright yellow plaques some of which were calcified.

Distal to the occlusion the abdominal aorta was 6 cm in circumference, and it narrowed gradually to 3.5 cm at the mouths of the renal arteries and to 2.5 cm at the bifurcation

The heart weighed 610 Gm. There were multiple scars beneath the epicardium and there was a sacculation at the apex 1 cm in diameter and 1 cm in depth. The cavity of the right ventricle was 10 cm long and the wall varied in thickness from 9 mm at the base to 3 mm at the apex. The endocardium of the left ventricle was dull gray-white and opaque and averaged about 0.5 mm in thickness. There was a bright yellow calcified region 5 mm long and 2 mm wide at the auriculoventricular junction and an elevated, gray-white plaque 9 mm in diameter 2 cm from the junction of the right and posterior aortic cusps. The aortic cusps were less than 1 mm thick, smooth and glistening. There were two fenestrations of the left cusp distal to the line of contact with the right, each about 2 mm in diameter. The left and right cusps were fused along their free margins for 6 mm, the right and posterior cusps for 2 mm. There was a sacculation of the aorta at the apex of the right sinus of Valsalva 5 mm in diameter and 3 mm deep. The walls of the coronary arteries were slightly thickened and there were yellow plaques from 2 to 3 mm in diameter at their mouths. The thickness of the wall of the left ventricle varied from 2 mm at the base to 2 mm at the apex.

Except for marked coal pigmentation and cirrhosis of the liver, which has been reported elsewhere,<sup>3</sup> and for coal pigmentation of the spleen, there was no change of interest in the remaining organs.

In the microscopic sections, the walls of the aorta and the esophagus were necrotic, and scattered through them were occasional small clumps of bacteria, both cocci and bacilli, and blood pigment.

The anatomic diagnosis was coarctation of the aorta, gangrenous abscess of the mediastinum communicating with the thoracic portion of the aorta and esophagus, marked compensatory dilatation of the innominate, carotid, subclavian, internal mammary, and upper intercostal arteries, hypertrophy of the heart, empyema scars of the right pleural cavity, extreme coal pigmentation of the lungs, tracheobronchial lymph glands, and spleen, coal pigmentation and cirrhosis of the liver, blood in the stomach and small bowel and marked general anemia.

GARGLING AND THROAT IRRIGATION

WILLIAM SNOW, M.D. AND J. E. STERN, M.D., NEW YORK

It seems that the value of gargles remains an undecided matter in the minds of physicians who have given the subject their attention. For this reason and because of extensive exploitation of gargles by advertisers to the lay public, we undertook objective studies of the comparative value of gargles and throat irrigations.

For these observations, subjects used a thin liquid suspension of barium sulphate while lateral x-ray views of the head and neck were made. The first methods included (1) violent gargling, (2) gentle gargling and (3) tilting the head backward and allowing the suspension to run as far backward as possible without gargling. A study of the films showed that with all these methods the tongue is firmly pressed against the soft palate in such a position that the liquid cannot reach the anterior faucial pillars. Occasionally if the subject interrupted the procedure to take a breath of air a small stream of the mixture leaked backward and then had to be swallowed.

Further observations were made in which gravity irrigations were used with the head and neck flexed. The fluid ran from a container placed 18 inches above the mouth through a length of rubber tubing and a narrow irrigating tip. Study of the films showed that the hypopharynx, oropharynx and nasopharynx were thoroughly irrigated, in fact frequently some of the fluid ran out of the nose. With this method the swallowing reflex was not evoked.

CONCLUSIONS

These observations lead us to believe that gargling is ineffective and should be replaced by the gravity irrigation method. This method has of course been used by a number of able physicians for many years.

941 Park Avenue

## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, MD  
CHICAGO

NOTE—In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft prepared for publication. The series of articles will be continued from time to time in these columns.—Ed

#### THERAPY OF THE MYCOSES

##### TINEA VERSICOLOR AND ERYTHRASMA

These dermal mycoses differ from trichophytosis in their noninflammatory character. While tinea versicolor and erythrasma differ from each other in exciting cause and clinical characteristics, their treatment is the same. The latter is somewhat more resistant to treatment than the former.

**Cleansing**—A hot bath is given and rubbing with soap, preferably Liment of Soft Soap or a laundry soap, and using a nail brush, then drying and applying.

**Parasiticide**—A 5 per cent aqueous solution of sodium thiosulphate is thoroughly applied to the patches by means of a flannel cloth. This is followed by a 3 per cent aqueous solution of tartaric acid, also vigorously rubbed in with a flannel cloth. In this manner nascent sulphur and sulphurous acid are produced. The treatment employed nightly for one week usually brings about a cure, provided fresh underclothing is applied and care is taken to disinfect the infected underclothing thoroughly, as by boiling. These measures are required to prevent recurrence.

##### TRICHOPHYTOSIS (RINGWORM)

The diagnosis is generally suggested by the characteristic appearance of the lesions and may be made certain by microscopic examination of scrapings or of hair placed on a slide with a few drops of 15 per cent solution of sodium hydroxide on which a cover glass is pressed firmly. The Giemsa stain brings out the details.

Owing to fundamental difference in technic, the therapy of trichophytosis is discussed under three headings: ringworm of the nonhairy parts, ringworm of the hairy parts, and ringworm of the nails.

**Ringworm of the Nonhairy Parts**—Prophylaxis. Foot coverings should be constantly worn when the feet are liable to be exposed to contact with infected moist places, such as those around swimming pools. Sodium thiosulphate 10 per cent solution or, better, a powder

##### PRESCRIPTION 1—Thiosulphate Dusting Powder

R	Sodium thiosulphate	6.00 Gm
	Boric acid	24.00 Gm
M	Label: Dusting powder (prophylactic)	

containing 20 per cent of sodium thiosulphate in boric acid (prescription 1), should be applied to the feet and footwear after bathing, or morning and evening. Shoes may be disinfected by placing in them a piece of blotting paper on which a teaspoonful of Solution of Formaldehyde is poured. They are kept wrapped for twenty-four hours and then aired thoroughly. Corrosive Mercuric Chloride solution, 1:1,000 for twenty-four

hours, disinfects clothing, which should be washed before and after the disinfection.

**Treatment** To get rid of the parasites, exfoliation of the affected epidermis is generally required. Agents strong enough to effect this are not tolerated by an acutely inflamed skin. Therefore, when eczematoid dermatitis is present, this must first be treated (see Eczema). Only after the acute inflammation has subsided may remedies be applied that are strong enough to effect a cure. To prevent relapses, which are very liable to occur, the measures listed under "prophylaxis" should be employed. It is especially important to keep the parts dry as much as possible. Hyperhidrosis (qv) may require special treatment.

Washing frequently with soap and water will remove scales, mycelia and spores. Green soap may be used in sluggish cases.

Desquamation is required for disinfection, as the mycelia have invaded the epidermis. This may be induced by the ethyl chloride spray, salicylic acid, silver nitrate, solution of formaldehyde or roentgenotherapy.

The Ethyl Chloride spray may be used to freeze not only the affected area but well beyond the border of the lesion, the tissue being maintained in a frozen condition (snow white) for from one-half to one minute. Prior to the application, loose skin edges or overhanging margins should be trimmed away. When, after a period of from five to seven days, the reactionary phenomena have subsided, the treatment may be repeated, if required.

##### PRESCRIPTION 2—Salicylic Acid Lotion

R	Salicylic acid	6.00 Gm
	Alcohol	to make 60.00 cc.
M	Label: Apply locally	

It is important that Salicylic Acid, 10 per cent in alcohol (prescription 2), or any other discutient application be made well beyond the visibly affected area, for this usually also lodges parasites.

Silver Nitrate cauterization is utilized for deep fissures.

Solution of Formaldehyde, lightly swabbed on, is so powerful that it should be employed only in lesions of a very sluggish type. Its application may be preceded and followed after two or three minutes by 2.5 per cent Phenol solution, to lessen its painfulness.

Roentgenotherapy is not required in the superficial form. It should be reserved for the keratotic and verrucous types, in which it is administered in large doses preferably, 85 kilovolts, 5 milliamperes, 50 cm. distance and 400 roentgens. This should not be repeated for three weeks. Roentgen therapy must not be employed until all irritation from powerful chemicals has subsided. Only soothing applications, such as Calamine Lotion, are permissible between the applications.

Soothing applications may be employed in the intervals between irritative treatments. Talcum or, if considerable irritation has resulted, Zinc Paste dusted with Talcum.

**Ringworm of the Hairy Parts**—Prophylaxis. Ringworm of the scalp, which occurs almost exclusively in children, should be prevented from affecting other children by isolation of the patient or, at least, by the patient's constantly wearing a close fitting cap. Combs should be burned and toilet articles disinfected by Compound Solution of Cresol diluted to 5 per cent strength. Ringworm of the beard should be prevented by tonsorial asepsis.

Treatment 1 Temporary epilation is an essential preliminary to cure in this obstinate and troublesome affliction

(a) Roentgen epilation occurs from seventeen to twenty-one days after appropriate irradiation and lasts for two or three months. As this treatment is very exacting and should be carried out only by an expert, the technic is not given here. One must wait at least two weeks after irritative applications before undertaking irradiation.

(b) Manual epilation is much more troublesome and painful and requires months or years for cure. Hair in the affected area and around the margin must be pulled out with tweezers and the rest of the hair clipped close or shaved.

(c) Thallium epilation is probably too toxic to be recommended.

Cleansing by a daily shampoo with soap and hot water should be begun after the crusts have been softened with oil or a starch poultice. Liniment of Soft Soap is very effective but probably too irritative to be used daily. After the cleansing, the part is thoroughly dried and parasitocidal ointment or lotion is applied.

In ringworm of the hairy parts, ointments are superior to lotions as the administration form for parasitocides they penetrate better and can be kept in constant contact with the affected area. They are best applied over night. During the day, lotions may be preferred. They should be alcoholic, ethereal or chloroformic rather than aqueous, because the former penetrate the

**PRESCRIPTION 3—Sulphur Ointment**

℞ Precipitated sulphur 1.50 Gm  
Petrolatum 30.00 Gm  
M and Label Rub in gently once or twice daily. Strength may gradually be increased up to 20 per cent.

**PRESCRIPTION 4—Compound Benzoic Acid Ointment**

℞ Salicylic acid 1.00 Gm  
Benzoic acid 2.00 Gm  
Ointment of rose water 30.00 Gm  
M and Label Apply locally twice daily. Strength may be doubled if necessary.

Note: The effect of this should be compared with that of a 10 per cent ointment of either of the ingredients to determine whether there lies any special virtue in this particular combination which may well be doubted.

**PRESCRIPTION 5—Chrysarobin Ointment**

℞ Chrysarobin 1.50 Gm  
Petrolatum 30.00 Gm  
M and Label Apply with care against getting it in the eyes.

**PRESCRIPTION 6—Salicylic Acid Pigment**

℞ Salicylic acid 1.50 Gm  
Chloroform 30.00 cc  
M and Label Paint on affected area twice daily until desquamation occurs.

hair follicles more readily. Success probably depends more on thoroughness, perseverance and intelligence of application than on the particular germicide selected.

For ointments, one may choose Iodine Ointment (U S P), sulphur ointment (prescription 3), or compound benzoic acid (Whitfield's) ointment (prescription 4) and in obstinate cases chrysarobin ointment (prescription 5). The latter must be employed with care against getting it in the eyes. In the case of Whitfield's ointment it may well be asked whether 10 per cent of either salicylic acid or benzoic acid might not be as good, and this question should be settled by clinical study, as the first law of rational combining in prescriptions postulates that the reason for the presence of each and every ingredient in a prescription must be definitely understood.

As a lotion, Tincture of Iodine in full strength or diluted may be painted on once or twice daily. Or else chloroformic solution of salicylic acid (prescription 6) may be painted on until desquamation occurs.

**Ringworm of the Nails**—This localization is of importance, because it may act as a focus of infection for other portions of the body or other persons.

The nail should be removed as far as possible by trimming off as much as one can without pain by means of knife or scissors, softening the remainder with Solu-

**PRESCRIPTION 7—Corrosive Sublimate Lotion**

℞ Corrosive mercuric chloride 0.06 Gm  
Alcohol 30.00 Gm  
M and Label Apply after softening nail.

tion of Potassium Hydroxide and scraping it thin with a knife blade or a piece of glass. In obstinate cases, surgical removal of the nail (preferably under gas-oxygen anesthesia) is necessary.

The affected area should be soaked twice daily with alcoholic solution of mercuric chloride (prescription 7) and dried, and Ointment of Ammoniated Mercury (half to full strength) and a protective dressing applied.

**BLASTOMYCOSIS, SPOROTRICHOSIS AND ACTINOMYCOSIS**

**Diagnosis**—The possibility of these mycoses should always be borne in mind in chronic, torpid infectious granulomas simulating tuberculosis, syphilis, sarcoma or carcinoma but with a tendency to suppurative degeneration and fistula formation. Subjective symptoms are remarkably slight, excepting such as are caused by secondary pus infection. These three diseases are dealt with here under one heading, as the therapy of these conditions is very similar. In all three of these, the infection may be confined to the skin, which is the most common localization of blastomycosis. It may invade the subcutaneous tissue, which is the usual localization of sporotrichosis, or it may involve the deeper tissues of the body, an invasion that occurs most commonly in actinomycosis, which generally affects the head and neck but may attack the abdominal or the thoracic organs, while primary cutaneous actinomycosis is rare. Pulmonary as well as systemic dissemination of blastomycosis or of sporotrichosis is rare, fortunately, as it is nearly always fatal.

Blastomycosis is suggested by patches of papulopustules with elevated violaceous borders in which there are numerous abscesses.

Sporotrichosis is characterized by subcutaneous painless nodules, which slowly enlarge, soften and form cold abscesses and ultimately fistulas, with the possibility of metastatic involvement elsewhere, usually in the form of an ascending lymphangitis.

Actinomycosis should be suspected when there is an indurated swelling in the cervicofacial region, when so-called sulphur granules are noted in the pus, or when a patient suffers from an apparently incurable, chronically draining postappendectomy or other abdominal sinus, also when there is rib destruction with what appears to be a lung abscess.

The finding on microscopic or culture examination of the characteristic fungus in the pus clinches the diagnosis in all these mycoses.

**Prophylaxis**—Chewing of straw, weeds or grain must be avoided, as actinomycosis may be contracted thereby.

**Treatment**—Iodides in massive doses daily for a long time are the sheet anchor of treatment in these mycoses. From 6 to 12 Gm daily is usually employed. The Solu-

tion of Potassium Iodide, N F (saturated solution), may conveniently be used, starting with 1 cc in a glassful of milk three times daily after meals and gradually increasing the dosage until the limit of tolerance is reached as indicated by coryza, acne, digestive disturbance, the phenomena of hyperthyroidism or the development of cachexia. The treatment should continue for at least one month after apparent cure, with immediate readministration at indication of relapse.

Roentgen irradiation may be used in a dosage of 140 kilovolts, with 0.25 mm of copper and 1 mm of aluminum filtration for relatively superficial lesions to 0.5 mm

#### PRESCRIPTION 8—Iodine Solution

R	Iodine	1.00 Gm
	Potassium iodide	10.00 Gm
	Distilled water	500.00 cc

M and Label Use on gauze as moist dressing

of copper and 1 mm of aluminum for deep involvement. A sufficient number of portals should be used to secure 300 roentgens at the site of the lesion. Such treatment may be repeated every two weeks for at least six months.

Surgical intervention should be confined to the evacuation of pus, excepting only in cases in which complete extirpation of the lesion is possible. Curettage should be avoided, as it may lead to dissemination of infection. Indeed, evacuation of the pus may be accomplished by mere puncture and aspiration, and the cavity filled with a 1 per cent solution of sodium iodide. Ulcerated lesions may be painted with Tincture of Iodine and dressed with an iodide solution, 1:500 (prescription 8).

### Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE  
H. A. CARTER, Secretary

#### RESUSCITATION

YANDELL HENDERSON, PH.D.

NEW HAVEN, CONN.

(Concluded from page 754)

#### ASPHYXIA NEONATORUM<sup>20</sup>

There is no good reason to look, as many writers have done, for any reactions in the neurorespiratory system of a baby, either before or after birth, essentially different from those of an older child or adult. The normal baby starts to breathe under essentially the same stimulus that causes an adult to breathe again after holding his breath. If in the adult the breath holding has been aided by a preliminary period of voluntarily forced ventilation, the analogy is even closer. The reason that the fetus does not breathe in utero is that its blood is too well arterialized to stimulate the fetal neurorespiratory system, which is rather inexcitable so long as the lungs are atelectatic. If respiratory efforts do occur, the thoracic muscles, which are barely strong enough to dilate the lungs with thin air after birth, fail to draw in more than a minute amount of the much less easily inspired amniotic liquor. If some fluid is drawn in, it is quickly absorbed into the blood, for the lungs are by far the most absorptive organs in the body. The particles of meconium sometimes found in the trachea are probably drawn in from the mouth immediately after birth.

When cold water, or even cold air, is suddenly poured over an adult, the cutaneous stimulus causes him to "catch his breath" in a deep and prolonged or even repeated inspiration. Introduction to a cold world induces the same reaction in a normal baby. Its lungs are thus at least partially expanded. So long as they are atelectatic, the lungs send no impulses over the vagi to the respiratory center. But as soon as the lungs are even partially expanded the vagi carry impulses to the respiratory center that call forth the Hering-Breuer reflexes. These are the reflexes that determine the alternation of inspiration and expiration in normal breathing.

If during birth the head of the child is compressed and deformed, and particularly if an intracranial hemorrhage continues the compression of the respiratory center after birth, the blood supply to the center is diminished. If the umbilical cord is partially compressed, the entire body is correspondingly asphyxiated. A formation of lactic acid occurs, the  $pH$  and alkali of the blood are diminished, and the carbon dioxide content, which at first is increased, is later diminished by escape presumably through the placenta. If these conditions are brief, the baby is livid, if they are prolonged, it is pallid. To whatever extent the sensitivity of the respiratory center has been diminished by lack of oxygen, a stronger stimulus in the form of increased pressure of carbon dioxide is needed to excite the neurorespiratory system to activity. Once its activity is induced, the renewed supply of oxygen gradually restores its normal sensitivity. Thereafter, respiration continues under a merely normal amount of carbon dioxide in the blood.

Atelectasis, however, is not so quickly overcome. Even in wholly normal babies the lungs are not fully expanded for hours, days, or even longer. A continuance of atelectatic areas provides conditions favorable for the development of pulmonary infections. The obvious correction is a routine roentgen examination of every baby a few days after birth, or else some dilating treatment without examination. For this purpose most textbooks still recommend that the baby should be made to cry. A much more effective means of accomplishing this end is afforded by repeated brief inhalations of from 5 to 7 per cent carbon dioxide. Herein lies an immediate possibility of a large decrease of the present high mortality of the first month of life.

#### ANESTHETIC DEPRESSION<sup>20</sup>

Few branches of medicine have made such great advances within the past three decades as has the art of anesthesia. Among these advances, the use of carbon dioxide is preeminent. Every anesthetist now knows that the hyperpnea of the excitement stage of anesthesia decreases the carbon dioxide of the blood and tends to induce failure of breathing under full anesthesia. He knows also that, on the contrary, a moderate amount of rebreathing deepens and steadies respiration. This knowledge and the inhalation of carbon dioxide, when needed, have almost entirely freed surgical anesthesia from what was formerly its continual imminent danger—failure of respiration.

It is not many years since it was a matter of course that after nearly every major operation the patient lay long unconscious, hypopneic and therefore cyanotic, then nauseated and tasting the incompletely exhaled anesthetic for hours. In part these conditions were due to acapnia induced by overbreathing and washing

out of carbon dioxide under the influence of anesthetic excitement and moderate oxygen deficiency. In part they were due also to the acarbica—diminished blood alkali—that asphyxia and acapnia induce. Simultaneously the volume of the circulation was subnormal, owing largely to the stagnation of the blood in atonic tissues.<sup>24</sup>

All these features of depression are now largely avoided by the increasing skill of anesthetists in preventing both anoxia and acapnia. But in extreme cases in which such ill effects do still sometimes occur they are rapidly and largely counteracted by means of inhalation of carbon dioxide. Full deep breathing returns, cyanosis disappears, the tonus of the muscles is recovered, the skin becomes pink as its vessels fill with blood from the previously atonic muscles, the jugular and other superficial veins are again distended, bringing a full supply of blood to the right heart, and with this restoration of the venous return, arterial pressure and a full pulse are reestablished.

Within the last few years yet another benefit accruing from the use of carbon dioxide and prevention of acapnia has come to light. Under acapnia and under any diminution of tonus the so-called vital capacity of the lungs is decreased. After nearly all surgical operations, especially those in the abdomen, the atonic diaphragm is relaxed headward by several centimeters. Under this condition the lungs are partially collapsed and some of the airways may be blocked. The air from the occluded parts of the lungs is soon absorbed and an area of atelectasis or even a massive collapse of one lung results. Prevention of the normal drainage of the lung through the airways permits the development of infection, resulting in what was formerly called "post-operative pneumonia." Now the etiology of postoperative pulmonary complications is understood, and the means of its prevention are available in the restoration of the tonus of the respiratory muscles and dilation of the lungs by full deep breathing.<sup>25</sup>

How far similar measures may aid in pneumonia of nonsurgical origin, particularly in bronchial pneumonia in children, is still undetermined. It appears, however, that the prevention of cyanosis by inhalation of oxygen is beneficial in lobar pneumonia in adults and that the patients do at least as well, perhaps better, if the carbon dioxide exhaled is allowed to accumulate up to at least 1 or 2 per cent in the oxygen tent.<sup>26</sup>

#### CARBON MONOXIDE ASPHYXIA<sup>27</sup>

The treatment of carbon monoxide asphyxia is now so effectively performed by the rescue crews of city fire and police departments and of gas and electric companies with their inhalators that the main duty of the physician is not to interfere with the artificial respiration. He should not even make a physical examination that requires cessation of artificial respiration,

during which the patient may die. He should restrain his impulse to administer hypodermic, intravenous or intracardiac medication of any kind. The claims for methylene blue, lobeline and other drugs of similar properties have been completely disproved both in theory and in practice. Respiratory stimulants are generally cardiac depressants. When administered to a patient in profound respiratory depression they often afford an immediate and striking pharmacologic demonstration, but the patient is much the worse for it the next day.

Carbon monoxide forms only a loose and reversible combination with the hemoglobin of the blood. But until it is displaced, and the oxygen carrying power of the blood is restored, the asphyxial effect continues and is cumulative. The differences between asphyxiation by water—that is, drowning—and prolonged asphyxiation by carbon monoxide are important. Once the man who has been in the water is brought back to fairly normal breathing by means of artificial respiration, especially when supplemented by inhalation, complete recovery is almost certain to follow. In carbon monoxide asphyxia it is only for cases of brief and acute exposure that artificial respiration is an important factor in resuscitation. In cases of prolonged exposure inducing acarbic asphyxia it is only by a rare chance that the victim is found in the brief period—less than ten, or even five minutes—between cessation of respiration and fibrillation and standstill of the heart. After that he is irretrievably dead, before that he is still breathing spontaneously when removed from the poisonous atmosphere. Such cases are numerous, and it is for them that the advance in the technic of resuscitation has made its greatest contribution in the saving of life. They do not need and are little helped by artificial respiration, but they do need inhalational treatment, and in the acarbic or pseudo-acidotic cases it is needed even more than in the cases of apnea after short asphyxiation. To be most beneficial the inhalation must be immediate—on the spot, not after removal to the hospital.

In every large hospital a few years ago, before the city rescue crews were supplied with inhalators, cases of carbon monoxide poisoning were frequently seen in which, even hours after the patients were brought in by the ambulance, they were completely comatose. It was supposed at that time that their blood must still be largely combined with carbon monoxide, and for this reason bleeding and transfusion were sometimes done. Spectroscopic examination showed, however, that even without any treatment whatever most of the carbon monoxide was eliminated from the blood within a few hours. This fact demonstrated the uselessness of late transfusion and it demonstrated much more. Such of these patients as later recovered consciousness suffered acute and prolonged headache and nausea. Some suffered mental or physical impairment. In those who died, autopsy revealed asphyxial injuries in the brain. Thus it became evident that the continuance of the coma is not due to continuance of asphyxia but that it is due to the injury to the nervous system that was developed during the asphyxia. It became evident also that measures for the relief of asphyxia, when applied late, can at best be of relatively slight benefit. The primary object to be aimed at in the treatment of all cases of prolonged asphyxia is to apply inhalational

<sup>24</sup> Henderson, Yandell, Oughterson, A. W., Greenberg, L. A. and Searle, C. P. The Third Major Mechanical Factor in the Circulation of the Blood. *Science* 79: 508-510 (June 1) 1934.

<sup>25</sup> Coryllos, P. N. and Burnbaum, G. L. Bronchial Obstruction: Its Relation to Atelectasis, Bronchopneumonia and Lobar Pneumonia. *Am. J. Roentgenol.* 22: 401-430 (Nov.) 1929. Brunn, Harold and Brill, Selling. Observations on Postoperative Atelectasis: Consideration of Some Factors in Its Etiology, Prevention and Treatment. *Ann. Surg.* 92: 801 (Nov.) 1930. Henderson, Yandell. Acapnia as a Factor in Postoperative Shock, Atelectasis and Pneumonia. *J. A. M. A.* 95: 572 (Aug. 23) 1930.

<sup>26</sup> Barach, A. L. Personal communication to the author.

<sup>27</sup> Henderson, Yandell. The Dangers of Carbon Monoxide Poisoning and Measures to Lessen These Dangers. *J. A. M. A.* 94: 179-185 (Jan. 18) 1930.



treatment for the rapid elimination of carbon monoxide within the shortest possible time after removal of the patient from the poisonous atmosphere

#### ASPHYXIA FROM MORPHINE, ALCOHOL, AND OTHER RESPIRATORY DEPRESSANTS

One of the principal effects of morphine is to decrease and, in sufficiently large dosage, finally almost to abolish the sensitivity of the neurorespiratory system to its normal stimulus, carbon dioxide. It is the resulting depression and final cessation of respiration that cause death from anoxia in cases of morphine poisoning. It is probable that many deaths among the newborn are due to the administration of morphine to the mother and the diffusion of the drug through the placenta to the child. The treatment of the resulting neonatal asphyxia has already been discussed.

For adults so long as pulmonary ventilation is maintained, either naturally or artificially, life continues and resuscitation results. If the narcosis is not too intense, it may be combated effectively by inhalation of quite high percentages of carbon dioxide with oxygen. For extreme cases artificial respiration by intratracheal insufflation of oxygen or air, interrupted ten or twelve times a minute, will maintain life. Artificial respiration with the Eve-Cornish tilting board will probably also be found effective.

Patients with alcoholic coma<sup>28</sup> also are rapidly revived and sobered under the increased respiration induced by inhalation of carbon dioxide. It would save trouble and expense if this treatment for alcoholic intoxication was utilized by the police.

#### CYANIDE ASPHYXIA

Cyanide is now extensively used for the fumigation of buildings, ships, greenhouses and even trees. The canister gas mask affords effective protection against inhalation. Yet moderate degrees of poisoning are fairly frequent, and severe or even fatal cases occur often enough to be important.

The action of cyanide in the body is to induce asphyxia by inhibiting the respiratory ferment in the cells of the tissues. As the poison is extremely volatile, it is not only rapidly absorbed but may also be equally rapidly eliminated through the lungs. The treatment of slight cases, as recommended by Dr. C. L. Williams<sup>29</sup> of the U. S. Quarantine Station at New York, is therefore "fresh air and plenty of it." In cases that have progressed to apnea, artificial respiration should also be immediately applied. As cyanide is a powerful respiratory stimulant, the victim, during the asphyxiation, will have developed some degree of acapnia. To counteract this condition and hasten elimination of the poison, carbon dioxide diluted in air or in oxygen should be given by inhalation.

Treatment by intravenous infusion has some advocates. It is based on the fact that methemoglobin combines with cyanide. The substances injected are therefore such drugs as are known to convert hemoglobin into methemoglobin. Hug<sup>30</sup> advocates alternating

injections of sodium nitrite and sodium thiosulphate. It seems to me, however, that, especially when the poison has been absorbed through the lungs, it is better to promote elimination by active pulmonary ventilation than to attempt to fix it in a combination in the blood.

In adopting measures of resuscitation, it is important to choose those that themselves involve no subsequent ill effects.

#### PULMONARY EDEMA FROM IRRITANT GASES<sup>31</sup>

The edema of the lungs induced by irritant gases results in asphyxia. It is chiefly a problem of war. But in the industries of peace also many cases occur in which the victims have inhaled ammonia, sulphur dioxide, chlorine, the fumes of various acids, phosgene, or the oxides of nitrogen. The irritant effects of the first four manifest themselves immediately and thus give warning for escape. Phosgene, on the contrary, and especially the oxides of nitrogen, whether from the spilling of nitric acid on wood, from the fumes of explosives, or from burning celluloid, are of less immediate choking character but are of much more serious subsequent effect. Hours after exposure to these gases pulmonary edema may develop, and the victim may drown slowly in the fluid exuding into his lungs.

For the prevention and treatment of pulmonary edema after inhalation of any irritant gas, the first essential is absolute rest for from twenty-four to forty-eight hours. The patient, even though in no apparent danger of developing edema, should be kept in bed, and if any indications of edema have appeared, he should on no account be allowed even to sit up in bed. If asked to sit up for auscultation, he may do so and an instant later fall back dead.

The asphyxia from pulmonary edema may take either of two forms, or one may follow the other: a gray and shocklike form, and a cyanotic form with extreme venous congestion. The gray state involves deficiency of oxygen in the blood without retention of carbon dioxide, or there may even be some degree of acapnia. The congested state develops when the lungs are waterlogged to such a degree that not only oxygen cannot pass in but also the much more easily diffusible carbon dioxide cannot pass out. The resulting hypercapnia and the obstruction to the flow of blood through the lungs are the joint causes of the venous congestion and overloaded heart.

For both conditions oxygen should be administered continuously in a concentration sufficient, if possible, to overcome cyanosis. Carbon dioxide inhalation tends to revive the patient from the stuporous condition induced by asphyxia, but it does not prevent the further development of asphyxia. It may even increase the venous congestion and should therefore not be administered in the stage of venous congestion.

The venous congestion may be treated by bleeding, after which intravenous infusion of saline solution has been recommended.<sup>32</sup> But the chief point to be aimed at is absolute quiescence, for any severe degree of

<sup>28</sup> Hunter F. T. and Mudd S. G. Carbon Dioxide Treatment in Acute Alcoholic Intoxication. *Boston M. & S. J.* 190: 971 (June 5) 1924. Treatment of Acute Alcoholic Intoxication editorial. *J. A. M. A.* 83: 199 (July 19) 1924.

<sup>29</sup> Williams C. L. Fumigants reprint no. 1473 from U. S. Treasury Dept. Public Health Reports 46: 1013-1031 (May 1) 1931.

<sup>30</sup> Hug Enrique. Treatment of Hydrocyanic Acid Poisoning. Buenos Aires letter. *J. A. M. A.* 102: 552 (Feb. 17) 1934.

<sup>31</sup> Henderson Vandell and Haggard H. W. Noxious Gases and the Principles of Respiration Influencing Their Action. American Chemical Society Monograph Series. New York: Chemical Catalog Company, 1927.

<sup>32</sup> Underhill F. P. The Experimental Treatment of Poisoning by Lung Irritant or Suffocant Gases. Med. Dept. of the U. S. Army in the World War vol. 14. Medical Aspects of Gas Warfare chapter 19 pp. 680-712. Washington D. C. Government Printing Office, 1926.

pulmonary edema generally results fatally in spite of any treatment

Surgeons, who during war become accustomed to seeing huge physical injuries, are shocked by the appearance of patients gasping in pulmonary edema. Yet in fact such patients are so far anesthetized by asphyxia that they actually suffer far less than those with severe gunshot wounds.

#### HEMORRHAGE AS A FORM OF ASPHYXIA<sup>33</sup>

Hemorrhage produces its ill effects largely through asphyxia. This is tacitly recognized by surgeons in their preference for transfusion of blood over any mere infusion of a saline or gum solution. The victim of acute exsanguination exhibits air hunger. In less extreme cases the volume of breathing increases with the loss of blood in a manner closely similar to the progressively developing hyperpnea in a man or animal undergoing carbon monoxide asphyxia.

All these facts point to the loss of the red corpuscles as an important feature of hemorrhage. The effect is essentially like the abolition of the oxygen carrying power of the corpuscles by carbon monoxide. This statement does not deny that the diminution of blood volume also impairs the circulation. But simple decrease of blood volume, such as is induced by the diarrhea of cholera, is effectively combated by intravenous infusion of saline solution. Hemorrhage, on the contrary, is only partially and temporarily relieved by restoration of blood volume. For effective relief and the return of normal quiet breathing, restoration of the oxygen carrying power of the blood by restoration of the supply of hemoglobin containing corpuscles is essential.

If, then, hemorrhage is largely a form of asphyxia, the obvious first aid measure is to administer oxygen and to maintain this inhalation by means of an inhalator, a tent, a metabolism apparatus or an anesthesia apparatus supplying oxygen, until transfusion can be performed. Patients with hemorrhage, if left for even a short time without oxygen inhalation or transfusion, develop acardia. But until the oxygen carrying power of the blood is restored, carbon dioxide is probably best not used. Exsanguinated animals were found by Henderson and Haggard<sup>34</sup> to react badly to inhalation of carbon dioxide. The exsanguinated man or animal cannot overcome even a pseudo-acidosis—that is, acardia—without restoration of the red corpuscles. Carbon dioxide may prolong life but it cannot recall a normal amount of alkali to the blood except in the presence of an ample supply of oxygen to the tissues.

The main point to be emphasized is this. After a severe hemorrhage it is not enough to stop the loss of blood and to prepare for a transfusion. Until the transfusion can be performed, and even thereafter, oxygen should be continuously administered. Hemorrhagic asphyxia should not be allowed to continue for a minute longer than can possibly be avoided. In all forms of asphyxia, measures of resuscitation, in order to be most effective, must be immediate.

#### FAILURE OF THE CIRCULATION AS A CAUSE OF ASPHYXIA

Surgical and traumatic shock has long been recognized as involving depression and finally failure of the

circulation. A condition results similar in appearance to that induced by hemorrhage, involving a deficient supply of oxygen to the tissues and the usual consequences of such deficiency: acapnia, acardia and pseudo-acidosis.

In shock without hemorrhage there is, however, no loss of red corpuscles from the body, and the blood alkali is merely displaced. Both corpuscles and alkali may be recalled into use.<sup>34</sup> To effect such recall, both the asphyxia and the acardia may be combated with inhalation of carbon dioxide and oxygen.

One of the oldest and also the latest of many conceptions of the underlying cause of the depression of the circulation in shock<sup>34</sup> and in illness is that the tonus of all the muscles of the body, both skeletal and visceral, is depressed, and that the blood stagnates in the atonic tissues. Stimulation of respiration with carbon dioxide increases the effective difference of pressure between the tissues of the body and the thorax and thus promotes the venous return to the heart.

In the large majority of all deaths, whatever the initial cause, the sequence is that of increasing weakness, decreasing tonus and failing circulation. The terminal gasps and "death rattle" express the final reaction of the neurorespiratory system to asphyxia.

#### SUMMARY

The conditions to which resuscitation applies are all essentially forms of asphyxia. They include drowning, electric shock, asphyxia of the new-born, carbon monoxide, morphine, cyanide and alcohol poisoning, anesthetic and postoperative depression, pulmonary edema and hemorrhage.

For brief complete asphyxia, involving failure of breathing, the principal measure of resuscitation is artificial respiration, reinforced by inhalation of carbon dioxide and oxygen.

For prolonged asphyxia, inducing coma with depression of breathing, the principal measure of resuscitation is inhalation of carbon dioxide and oxygen, initiated, when needed, by artificial respiration.

The various forms of apparatus for treatment of asphyxia are here evaluated. Artificial respiration apparatus of the laboratory type should be available in the operating room. But such apparatus is not suitable for general use by laymen. Outside the operating room and the hospital, reliance should be placed on inhalators and the Schafer prone pressure method of artificial respiration.

The theory of asphyxia now generally accepted in the medical sciences is inconsistent with the facts of resuscitation established clinically. If the condition now called "acidosis" were really acid poisoning, inhalation of carbon dioxide would further poison the victims of asphyxia. The fact is, on the contrary, that carbon dioxide combined with a supply of oxygen has proved to be the specific cure for asphyxial "acidosis." For further progress in resuscitation and in related problems of clinical physiology the development of a sound theory of asphyxia, and of "acidosis," or acardia, is urgently needed.

<sup>33</sup> Henderson, Yandell and Haggard W. H. Hemorrhage as a Form of Asphyxia. *J. A. M. A.* 75: 697 (March 11) 1922.

<sup>34</sup> Henderson, Yandell, Haggard, H. W. and Coburn, R. C. The Therapeutic Use of Carbon Dioxide After Anesthesia and Operation. *J. A. M. A.* 74: 783 (March 20) 1920. Henderson, Yandell. Acapnia as a Factor in Postoperative Shock, Atelectasis and Pneumonia, *ibid.* 95: 572 (Aug. 23) 1930. Kroetz, C. Sauerstoff und Kohlensäureatmung in ihrem Einfluss auf den Kreislauf bei Gesunden und Kreislaufkranken, *Ztschr. f. Kreislaufforschung* 22: 641-645, 1930.

## Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING  
REPORT

RAYMOND HERTWIG, Secretary

### NOT ACCEPTABLE

#### FONTANA'S MUSHROOM GRAVY

The Fontana Food Products Company of San Francisco submitted to the Committee a product called "Fontana's Mushroom Gravy" prepared from tomato puree, water, olive oil, onions, meat (United States government inspected and passed), white wine, celery, flour, salt, carrots, dried French mushrooms, sugar, parsley, butter, pepper, garlic, rosemary and bay leaf

Analysis (submitted by manufacturer) —	per cent
Moisture	85.1
Ash	2.5
Sodium chloride	2.0
Fat (ether extract)	2.6
Protein (N $\times$ 6.25)	2.5
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	6.7

**Discussion of Label and Name**—The name "Mushroom Gravy" implies that mushrooms are the principal ingredient, giving the product the food and flavor values of mushrooms, whereas they are present in insignificant quantity only. Food names should truthfully and appropriately identify the nature or ingredients of foods. The label statement "Choice mushrooms, meat, ripe tomatoes, pure olive oil, vegetables and spices" incompletely lists the ingredients and, by giving first place to mushrooms and meat, unduly emphasizes their quantitative importance as components of the product. Descriptive statements of compounded foods should list all ingredients in order of decreasing proportions to be truthful and to properly indicate their relative quantities. Incomplete statements giving first place to ingredients occurring in minor proportion deceive as to the true nature and composition of foods. Illustrations of certain of the ingredients on the label and the omission of others add to the misleading nature of the label. Food manufacturers are obligated to name their products and design their labels so that the public may be truthfully informed in statement and by implication.

The company was advised of the Committee's criticisms of the deceptive name and label but has not demonstrated willingness to make the desired changes. This product, therefore, will not be listed among the Committee's accepted foods.

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG, Secretary

#### JACOB MUSHROOMS BROTH—FANCY BUTTONS—SLICED— SLICED STEMS AND PIECES

**Manufacturer**—Edward H. Jacob, Inc., West Chester, Pa.

**Description**—Hot house mushrooms, respectively broth, buttons, sliced, and sliced stems and pieces.

**Manufacture**—Culture. Mushroom spores obtained by careful collection under sterile conditions from mushrooms of desired color, flavor and texture are used to inoculate a "master jar" containing properly prepared and composted autoclaved manure. Spawn from the master jar is used to inoculate other similarly prepared jars. Specially prepared manure beds (21 C) are planted with the spawn, which rapidly runs through the compost, and after three weeks a one inch layer of dirt is laid over the compost. When the mushroom crop is desired, the bed is watered and the temperature maintained at about 11 C. The mushrooms are picked daily and transferred to the packing plant. The growing season runs from October to June.

**Manure Beds** For preparing the manure beds, manure from urban areas is carefully composted and turned several times until ready for use in the growing beds, which are arranged in two tiers in special mushroom houses without windows and with controlled ventilation. The beds are set to a depth of 8 inches with incompletely decomposed manure. The houses are tightly closed and the ventilation is controlled. The temperature of the compost rises to 54 C and is maintained there for several days. Insects and disease producing organisms are killed and the moisture content adjusts itself to a desired level. When the temperature drops to 21 C the beds are ready for planting with spawn.

**Preparation and Canning** The mushrooms are screened to remove adhering dirt, the stems are cut off at the proper point, and the stems and buttons are separated. The buttons are washed in rapidly circulating water, sorted according to size, inspected (imperfect and blemished pieces are removed), and blanched and shrunk in live steam. The condensed steam constitutes the broth in which the mushrooms are packed. The mushrooms are cooled in water and are drained and packed in tins with the broth, which has been salted and heated to 88 C. The cans are automatically capped, processed for twenty minutes under 15 pounds steam pressure, and cooled.

The mushroom pieces and stems are prepared, canned and processed in the same general manner as the buttons. The sliced mushrooms are automatically sliced.

**Analyses (submitted by manufacturer) —**

Broth	Mushrooms per cent	Liquor per cent
Moisture	89.1	95.8
Total solids	10.9	4.2
Ash	1.8	1.7
Sodium chloride	1.2	1.3
Fat (ether extract)	0.2	0.2
Protein (N $\times$ 6.25)	4.5	1.1
Reducing sugars as dextrose	0.0	0.0
Reducing sugars after inversion as dextrose	0.0	0.0
Crude fiber	1.2	0.0
Carbohydrates other than crude fiber (by difference)	3.2	1.2

Buttons	Mushrooms per cent	Liquor per cent
Moisture	89.1	95.8
Total solids	10.9	4.2
Ash	1.8	1.7
Sodium chloride	1.2	1.3
Fat (ether extract)	0.2	0.2
Protein (N $\times$ 6.25)	4.5	1.1
Reducing sugars as dextrose	0.0	0.0
Reducing sugars after inversion as dextrose	0.0	0.0
Crude fiber	1.2	0.0
Carbohydrates other than crude fiber (by difference)	3.2	1.2

Sliced	Mushrooms per cent	Liquor per cent
Moisture	88.7	95.8
Total solids	11.3	4.2
Ash	1.6	1.6
Sodium chloride	1.0	1.3
Fat (ether extract)	0.2	0.1
Protein (N $\times$ 6.25)	4.4	1.1
Reducing sugars as dextrose	0.0	0.0
Reducing sugars after inversion as dextrose	0.0	0.0
Crude fiber	1.3	0.0
Carbohydrates other than crude fiber (by difference)	3.8	1.4

Stems and Pieces	Mushrooms per cent	Liquor per cent
Moisture	90.9	96.7
Total solids	9.1	3.3
Ash	1.7	1.6
Sodium chloride	1.3	1.3
Fat (ether extract)	0.2	0.1
Protein (N $\times$ 6.25)	3.1	0.6
Reducing sugars as dextrose	0.0	0.0
Reducing sugars after inversion as dextrose	0.0	0.0
Crude fiber	1.2	0.0
Carbohydrates other than crude fiber (by difference)	2.9	1.0

**Calories**—Contains little caloric value.

**Claims of Manufacturer**—Grown under carefully controlled conditions.

#### NORRIS JUVENILE CANDIES DEXTROSE SPECIAL

**Manufacturer**—Norris Inc., Atlanta, Ga.

**Description**—Confections of various shapes, colors and flavors containing dextrose, corn syrup, flavors (true fruit flavors, esters, ethers, lemon, orange and mint oils and United States Department of Agriculture certified food colors).

**Manufacture**—Definite quantities of corn syrup, dextrose and water are heated in a copper steam jacketed vacuum kettle. A "vacuum" of 1½ inches mercury pressure is developed for five minutes, the candy mass is cooled and the flavoring and coloring are worked in. A portion may be pulled. The candy

mass, maintained at a proper temperature, is worked to a desired condition and passed through brass rolls containing molds. The molded candy is cooled, then steamed and rolled in dextrose and packed in boxes. In the case of lollypops, two pieces, one colored and one pulled to milky whiteness, are pulled together, producing a two color piece, which is clipped up by shears and wooden sticks are inserted.

Analysis (submitted by manufacturer) —	per cent
Moisture	1.3
Ash	0.2
Fat (ether extract)	0.0
Protein (N $\times$ 6.25)	0.0
Reducing sugars as dextrose	85.7
Sucrose (polarization method)	0.0
Dextrins (by difference)	12.8

Calories—3.9 per gram 111 per ounce

### KELLOGG'S WHOLE WHEAT BISCUIT

*Manufacturer*—Kellogg Company, Inc., Battle Creek, Mich

*Description*—Toasted shredded cooked whole wheat biscuits

*Manufacture*—Washed whole wheat is cooked under steam pressure, partially dried, shredded by grooved rolls, and formed into biscuits which are toasted, dried, cooled and packed in cardboard cartons

Analysis (submitted by manufacturer) —	per cent
Moisture	2.2
Total ash	1.7
Sodium chloride	0.2
Fat (ether extraction method)	1.7
Protein (N $\times$ 5.7)	10.1
Sucrose	2.0
Crude fiber	2.1
Carbohydrates other than crude fiber (by difference)	82.2
Calcium (Ca)	0.04
Phosphorus (P)	0.38
*Iron (Fe)	0.0067
†Copper (Cu)	0.001

\* J Biol Chem 86 463 (April) 1930

† J Biol Chem 81 435 (Feb.) 1929

Calories—3.8 per gram, 108 per ounce

### TORRINGTON CREAMERY IRRADIATED VITAMIN D PASTEURIZED MILKS—HOMOGENIZED AND REGULAR

*Distributor*—Torrington Creamery, Inc., Torrington, Conn

*Description*—Bottled pasteurized homogenized and regular vitamin D milks irradiated with ultraviolet rays (patent No 1,680,818)

*Preparation*—The milk complies with legal requirements and is pasteurized by the standard holding method. For description of irradiation, see THE JOURNAL, Oct 7, 1933, page 1155. For the homogenized milk, the milk is homogenized under 1,500 pounds pressure per square inch.

*Vitamins*—Clinical investigation shows these milks to be reliable antirachitic agents if the proper amount is used. Contain 135 U S P X (Revised, 1934) vitamin D units per quart.

*Claims of Distributor*—Irradiated antirachitic pasteurized milks homogenized and regular, having otherwise the flavor and food values of usual pasteurized milk.

### DR P PHILLIPS TREE RIPENED ORANGES, TANGERINES AND GRAPEFRUIT

*Distributor*—Dr P Phillips Company, Orlando, Fla

*Description*—Fresh, tree-ripened oranges, tangerines and grapefruit passing Florida state standards for maturity, and company standards for appearance and eating quality. No arsenical sprays are used.

*Cultivation and Harvesting*—The fruit is picked from groves owned by the Dr Phillips Company and its affiliates or from groves where similar cultural practices approved by the company are observed. So far as is practicable only uniform fruit, meeting company standards, is packed. Insect and fungus control is obtained by spraying with liquid or dry mixtures of sulphur and lime. Oil-lime sulphur emulsions may be used also. On rare occasions with bad infestations of lemon scab, copper sulphate lime spray is used in the spring but no traces

remain at the time of harvesting. No arsenate of lead or other arsenic sprays are used nor any treatments affecting maturity of the fruit.

Ripe fruit is picked by hand, conveyed to the packing house and inspected on belts by graders, who take out rots and misshapen fruit. The good fruit is immersed in warm soap water to loosen any dirt, sprayed with water while passing over rotating brushes, and dried in racks with warm air. Oranges and grapefruit are polished with dry brushes. The fruit is graded on the basis of appearance into bright, russet and golden grades, stamped with the name of Dr P Phillips, wrapped in paper, packed in boxes by hand, cooled to 2-3 C and shipped to the market.

The Dr Phillips brand fruit must pass maturity and taste tests. Color of the fruit is not a dependable indication of maturity. Picked fruit which does not meet the taste test or which must be artificially colored is packed under other brand names. The Dr Phillips brand is intended to be a tree ripened mature fruit.

*Analysis (submitted by manufacturer) —*

Oranges	per cent
Moisture	83.2
Ash	0.5
Fat (ether extract)	0.1
Protein (N $\times$ 6.25)	0.9
Reducing sugars as invert sugar	9.4
Sucrose	4.0
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	14.2
Acidity as citric acid	0.9
Ratio of sugars and acids	12.7 1
Tangerines	
Moisture	83.4
Ash	0.5
Fat (ether extract)	0.02
Protein (N $\times$ 6.25)	0.7
Reducing sugars as invert sugar	9.6
Sucrose	5.1
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	14.7
Acidity as citric acid	0.5
Ratio of sugars and acids	21.7 1

Grapefruit	
Moisture	88.7
Ash	0.6
Fat (ether extract)	0.1
Protein (N $\times$ 6.25)	0.8
Reducing sugars as invert sugar	5.8
Sucrose	2.5
Crude fiber	0.1
Carbohydrates other than crude fiber (by difference)	8.4
Acidity as citric acid	1.3
Ratio of sugars and acids	7.4 1

Calories—Oranges and tangerines 0.6 per gram, 17 per ounce. Grapefruit 0.4 per gram, 11 per ounce.

*Claims of Distributor*—Only selected properly handled ripe fruit is packed under the trade name "Dr Phillips."

### GOLDEN BEAR CALIFORNIA PURE ORANGE JUICE

*Manufacturer*—Bireley's, Hollywood, Calif

*Description*—Flash pasteurized California Valencia orange juice retaining in large measure the original vitamin content.

*Manufacture*—Select tree-ripened Valencia oranges are scrubbed in running water, automatically cut in halves and reamed. The juice is strained (avoiding beating in of air), chilled, flash pasteurized by special equipment, automatically canned, sealed and cooled. The equipment is designed to avoid as much as possible incorporation of air in the juice. The time of pasteurizing and canning is less than two minutes.

The trees are not sprayed with arsenic sprays.

*Analysis (submitted by manufacturer) —*

	per cent
Moisture	85.3
Ash	0.5
Fat (ether extract)	0.1
Protein (N $\times$ 6.25)	1.4
Reducing sugars as invert sugar	8.1
Sucrose (copper reduction method)	3.0
Crude fiber	0.1
Carbohydrates other than crude fiber (by difference)	11.2
Titratable acidity as citric acid	1.4

Calories—0.6 per gram 17 per ounce

*Vitamins*—Assay shows retention in high degree of vitamin C content.

*Claims of Manufacturer*—Retains practically all the nutritional values of orange juice. For all dietary and table uses.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 15, 1934

## THE GASTRO-INTESTINAL TRACT AND THE AUTONOMIC NERVOUS SYSTEM IN POLIOMYELITIS

One of the curious early manifestations of poliomyelitis is the disturbance of the gastro-intestinal tract. In fact, it was proposed long ago that infantile paralysis is primarily an enteric disease<sup>1</sup> and it was suggested that the infective agent might be carried from the intestinal tract to the central nervous system by way of the sympathetic nerves.<sup>2</sup> These theses were generally held to be untenable because repeated efforts to produce the disease by enteral administration of the virus to monkeys failed,<sup>3</sup> with but few exceptions,<sup>4</sup> which, in view of their rarity, were not given serious consideration. It was assumed therefore that ingestion of the virus probably plays no part in the production of poliomyelitis and that the upper respiratory tract, notably the nasal passages, serves as the chief if not the only portal of entry for the infective agent. When, however, as Clark and his associates<sup>5</sup> have shown, the virus is fed to monkeys or injected directly into a loop of intestine, material recovered later from the feces of these animals, or a dialysate of them, may produce typical poliomyelitis when inoculated into other monkeys. No virus could be recovered from the stools of animals suffering from the active disease produced by intracerebral inoculation.

Recently, Toomey at Western Reserve University has published the results of an extensive series of observations and experiments that indicate the necessity for reconsideration of some of the accepted tenets. He found that definite gastro-intestinal involvement occurs as an early sign in a large majority of patients with poliomyelitis (251 out of 386 cases in his series). In

many of these, actual paralysis of the intestine appears to occur, usual measures fail completely to stimulate the bowel.<sup>6</sup> Similarly, disturbances of urinary excretion noted in many patients appear to be referable to transient paralysis of the bladder. Subcutaneous injection into guinea-pigs of fecal emulsions or urine from patients suffering from poliomyelitis caused death in a considerably greater number of animals than did the injection of similar material from normal patients.<sup>6</sup> Lesions observed in the spinal cords of the animals injected with the fecal emulsions from patients with poliomyelitis were strikingly similar to those seen in clinical cases.<sup>7</sup> The previous injection of convalescent serum, but not of normal serum nor of serum obtained during the first few days of the disease, prevented entirely or reduced the severity of the symptoms in the animals.<sup>8</sup> The toxic factor in the stools was readily destroyed by heat and could be removed by filtration. Toomey and von Oettingen<sup>9</sup> have demonstrated that perfusion of the rabbit's intestine in vivo with emulsions of stools from monkeys infected by intracerebral inoculation of poliomyelitis virus, or with the virus itself, produced profound depression of the intestinal musculature so that the latter would not respond even to barium chloride in high concentration, indicating a direct effect on the smooth muscle itself. Incubation of virus with convalescent serum prevented the effect of the enterodepressant factor, but human serum obtained during the acute stages of poliomyelitis or normal monkey serum did not. Whether or not the convalescent serum can neutralize the effect of the enterodepressant fecal factor apparently has not yet been determined. Stools from normal human beings, from the monkeys before they were infected with the virus and from patients with tuberculosis, meningitis, varicella, diphtheria or scarlet fever did not depress the intestine but on the contrary usually stimulated it. Stools from patients with influenza, however, caused definite depression.

Other observations appear further to implicate the intestinal tract in poliomyelitis. The agglutinin titers of the blood serum for organisms of the colon-typhoid group, in patients with the acute disease, were often markedly lower than during convalescence.<sup>10</sup> This was found not to occur in a number of patients suffering from several other acute infectious diseases. As the change in agglutinin titers may have been due either to a diminution from the normal agglutinin level with recovery later or to the development of antibodies to

5 Toomey J A. The Intestine and Urinary Bladder in Poliomyelitis. *Am J Dis Child* 45: 1211 (June) 1933.

6 Toomey J A. Presence of a Specific Toxic Factor in the Stools and Urines of Poliomyelitis Patients. *J Prev Med* 6: 379 (Sept) 1932.

7 Toomey J A. Pathological Reactions in Guinea Pigs Injected with Standardized Stool Emulsions from Poliomyelitis Patients. *J Prev Med* 6: 387 (Sept) 1932.

8 Toomey J A. Neutralization Experiments in Poliomyelitis. *J Prev Med* 6: 397 (Sept) 1932.

9 Toomey J A and von Oettingen W F. An Enterodepressant Factor in the Stools and Spinal Cords of Monkeys Infected with Poliomyelitis. *Am J Dis Child* 48: 30 (July) 1934.

10 Toomey J A. Changes in Titers of Agglutinins for Enteric Organisms in the Blood Serum in Poliomyelitis. *J Infect Dis* 54: 74 (Jan Feb) 1934.

1 Wickman Ivar. Acute Poliomyelitis (Heine-Medin's Disease). Washington D C. Nervous and Mental Disease Publishing Company, Monograph 16. 1913.

2 Sicard Presse med 2 19 (Jan 11) 1905 cited by Rolleston J D. *Brain* 29: 99 1906.

3 Flexner and Lewis Amoss. Schultz Clark and others cited by Clark P F. Roberts D J and Preston W S Jr. Passage of Poliomyelitis Virus Through the Intestinal Tract. *J Prev Med* 6: 47 (Jan) 1932.

4 Feiner and von Wiesner. Kling Levaditi and Lepine cited by Clark Roberts and Preston.

these organisms *de novo*, studies were made on monkeys before and after intracerebral inoculation with poliomyelitis virus. It was found that the agglutinin titers dropped sharply in the acute stages of the disease from a previous high level, thus indicating that the former hypothesis is the correct one.

When monkeys are inoculated intracerebrally with poliomyelitis virus, a period of a week or more usually supervenes before paralysis develops. However, virus mixed before injection with combined filtrates of ten day old cultures of organisms of the colon-typhoid group was found to produce hemiparesis in twenty-four hours and quadriplegia in from five to seven days.<sup>11</sup> The filtrates alone did not produce paralysis. On injection of the virus into the lumen of a loop of intestine segregated for a time between two clamps or into the subserosa of the intestine, poliomyelitis regularly supervened. The combination of virus and filtrates in these cases also was found to accelerate the production of the disease.

It is known from the work of Ecker<sup>12</sup> that young culture filtrates of members of the colon-typhoid group are highly toxic and that there are essential differences among the toxic factors produced by the several members of this group (some markedly stimulate the intestine while others have little or no apparent effect).<sup>13</sup> Whether one or more of the several genuses, species and strains of organisms employed by Toomey is responsible for enhancing the effect of the virus, whether young rather than old culture filtrates will produce a similar result, whether there is a specific relationship between the virus and the colon-typhoid organisms, whether this is merely a nonspecific effect of a combination of two poisons—all these questions remain for future experimentation to decide.

Thus the gastro-intestinal tract may be a more important factor in poliomyelitis than has been believed heretofore. From Toomey's experiments it appears certain that poliomyelitis may be produced with the intestinal tract as a portal of entry. It remains yet to be proved beyond doubt that in human cases the intestine is actually the portal of entry. It is necessary to remember that the enteric tract of man has special peculiarities not possessed by those of the lower animals, including monkeys. The fact that a few cases of the disease have been produced in monkeys without resort to Toomey's expedient of isolating a loop of intestine between two clamps indicates that special conditions may make this unnecessary. Presumably this might be the case in man also, though whether more or less often than in monkeys it is impossible to say. The fact, however, that involvement of the sympathetic nervous system has been found to occur early in clinical

cases of the disease, often before any involvement of somatic nerves is apparent,<sup>14</sup> adds weight to this argument.

The ingenious and painstaking work of Toomey has revived and to a considerable extent substantiated Sicard's hypothesis that the poison characteristic of poliomyelitis may be absorbed by the gray fibers of the intestine and be carried by way of the sympathetic nerves to the spinal cord, but as with all really productive investigation it has raised many provocative, although as yet unanswerable, questions.

#### CURRENT PRODUCTION AND CONSUMPTION OF MILK

The intimate connection between economic difficulty in one field and the welfare of the individual whose immediate interest is perhaps far removed is illustrated in extreme degree by the dairy farmer on the one hand and the consumer of milk on the other. The importance of devising methods to help the producer is matched by the necessity of keeping available the supply of this indispensable food during these times of stress. Both the layman and the physician are vitally interested in the situation as regards the present supply and the consumption of milk in this country. A recent issue of the *Consumers' Guide*,<sup>1</sup> devoted to a survey of the national milk supply, sets forth certain significant facts.

The number of milk cows in this country has increased every year during the depression and in 1933 reached 26,000,000, the greatest in the history of the country. Two things have occurred which make it appear that there is an oversupply of milk: the price to the producer has dropped and great surpluses of manufactured dairy products have accumulated. Together with an apparent oversupply there is a shrinkage of the market. With the increasing population it is impossible to view this situation with anything but apprehension.

The unique importance of milk in the dietary has been fully established by investigators in nutrition during the past thirty years. Largely through the studies of Sherman and his cogent presentation of the results, there has been given to the human requirement for milk a quantitative expression. A quart of milk per child daily has become a by-word with practical workers in nutrition. How does the current per capita consumption compare with this standard or one based on it? Assuming that adults require less milk than children and that other suitable foods can be substituted in part for milk, the *Consumers' Guide* states that a minimum-cost adequate diet should provide 260 quarts of milk or its equivalent annually. "What we are actually getting is about 191 quarts a person a year—and

<sup>11</sup> Toomey J. A. Accelerated Production of Poliomyelitis. *Proc Soc Exper Biol & Med* 31: 1015 (May) 1934.

<sup>12</sup> Ecker E. E. The Toxin Produced by *B. Paratyphosus* B. *J Infect Dis* 21: 541 (Dec) 1917.

<sup>13</sup> Ecker E. E. and Rademaekers A. J. *Exper Med* 93: 785 (June) 1926. Ecker E. E. and Biskind M. S. The Effect of Certain Toxic Substances in Bacterial Cultures on the Intestinal Movement. *Arch Path* 7: 204 (Feb) 1929.

<sup>14</sup> Toomey J. A. Some Reflex Changes in Poliomyelitis. *Am J Dis Child* 46: 730 (Oct) 1933. Reactions of Patients with Infantile Paralysis to Autonomic Drugs. *ibid* 47: 573 (March) 1934.

<sup>1</sup> *Consumers' Guide* issued by the Consumers' Counsel of the Agricultural Adjustment Administration 1 May 28 1934.



this is an average, which means that lots of people are getting very much less." Similar evidence is provided by statistics issued by the Department of Agriculture,<sup>2</sup> in 1933 the daily per capita consumption of milk and cream in cities and villages was about 154 quarts.

Thus there is considerable discrepancy between the current consumption of milk and what it ought to be according to conservative expert opinion. Furthermore, the *Consumers' Guide* emphasizes the striking fact that, if the estimated liberal or adequate amount of milk were consumed, the present peak number of dairy cows would fall short of the required number by 15,000,000. The economic and, perhaps, political implications of this situation are evident, of fundamental and immediate concern, however, is the public health aspect of the restriction in the consumption of milk.

### THE LANGUAGE OF MEDICINE

The language of medicine is ever changing, thousands of words are added to its vocabulary each year. In a recent essay on "Language, Jargon, and Modern Medicine," Dr. Herbert R. Hurter<sup>1</sup> pointed out that even the English terms for "doctor" are not the best possible words for the purpose. He believes that the French *medecin* and the German *arzt* are better than medical practitioner, physician, doctor of medicine, leech, or such horrible terms as mediciner, medico or medic. The most ancient English term was of course "leech," but it lost its value when it was applied much more frequently to the little blood-sucking animal and began, by slang connotation, to become associated with the money lenders. The word "surgeon" has been with the profession 600 years and has been spelled thirty different ways. Etymologically it means a handy man—a well chosen word. The word "physician," it seems, has been spelled with an "f" and even with a "v" and today still includes those who do surgery as well as medicine. The word practitioner goes back certainly as far as four centuries, but general practitioner was not a well established term even eighty years ago.

Dr. Hurter pays special attention to the jargon of medicine. It must be remembered that the jargon and slang of today represent the established usages of the next generation. Yet for the vast majority of people the language of medicine is a closed book and not likely to be brought into daily conversation. New sciences acquire new words and, if the words seem to fit, they quickly come into the language. Almost every one today uses such words as antibody, acidosis, psychoanalysis, vitamin and endocrine, yet not one of these words is even fifty years old.

The main features of jargon in writing are pompous display, the use of long words when short ones are available, circumlocution and verbosity. Thus Hurter

points out that the sentence "The nurse gave him morphine hypodermically" is good English and can be understood by every one. However, "He was subjected by the nurse to the administration of a hypodermic injection of morphine" is jargon. Uses of the words "case" and "instance" are beautiful examples of overworked medical jargon.

Worse than medical jargon is medical slang. The best type of medical writing is that which appears in the case report. The use of the word "gut" for intestine or the plural of the word for the other contents of the abdominal cavity may be considered a medical affectation quite as bad as "the acute abdomen." When the surgeon says he did a "chronic appendix," when the gynecologist speaks of "an abdominal woman," when the dermatologist "puts the patient on iodides" or when the internist says the patient "runs a swinging temperature," they are speaking medical slang. The gynecologist would hesitate to speak of doing a Caesar when he performs a cesarean operation. These are some of the specific examples cited by Hurter, and there are many more in "The Art and Practice of Medical Writing."

In the field of medical science, many men have gained note by their ability to express themselves in good English succinctly, rhythmically and accurately. The opportunity is available, for every one who cares to take the trouble and the time, to perform competently in the field of medical letters. Experts assert that there are hardly a hundred competent medical writers in our country today, some authorities insist that there are hardly more than ten or twelve. In the field of preparation for sound literary expression, particularly, preliminary education to medical training seems to be failing miserably.

### Current Comment

#### THE INCIDENCE OF POLIOMYELITIS

Poliomyelitis in California seems to be dwindling definitely, according to the most recent statement from the United States Public Health Service. The number of cases in Los Angeles declined from a maximum of 156 for the week ended June 9 to 28 cases for the week ended August 18. In Los Angeles County the number of cases declined from 100 for the week ended June 16 to 31 for the week ended August 11. In San Francisco the maximum was 27 cases for the week ended June 23, with 7 for the week ended August 11. For the whole state of California, 466 cases were reported for the four weeks period ended August 11 and the total was 2,446 cases for the fifteen weeks from the beginning of the epidemic during the last of April to August 11. Of the total cases, 1,752 (or 70 per cent) occurred in the city and county of Los Angeles. In the meantime the incidence of poliomyelitis has increased in other states. During the thirteen weeks ended August 18 there were 218 cases in Washington, 73 in Montana, 61 in Idaho, 20 in Arizona and 23 in Oregon, as compared to from

<sup>2</sup> Bureau of Agricultural Economics U. S. Dept. of Agriculture Release of May 24, 1934.

<sup>1</sup> Hurter, H. R. Language, Jargon and Modern Medicine. Liverpool Medico-Chirurgical Journal 42: 1 (part 1) 1934.

1 to 7 cases in the same states over the same period a year ago Research on poliomyelitis continues, with the probability of the development of efficient methods of prevention some time in the near future

## Association News

### ANNUAL CONFERENCE OF STATE SECRETARIES

The Annual Conference of Secretaries of Constituent State Medical Associations will be held at the Palmer House, Chicago, September 21-22

The program will be as follows

FRIDAY SEPTEMBER 21 10 A M

Call to Order J H J Upham, chairman of the Board of Trustees of the American Medical Association  
Address Walter L Bierring, President of the American Medical Association

The Medical Society of New Jersey Experiments in Furnishing Medical Services in the Community LeRoy A Wilkes, executive secretary of the Medical Society of New Jersey  
The Centralization and Departmentalization of State Medical Society Activities Oliver J Fay, chairman of the board of trustees of the Iowa State Medical Society

The Work of the Committee on Mental Health H Douglas Singer, chairman of the Committee on Mental Health of the American Medical Association

12 30 p m Recess

12 45 p m Luncheon at Palmer House

FRIDAY SEPTEMBER 21 2 P M

Address James S McLester, President-Elect of the American Medical Association

Medical Emergency Relief Holman Taylor, secretary of the State Medical Association of Texas, William C Woodward, director of the Bureau of Legal Medicine and Legislation of the American Medical Association

Some Problems of a State Medical Editor W Edwin Bird, editor of the *Delaware State Medical Journal*

Address R L Sensenich, member of the Committee on Legislative Activities of the American Medical Association

SATURDAY SEPTEMBER 22 9 30 A M

The Educational Possibilities of Scientific Programs at State and County Meetings Clyde L Cummer, president of the Ohio State Medical Association

Health Insurance in England and Medical Society Plans in the United States R G Leland, director of the Bureau of Medical Economics of the American Medical Association

### MEDICAL BROADCASTS

#### Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4 30 to 4 45, Central daylight saving time The next three broadcasts will be as follows

September 20 Infantile Paralysis W W Bauer M D

September 27 Swimming Pool Sanitation, J F Hammond M D

October 4 Autumn Leaves W W Bauer M D

**The Most Glorious Epoch**—The work of Pasteur a French chemist, Lister, a British surgeon, and Koch, a German district physician, marked for mankind the beginning of the most glorious epoch in the history of the world These convergent discoveries with many subsequent laboratory findings created and developed a scientific understanding of communicable diseases which led to an almost unbelievable evolution in the theory and practice of medicine—McFarlane Andrew *The Family Physician*—Past Present, Future, *New York State J Med* 34 579 (July 1) 1934

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC)

### ALABAMA

**Health Unit Resumes Operation**—Activities in the Coffee County health unit have been resumed, with the appointment of Dr William A Stanley, Union Springs, as health officer The unit was discontinued, Jan 1, 1933, on account of the lack of county funds

### CALIFORNIA

**Dinner to Dr Bierring**—Dr Walter L Bierring, Des Moines, Iowa, President, American Medical Association, was the guest of honor at a dinner at the Biltmore Hotel, September 4 sponsored by the Los Angeles County Medical Association The woman's auxiliary to the society was also present

**Special Society Meeting**—Three visiting speakers presented the program before the San Francisco County Medical Society at a special meeting, August 30 Henry F Vaughan, Dr P H, health commissioner of Detroit, on "The Family Physician and Preventive Medicine" Dr William W Bauer, Chicago, director, Bureau of Health and Public Instruction, American Medical Association, "Health Education by County Medical Societies," and Dr John E Gordon, epidemiologist of the Detroit Department of Health, "Trends in the Control of Communicable Diseases"

**Society News**—Members of the staff of Mount Zion Hospital presented the program before the San Francisco County Medical Society, August 14, speakers included Drs Harold H Rosenblum on "Rate of Blood Flow in Patients Receiving Diminophenol" and Felix L Pearl, "Angiospastic Claudication"—Dr James P Leake, surgeon, U S Public Health Service, Washington, D C, who is in California in connection with the epidemic of poliomyelitis, addressed the Hollywood Academy of Medicine, August 16—The Alameda County Medical Association was addressed, August 20, by Drs Mark L Emerson, Frank H Bowles and Archibald A Alexander on "Use of Histamine as an Indicator of Cutaneous Circulation in Leg Amputations," and by Drs Paul P E Michael and Vernon G Alderson, who discussed amebiasis

### COLORADO

**Cancer Meeting**—A special meeting of the Delta, Mesa and Montrose county medical societies in Delta, recently, was devoted to a symposium on cancer of the breast Drs John B Hartwell Colorado Springs, Carl W Maynard, Pueblo, and George A Unfug, Pueblo, represented the committee on cancer education of the Colorado State Medical Society A banquet preceded the session

**Psychiatric Studies Expanded at University**—Under a grant of the Rockefeller Foundation to the Colorado Psychopathic Hospital, Dr Edward G Billings has been appointed director of the liaison work between the departments of medicine and psychiatry in the Colorado General Hospital and assistant professor of psychiatry at the University of Colorado School of Medicine The grant was made to further educational and clinical activities and to effect a closer relationship between psychiatry and general medicine A five year demonstration period is anticipated Other new psychiatric appointments include Dr Clarke H Barnacle as resident psychiatrist at the psychopathic hospital, to succeed Dr William M Peake, who resigned to become assistant professor of psychiatry at the University of Cincinnati Medical School, effective September 1 Drs Jack R Ewalt, Henry W Brosn and Philip R Hearsema have been awarded fellowships in psychiatry at the hospital by the Commonwealth Fund, effective September 1

### GEORGIA

**Personal**—Dr Gabe W Willis, Ocilla, was recently honored when several friends gathered on the courthouse lawn to present him with gifts for his new hospital, which is nearing completion A musical program was a feature of the occasion—Dr Theodore Toepel Atlanta, has been awarded an honorary membership in the Fulton County Medical Society, members of the society who have reached the age of 65 and have had twenty-five years of consecutive membership are eligible for honorary memberships—A surprise birthday party was

given in honor of Dr Lewis Sage Hardin, Atlanta, August 1, at the Georgia Baptist Hospital

**Society News**—At a meeting of the Fourth District Medical Society at Warm Springs, August 1, speakers included Drs W Wilbur Blackman, Atlanta on acute gout, Ellis G Kirby, Bowdon, rabies, Thomas Neal Kitchens, Warm Springs, morphine poisoning, and Jefferson G Smith, McDonough zinc oxide cast for second and third degree burns—The Tenth District Medical Society was addressed at Washington, August 8 among others, by Drs John W Brittingham, Augusta, cardiovascular syphilis Robert C McGahee, Augusta, congenital syphilis, William Perrin Nicolson Jr, Atlanta, breast lesions James M Hull, Augusta, medical care of cataracts and William J Cranston, Augusta, gastric neuroses—Speakers before the Burke-Jenkins-Screven Counties Medical Society at Millen August 2, were Drs Henry G Lee, Millen on diseases of the endocardium, and Cleveland Thompson, Millen, arachnoidism

### ILLINOIS

**Campaign Against Impure Milk**—State officials have launched a campaign against the sale of impure raw milk which is now being dispensed at roadside stands and milk depots in Illinois, according to the *Chicago Tribune*. Efforts have been concentrated in suburbs outside of Chicago, it was stated, where, in many cases the milk depots do not come under the jurisdiction of municipal health authorities. It was pointed out that about 80 per cent of the depots investigated do not measure up to the sanitation standards of the state dairy and food division

#### Chicago

**Personal**—Dr Leo K Campbell has been appointed assistant clinical professor of medicine at Rush Medical College—A stag party was held at the Army and Navy Club, September 5, in honor of Major Lorin A Greene medical officer sixth corps area, who is being transferred to foreign service in the Philippines. A dinner was also given in his honor recently at the Glenview Country Club. At this occasion Dr Cleveland C MacLane was notified of his promotion to colonel in the medical reserve

### INDIANA

**Exhibits at State Fair**—Exhibits and demonstrations in the Good Health Building at the State Fair September 1-7 were sponsored by the Indiana State Medical Association. The Indiana State Dental Association the state hospital and tuberculosis associations and the Indianapolis College of Pharmacy

**Courses in Tuberculosis**—August 30 marked the opening of a series of short courses in tuberculosis for physicians by the Indiana Tuberculosis Association. The first was held at the Boehne Tuberculosis Hospital, Evansville, for two days. Others in the series comprise the following

Indiana State Sanatorium Rockville October 2-3  
Irene Byron Sanatorium Fort Wayne October 17-18  
Lake County Tuberculosis Sanatorium Crown Point October 18-19  
Sunnyside Sanatorium Oaklandon October 22-23  
William Ross Sanatorium Lafayette dates to be announced later

There is no fee for these courses. Further information may be had from the Indiana Tuberculosis Association, Room 1219 130 East Washington Street, Indianapolis

**Outbreak of Encephalitis in Evansville**—At least seven deaths are known to have occurred from encephalitis in Evansville during the past week, according to the *Chicago Tribune*. Cases of encephalitis have been reported in Hartford City, Shelbyville, Petersburg and Muncie. Steps have been taken to prevent the further spread of the disease. An investigation is being made to determine whether the type of disease in the Indiana outbreak is the same as that of the St. Louis epidemic which occurred last year and which is fully discussed in the present and the preceding issues of THE JOURNAL. The state health department and the U S Public Health Service are cooperating in controlling the outbreak. Four fatalities were reported for Providence, Ky, and nine persons were said to be ill

### IOWA

**Dr Leech Honored**—Dr Louis J Leech, West Branch, was honored, August 3, when hundreds of friends assembled to observe his eighty-eighth birthday and his recent election to commander of the Iowa department of the Grand Army of the Republic. A musical program featured the occasion. Dr Leech was presented with an initialed traveling bag. He graduated from the State University of Iowa College of Medicine in 1881 and has been practicing in and about West Branch since that time

### KANSAS

**Play Day**—September 21 will be observed in Wichita as "Doctors' Play Day" in accordance with a proclamation issued by the mayor, Schuyler Crawford

**Annual Registration Due October 1**—All physicians and surgeons holding licenses to practice in Kansas are required to renew their licenses annually and to pay an annual fee of \$1, between July 1 and October 1, to the secretary of the board of medical registration and examination. The secretary must strike from the register of licensed physicians the names of all physicians who fail to pay their annual registration fees as required by law. Physicians whose names are so removed may be reinstated by paying the secretary \$5 and submitting to him satisfactory proof of moral fitness

### KENTUCKY

**State Medical Meeting at Harlan, October 1-4**—The Kentucky State Medical Association will hold its annual meeting in Harlan October 1-4, with sessions in the Methodist Episcopal Church. The annual oration in medicine will be delivered by Dr William J Shelton, Mayfield, on "The Mutual Interest of Physicians and Patients." Dr Kennon Dunham Cincinnati will address a public meeting on "Pulmonary Emphysema A Sequela of Pulmonary Tuberculosis," and Dr William D Haggard, Nashville, the same session, on "The Management of Goiter and Results in One Thousand Operative Cases." Dr Isaac A Arnold, Louisville, will deliver the oration in surgery on "The Fracture Problem—Present and Future Status." Other physicians on the program include the following

William Woodward Nicholson Louisville Lead Poisoning in Children  
William Edgar Fallis Louisville Appendicitis in Children  
James W Bruce Louisville Treatment of Diarrhea in Infancy  
Eli S Allen Louisville Diagnosis and Treatment of Congenital Pyloric Stenosis  
Lucien Lyne Smith Louisville Feeding the Diabetic  
Frank M Stutes Jr Louisville Amebiasis  
John L Edwards Lancaster Treatment of the Tuberculous in the Home  
Arthur Clayton McCarty Louisville Newer Aspects of Arthritis  
R Alexander Bate Louisville Endocrine Vitamin and Allergen Relativity  
Adolph O Pfingst Louisville The Wearing of Glasses—As It Relates to Medicine  
Ernest B Bradley Lexington Treatment of Tetanus  
Thomas J Crice Louisville Drug Addicts  
Curran Pope Louisville Further Studies and Observations of Hyperthermia (Fever Treatment)  
Charles G McLean Lexington Trend of Modern Medicine  
William B Atkinson Campbellsville The Business Side of Medicine  
Franklin Jelsma Louisville Spinal Cord Tumors Symptomatology and Differential Diagnosis  
Louis Frank Louisville Cancer of the Uterus  
Francis M Massie Lexington End Results of Plastic Surgery  
William O Johnson Louisville Study of 100 Cases of Ectopic Pregnancy  
Rufus C Alley Lexington Internal Hemorrhoids Treatment by Nonsurgical Methods  
William J Martin Jr Louisville Etiology and Surgical Treatment of Anal Fistula  
John M English Elizabethtown A Plea for Better Obstetrics  
Charles G Daugherty Paris Chorea in Pregnancy  
Harry M Weeter Louisville Laboratory Tests for Pregnancy  
David Y Keith Louisville Malignant Tumor of the Thorax and Upper Abdomen

Sessions on Tuesday and Wednesday will be devoted to round tables by the following physicians: Philip F Barbour, Louisville, Henry G Reynolds, Paducah, Virgil E Simpson, Louisville, John H Blackburn Bowling Green, Morris Flexner, Louisville, Edward Sperdel, Louisville, William Barnett Owen Louisville, and Lillian H South, Louisville

### MICHIGAN

**Dr Warnshuis Honored**—The Ingham County Medical Society gave a farewell dinner in honor of Dr Frederick C Warnshuis in Lansing, August 14, following his resignation as secretary of the Michigan State Medical Society to become secretary and director of public relations of the California Medical Association. Speakers included Drs Leo G Christian, Russell L Finch, J Earl McIntyre all of Lansing, James O Meara Jackson, and James B Bradley, Eaton Rapids. Dr Warnshuis was made an honorary member of the society and presented with a leather traveling bag

### MISSOURI

**Health and Tuberculosis Meeting**—The Missouri Public Health Association and the Missouri Tuberculosis Association will hold their annual sessions jointly at the Jefferson Hotel, St. Louis September 19-21. Speakers to be heard at the various sessions include Drs Thurman B Rice Indianapolis and Kendall Emerson New York

**Kansas City Clinical Conference**—The twelfth annual fall clinical conference of the Kansas City Southwest Clinical Society will be held at the President Hotel, Kansas City, October 14. Guest speakers include the following:

- Dr. Walter L. Biering, Des Moines, Iowa, President American Medical Association, Acute Diseases of the Blood Forming Organs
- Medical Societies of the Future, Heart Disease in General Practice
- Dr. Hugh Cabot, Rochester, Minn., Newer Conceptions of Diagnosis and Treatment of Infections of the Urinary Tract
- Standards of Modern Medicine, Management of the More Difficult Cases of Renal Calculus
- Dr. Joseph B. De Lee, Chicago, sound motion picture on Forceps Operation
- Dr. Morris Fishbein, Chicago, Organization of American Medicine
- The Doctor's Hobby, Trend of Medical Practice
- Dr. Lee F. Hill, Des Moines, Certain Phases in the Management of Infectious Diseases, Rums and Babies
- Dr. Samuel Glauber, Cincinnati, Deep Infections in the Neck and Mediastinum, Has Organized Medicine Taken a Proper Attitude Toward the Social Aspects of Medicine?
- Dr. Samuel A. Levine, Boston, Clinical Significance of a Systolic Murmur, Factors in Prognosis in Heart Disease, Thyroidectomy in the Treatment of Intractable Heart Disease, The Doctor's Heart
- Dr. Henry O. Mertz, Indianapolis, The Urologists' Contribution to the Differential Diagnosis of Abdominal Conditions, Urology in Children
- Dr. Philip Lewin, Chicago, Classification, Etiological Factors and Treatment of Arthritis
- Dr. George E. Pfahler, Philadelphia, Diagnosis and Treatment of Cancer of the Breast, Oral Cancer, Its Diagnosis and Treatment, Cancer—What Is It?—How Can We Prevent It?—What Shall We Do for It?
- Dr. Fred W. Rankin, Lexington, Ky., Hyperparathyroidism, Modern Management of Cancer of the Large Bowel and Rectum, Selection of Peptic Ulcers for Surgical Treatment, The Surgeon of the Future
- Alphonse M. Schwitalla, S.J., Ph.D., St. Louis, How a Man Becomes a Physician, Controlling the Output of the Embryo Physician
- Dr. Harry W. Woodruff, Joliet, Ill., Eye Injuries and the General Practitioner

In addition to these speakers, addresses will be given by twenty-three members at the general assembly and sectional meetings.

## NEBRASKA

**Annual Registration Due October 1**—All practitioners of medicine and surgery holding licenses to practice in Nebraska are required by law to register annually, on or before October 1, with the department of public welfare and to pay a fee of \$1. A license expires if the licensee fails to register. Within the thirty days next following its expiration, however, it may be revived and kept in force by the payment of the registration fee and a penalty of \$1. If that is not done an order of revocation is issued.

**Society News**—Dr. David M. Berkman, Rochester, Minn., addressed the Madison-Six Counties Medical Society, Norfolk, July 17, on "Classification of Albuminurias for Clinical Use." A joint meeting of the Brown County (Kansas) and Richardson County medical societies in Falls City, recently was addressed by Drs. William G. Emery, Hiawatha, Kan., on county health work, and Henry J. Deaver, Sabetha, Kan., complications of pneumonia. Speakers before the Five County Medical Association in Homer, July 2, included Drs. Arthur E. Cook, Randolph, on influenza and Walter Benthack Wayne on abdominal diagnosis. The Madison County Medical Society was addressed at Norfolk, July 17, by Drs. David M. Berkman, Rochester, on medical economics, and Lucien Stark, Norfolk, on diagnosis and classification of kidney disease.

## NEW JERSEY

**Child Health Survey**—The results of a five month survey of child health in New Jersey have been made available. Carried on as a CWA project by the state department of health under the direction of the child hygiene bureau, its purpose was to determine to what extent certain health protective measures had been employed in various parts of the state, such as medical health examinations, dental health examinations, immunization against diphtheria and vaccination against smallpox. In addition, data were obtained in regard to the incidence of certain contagious diseases among children of preschool age. A total of 273,546 families were visited, from whom 59,311 completed questionnaires were obtained. It was found that 163,678 or 73 per cent of the total number of families visited had no children under six years of age, to whom the survey was confined. The report shows 354 communities in twenty one counties were surveyed and that 24.6 per cent of these communities had 30 per cent of their children immunized against diphtheria, 18 per cent had 20 to 30 per cent, 31.4 had 10 to 20 per cent and 26 per cent had less than 10 per cent of their children immunized. Two counties, Essex and Union, had, respectively, 75 and 65 per cent of their communities with more than 30 per cent of their children immunized against diphtheria. Essex County, the largest urban county, stands first in all three child health protective mea-

sures presenting 46.1 per cent immunized against diphtheria, 36.9 vaccinated against smallpox, and 82.2 who have had a physical examination. Warren County, rural, presents the poorest record in regard to diphtheria immunization, appearing twenty-first with but 6.5 per cent immunized. Hunterdon County, rural, presents the poorest record in smallpox vaccinations, showing 4.5, while Cumberland County was poorest in child health examinations, presenting but 20 per cent. Of 205,473 children under 6 years of age, records show that 27.4 per cent have been immunized against diphtheria, and 23 per cent vaccinated against smallpox.

## NEW YORK

**Personal**—Dr. James L. McCartney, director of the Classification Clinic at Elmira Reformatory since 1931, has resigned to enter private practice in Portland, Ore. Dr. McCartney organized the clinic at Elmira.

**Cancer Exhibit at State Fair**—The prevention and treatment of cancer was the theme of the health exhibit at the state fair at Syracuse, recently. One feature of the exhibit portrayed the cases successfully treated at the State Institute for the Study of Malignant Diseases at Buffalo. Cooperating in the exhibit were the division of public health education of the state department of health, the institute and the American Society for the Control of Cancer.

**Septic Sore Throat from Contaminated Milk**—An outbreak of twenty or more cases of septic sore throat occurred between July 22 and August 13, *Health News* reports. All persons known to have been ill had used raw milk from a supply furnished by one dealer. Investigation revealed that a milker of the dealer's farm had had an infected finger and had milked six cows each night and morning until August 5, when he was obliged to stop working because of pain and swelling in his hand.

## New York City

**Annual Etching Exhibit**—The Haden Etching Club will hold its third annual exhibition at the Leonard Clayton Galleries, October 1-13. The closing date for entering prints is September 20. Only members are entitled to exhibit. Information may be had from Dr. Benjamin F. Morrow, 162 West Fifty-Sixth Street. The Haden Etching Club is an organization of dentists and physicians.

**Course in Psychoanalysis**—The New York Psychoanalytic Institute announces an introductory course in psychoanalysis for physicians, consisting of fourteen lectures on "Psychoanalysis in Medicine." Lecturers will be Drs. Clarence P. Oberndorf, George E. Daniels, Sydney N. Lorand and Philip R. Lehman. The lectures will begin October 4 and continue on successive Thursdays, omitting November 29. Registration may be made with Dr. Monroe A. Meyer at the institute, 324 West Eighty-Sixth Street.

**New York Graduate and Stuyvesant Hospitals Join Forces**—An affiliation between the New York Post-Graduate Medical School and Hospital of Columbia University and the Stuyvesant Square Hospital was made effective September 1. Under the agreement, the Stuyvesant Square Hospital will maintain its identity. Membership of the board of directors of the graduate hospital will be extended to include members of the present directorate of the Stuyvesant institution. The latter will retain the control of its capital funds, including any funds subsequently received by gift or bequest for maintenance or endowment of beds, while the graduate hospital will take over the management and maintenance of buildings and equipment and the general administration of the hospital, funds for which are provided from the income of the Stuyvesant Square Hospital. The properties of the two affiliated institutions are contiguous. Stuyvesant Hospital is said to be the oldest cancer hospital in America, while New York Post-Graduate is described as the first exclusively graduate school of medicine in the world, and the teaching facilities of its general hospital are available only for the graduate physician. Both institutions were founded in 1882.

## OHIO

**State Medical Meeting at Columbus, October 4-6**—The eighty-eighth annual meeting of the Ohio State Medical Association will be held at Neil House, Columbus, October 4-6. Out of town speakers will include Drs. Rollin T. Woodyatt, Chicago, on "Diabetes Mellitus"; Charles P. Emerson, Indianapolis, "Psychoneurotic Reactions"; Albert C. Furstenberg, Ann Arbor, "Meniere's Symptom Complex, Medical Treatment"; and Mark J. Schoenberg, New York, "Recent Additions to the Clinical Study of Intra-Ocular Pres-

sure and Glaucoma" Dr Russell L Cecil, New York, will conduct a clinic on chronic arthritis Ohio physicians participating in the program will include

Mont R Reid Cincinnati Recent Advances in the Treatment of Peripheral Vascular Diseases  
Albert F Kuhl Dayton Ambulatory Treatment of Rheumatic Heart Disease  
Russell L Haden Cleveland Hypochromic Anemia  
Louis Feid Jr Cincinnati Treatment of Benign Uterine Bleeding  
Frederick M Douglass Toledo Management of Common Duct Stone and Obstruction  
William Kelley Hale Wilmington General Treatment of the Cancer Patient with Special Emphasis on Maintaining the Normal Blood Picture  
Charles T Souther Cincinnati Technic for Intestinal Anastomosis  
John Hart Davis Cleveland Clinical Aspects of Alkalosis  
Stanley D Giffen Toledo Clinical Relationship Between Color of Nasal Septum and Various Biochemical and Endocrine States in Children  
Andrews Rogers Columbus Influence of the Upright Position on Pregnancy and Parturition  
Alphonse R Vonderahe Cincinnati, Representation of Visceral Function in the Brain  
Louis A Lurie Cincinnati Role of Glandular Therapy in the Treatment of Behavior Disorders of Children  
Paul M Holmes Toledo Medicolegal Aspects of Silicosis  
Arthur G Cranch Cleveland Hypertension with Relation to Capacity for Work  
Finley Van Orsdall Columbus Development of Preventive Medicine

The annual dinner will be held Friday evening at the Neil House, with Gustavus W Dyer, Ph D, professor of economics, Vanderbilt University, Nashville, Tenn, as the principal speaker. The annual golf tournament will be held, October 3, at the Columbus Country Club, while the Ohio State-Indiana football game is scheduled for Saturday afternoon, October 6

## PENNSYLVANIA

**Campaign Against Appendicitis**—The Chester County medical and tuberculosis societies are cooperating in a campaign to reduce appendicitis mortality and maternal morbidity. Seventeen meetings are planned for October and November

### Philadelphia

**Personal**—Dr Martha Tracy, dean, Woman's Medical College of Pennsylvania, was recently elected a fellow of the College of Physicians of Philadelphia the second woman to be so honored. The first was Dr Catharine MacFarlane, professor of gynecology at the college—Dr James M Anders celebrated his eightieth birthday, July 22

**Tuberculosis Conference**—The development and progress of the tuberculosis movement in recent years and present-day activities to control the disease will be considered in a conference to be held at the Bellevue Stratford Hotel, Philadelphia, October 18, under the auspices of the Pennsylvania Tuberculosis Society and the Philadelphia Health Council and Tuberculosis Committee, in cooperation with nearby county tuberculosis organizations. Speakers at the conference will include Drs Charles J Hatfield, executive director of the Henry Phipps Institute and president of the Philadelphia Health Council, and Dr Kendall Emerson, New York, managing director of the National Tuberculosis Association. One session especially for physicians will consider "The Child." Speakers will be Drs William Charles White Washington, D C, Paul B Kreitz, Bethlehem, and Esmond R Long

## VIRGINIA

**State Medical Meeting at Alexandria**—For the first time in more than fifty years the Medical Society of Virginia will meet in Alexandria, October 9-11. This will be the sixty-fifth annual session, headquarters will be at the George Mason Hotel. Included on the scientific program will be the following physicians

Harry Walker Richmond Treatment of Obesity  
James Morrison Hutcheson Richmond Medicolegal Aspects of Apoplexy  
Frank A Strickler University A Study of Convulsive Disorders at the University of Virginia Hospital since 1920  
Thomas Dewey Davis Richmond The Irritable Colon  
Regena C Beck Richmond Drug Idiosyncrasy and Neutropenia  
Douglas G Chapman Richmond Total Thyroidectomy for Chronic Heart Failure  
Henry B Mulholland University Diagnosis of Rocky Mountain Spotted Fever of the Eastern Type  
James Coleman Motley Abingdon Wandering Spleen with Erosion of Its Pedicle  
Robert DuVal Jones Jr Norfolk Leiomyoma of the Gastro Intestinal Tract  
Charles R Robins Richmond Cure of Direct Inguinal Hernia  
Claude C Coleman and William G Crutchfield Richmond Observations in the Treatment of Acute Head Injuries  
John M Emmett Clifton Forge Fifteen Hundred Spinal Anesthetics with Special Reference to Indications Complications and Mortality  
Guy W Horsley Richmond Surgical Treatment of 183 Consecutive Thyroid Cases with No Mortality  
Charles S White and James Lloyd Collins Washington D C Evipan Anesthesia  
John S Weitzel Richmond Problems in Breast Feeding

Harry J Warthen Richmond Gas Bacillus Infections Study of the Incidence Treatment and Mortality  
Martullus H Todd Norfolk Colles Fracture  
Joseph H Hiden Pungoteague Experience with an Efficient Method of Operation for Hemorrhoids Adapted to General Practice in Rural Districts  
Beverley R Tucker Richmond Neuropathology of Pellagra in Its Relation to the Cutaneous and Other Manifestations  
Joseph F Geisinger Richmond The Cystic Kidney  
James G Iyerly Richmond Brain Tumors in Children  
James P Baker Anemias Dependent upon Food Deficiencies  
Harry Hudnall Ware Jr Richmond, Extra Uterine Complications of Pregnancy  
James Edwin Wood Jr George D Capaccio and William N Weaver University Venous Pressure and Body Weight Determinations in Congestive Heart Failure  
Claude Moore Washington D C Pathologic Lesions Correctly Diagnosed by Roentgenologic Methods and Later Missed at Surgical Exploration  
William W Falkener Newport News J Shelton Horsley Richmond and Thomas D Walker Jr Newport News Vomiting in the New Born with Special Reference to Congenital Occlusion of the Duodenum  
James B Nicholls and Lemuel R Broome Catawba Sanatorium Collapse Therapy in Pulmonary Tuberculosis

There will be a symposium on medical economics with the following speakers: Dr James C Flippin, University, Dr Walter B Martin, Norfolk, Dr Irl C Riggan, Richmond, and Edgar Sydenstricker of the Milbank Memorial Fund, New York

## WASHINGTON

**Society News**—The Pierce County Medical Society was addressed in Tacoma, August 28, by Henry F Vaughan, Dr PH and Dr John E Gordon, health commissioner and epidemiologist, respectively, of the Detroit Department of Health, their subjects were "The Family Physician and Preventive Medicine" and "Trends in Control of Communicable Diseases"

## GENERAL

**Roentgenologists' Meeting**—The American Roentgen Ray Society will hold its annual meeting at the William Penn Hotel Pittsburgh, September 25-28, under the presidency of Dr George W Grier, Pittsburgh. Dr Walter B Cannon, Boston, will deliver the Caldwell Lecture, Tuesday evening, September 25. Symposiums will be presented on high voltage roentgen therapy and on encephalography. Among others on the program will be

Dr Albert E Bothe Philadelphia Effect of X-Ray Therapy upon Mixed Tumors of the Kidney in Children  
Dr Walter L Mattick Buffalo Our Changing Conceptions Regarding the Skin Dose  
Dr Stuart W Harrington, Rochester Minn Diagnosis and Surgical Treatment of Intrathoracic Tumors  
Dr Pedro Fariñas Havana Cuba Serial Bronchography in the Diagnosis of Pulmonary Suppurative Processes  
Drs George W Holmes and Richard Schatzki Boston Demonstration of the Mucosa of the Gastro Intestinal Tract  
Drs Willis F Manges and Louis H Cleft Philadelphia Congenital Anomalies of the Alimentary Tract  
Dr Chester H Warfield Chicago Roentgen Diagnosis of Aneurysms of the Innominate Artery  
Drs Edward C Vogt and James M Baty Boston Leukemic Bone Changes with Differential Diagnosis

**Occupational Death Rates**—In a study made by the National Tuberculosis Association based on data furnished by the U S Bureau of the Census the highest death rate among working men 15 to 64 years of age was found among hostlers and stable hands, 36.22 deaths per thousand employed. Other high rates were operatives in harness and saddle factories, 30.55, aviators, 28.73, sailors and deck hands 17.28. Low rates were found for teachers, 4.42, and social and welfare workers, 2.75. The general rate for all "gainfully employed males" was 8.7 per thousand. Among professional men, physicians and surgeons showed a rate of 10.69, clergymen, 10.33, lawyers, judges and justices, 7.89, college presidents and professors, 2.69. Unskilled workers commit suicide in greater proportion to their numbers than professional men, and agricultural workers less than semi-skilled workers in other pursuits. Tuberculosis takes the greatest toll among the unskilled. Heart disease claims more than the average of professional men. Unskilled workers also have a high rate, but the rate for agricultural workers is only half the average. Rates for numerous other occupations and detailed rates for different diseases are given in the final report.

## CORRECTION

**Conservative Treatment of Late Toxemias of Pregnancy**—On page 551 of the article on this subject by Dr L G McNeile (THE JOURNAL, August 25) appears an error in dosage. The article reads "Patients who are very restless should be given chloral hydrate, 20 Gm, and sodium bromide 60 Gm, by rectum." This should read "20 grains of chloral hydrate and 60 grains of sodium bromide."

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Aug 18, 1934

#### Nonsurgical Drainage of the Biliary Passages

In a lecture at Guy's Hospital, Dr A F Hurst described how in the medical school the method of nonsurgical drainage of the bile passages had been developed from American observations. In 1917 Meltzer found that magnesium sulphate introduced into the duodenum leads to contraction of the gallbladder and biliary ducts with relaxation of the sphincter of the common bile duct (Oddi's sphincter). Two years later this discovery was practically applied by Lyon of Philadelphia, who showed that a specimen of bile could be obtained for diagnostic purposes through a duodenal tube after injection of magnesium sulphate. He subsequently proposed the same method for "nonsurgical drainage" of the gallbladder and bile ducts, but Dr J F Venables of Guy's Hospital found that it was unnecessary to use a duodenal tube as an equally good flow of bile was obtained if the salt was taken in concentrated solution by mouth during fasting. As biliary stasis is one of the chief factors in the pathogenesis of cholecystitis, cholangitis and gallstones, Dr Hurst considers administration of magnesium sulphate every morning a valuable method of treating disorders of the bile passages. The dose should be the largest the patient can take without causing looseness of the bowels. Some patients can take only half a teaspoonful but others as much as a tablespoonful. Incidentally two members of the staff of Guy's Hospital, Mr E G Slesinger and Mr Frank Cook when students in the physiologic department, carried out some observations with Dr Hurst, which showed that the old idea that a saline aperient acts by draining water into the bowel is wrong, as the watery stool passed an hour after taking it contained none of the salt, about half of which was found in the formed stool passed next day. The remainder was excreted in the urine within eight hours of being taken. As the salt had not reached the colon by the time the watery stool was passed the only possible explanation is that saline aperients are absorbed from the small intestine and act from the blood by stimulating the secretory activity of the colon, the distention of which results in evacuation.

Olive oil, according to Dr Hurst, has exactly the same effect on the bile passages as magnesium sulphate when introduced into the duodenum. It has the further effect of reducing the hyperchlorhydria that is present in those cases of cholecystitis which simulate duodenal ulcer. A tablespoonful should be given three times a day before meals. Dr Hurst recommends that magnesium sulphate and olive oil should be taken for several weeks after cholecystectomy as they help the common bile duct and Oddi's sphincter to adapt themselves to the new anatomic conditions and thus prevent the indigestion and occasional attacks of biliary colic that otherwise may occur.

#### The Village Settlement for Tuberculous Patients

The important advance of recent years in the treatment of tuberculosis is the village settlement, where it has been shown that patients in a new and suitable environment can recover health, support themselves and live with their families without danger to the latter. This method was originated by Sir Pendrill Varrier-Jones, who founded the first village settlement at Papworth, near Cambridge. In an article contributed to the *Daily Telegraph* he points out that the sanatorium cannot cure any but early cases of tuberculosis. Yet two thirds of the beds are occupied by middle and advanced cases for whom cure is out of the question. Many of these unfortunates, patched up by a few months of sanatorium treatment, are sent

back to the environments in which they contracted the disease, armed with perfectly sound advice which they cannot possibly follow. Either they find work that overstrains their damaged physique or they do not, in which case they suffer from anxiety and malnutrition. They relapse and die after infecting relatives and friends. The remedy found by Varrier-Jones is obvious. Give them the environment they need. Give them work graduated to their physical capacity, in light, airy workshops equipped with machines to do the heavy work they cannot do. Enable them to live in home conditions approximating as closely as possible those of a sanatorium. This has been done successfully at Papworth, with its hospitals, sanatoriums and village settlement. From small beginnings it has grown until today its medical buildings contain 415 patients, and a village population of some 500 persons is maintained by the work of its tuberculous bread winners, who are earning wages amounting to \$100 000 a year, incurring little or no revenue loss in the process. Children have been born to tuberculous parents and have grown up free from disease. Tuberculous men and women have fashioned for themselves new careers in their new environment with great advantages physical and financial to themselves and the public. Families thus voluntarily and agreeably segregated do not spread infection among the community. The capital cost of the scheme is balanced by its saving. It cuts the vicious circle of infection. It stops the cruelty implicit in tendering impracticable advice. It robs tuberculosis of its worst economic terrors.

#### An International Pharmacopeia

Presiding at the British Pharmaceutical Conference, Dr C H Hampshire emphasized the need for an international pharmacopeia. For the same reasons that led this country to demand a British Pharmacopeia there had arisen from time to time a desire for the unification of the standards for drugs and of the strengths and formulas of preparations through the medium of an international pharmacopeia. The advantages of such uniformity on the continent of Europe were obvious. Differences in national standards for widely used materials were a hindrance to the spread of medical knowledge, an inconvenience to pharmacists in dispensing prescriptions brought from various countries, and a source of trouble and possibly of danger to travelers. The unification of assay methods, of manufacturing standards and of processes was an object worthy of enthusiasm. The formation of a permanent central organization to keep the various national commissions in touch with one another, to arrange for collaborative investigations and to collect and distribute reports on pharmacopeial revision was urgently necessary and would do much to bring about the desired result.

#### Medical Services for South African Natives

The medical needs of four million Bantus living in the native reserves of the South African Union furnish a problem of some urgency. Six years ago a commission was appointed to inquire into the practicability of training Bantus in medicine to serve their own people. It was pointed out that in some areas there was only one physician for 40,000 people and that native herbalists and witch doctors flourished. The committee recommended a full course of medical training for natives at one of the South African universities, but the government considered this impracticable. It is now arranging a special training of suitable natives in a shortened course not leading to medical qualification. Those so trained will be called "native medical aids." The training will differ fundamentally from the medical curriculum in that it will not be concerned with principles. The "medical aid" will be trained to do a limited number of duties well—first aid treatment and the preparation of blood smears for malaria examination, of nasal smears for leprosy examination, and of sputum for tuberculosis examination. He is to be made capable of treating most of the ordinary ailments



and injuries and of knowing when to call in a physician. He will be in full time government employ, and private practice will be precluded. He will be given a house considerably superior to the huts of the kraal where he will be stationed and will have a dispensary and consulting room. It is contemplated that 200 native medical aids will be provided at a cost to the state of \$350,000 per annum.

#### The Education of Partially Sighted Children

The board of education has issued a report on the education of partially sighted children. Schools for them are of much more recent origin than schools for the blind. They began in 1908 with the formation of a 'myope class' in London, and the policy of schools for the partially sighted has since rapidly spread all over the world. Myopia is by far the most important condition for admission to these schools. It is generally held that faulty posture in reading and writing, poor illumination and excessive convergence of the eyes such as may occur in reading small print or doing fine needlework, increase myopia and are only too common in ordinary schools. Evidence was given by ophthalmic surgeons that rapid progress of myopia may be arrested if close work is stopped and attention given to the general health. By reducing the factors causing undue stress on the eyes some decrease or arrest of the progress of the myopia can be produced, but the result is not always permanent. Some evidence was given that the educational restrictions due to attendance at a special school were not always justified by the results. The committee arrived at the following conclusions: 1. If the eyes show fundus changes indicative of serious myopia, the child should always be admitted to a special school. 2. In the absence of such changes the child should usually be admitted if (a) after repeated examinations the myopia is found to be increasing at the rate of more than 1 diopter per annum (b) after a period of slow rate of increase or apparent arrest there is a sudden rise in the rate of progress to more than 2 diopters per annum. 3. The actual amount of myopia should not be the sole factor in determining whether or not a child should be sent to a special school. 4. The age of the child must be taken into account. The younger the more serious are factors such as the degree of myopia and its rate of progress. In doubtful cases the history of myopia in the family may be a deciding factor. 5. Myopic children with a visual acuity after correction of 6/24 or less should be admitted to a special school. Children suffering from damaged eyes due to the disease should not be admitted to these schools so long as there is any inflammation.

#### THE EDUCATIONAL PROGRAM

Great difference of opinion was manifested with regard to this. One view was that the danger to the sight of myopic children from reading was so great that they should be discouraged from it as much as possible. Another school would allow books under carefully guarded conditions, holding that the risk was not so great as to justify the loss of educational advantages. The committee took a middle course. It recommended that under the age of 8 books should be sparingly used and the main work done on blackboards, which should be supplemented with books printed in 24 point type as far as is advisable. For older children 18 point type need not be prohibited entirely.

#### EMPLOYMENT

The partially sighted are more likely to become unemployed than are those without this disability. But with good personal qualities they can sometimes work their way into permanent posts of value. The committee is averse to specific vocational training, such as is given to the blind. The object should be to educate these children, as far as possible, to compete on equal terms with others.

#### Legislation Against Sex Offenses in the Irish Free State

A bill has been passed in the dail of the Irish Free State making the penalties for sexual offenses more severe. As the law stood, it was a felony to have intercourse with a girl under the age of 13 years and a misdemeanor to attempt it. The present bill raises the age to 15 years. By previous acts it was a misdemeanor to have or attempt intercourse with a girl above the age of 13 years but under the age of 16 years. The bill raises these ages to 15 and 17 years respectively. Another section of the bill makes it an offense for a prostitute to loiter in any street or thoroughfare for the purpose of solicitation. For the first offense the penalty is a fine not exceeding \$8, for the second imprisonment for a term not exceeding six months. It is also made unlawful to sell or expose for sale, advertise or import any contraceptive. The penalty is a fine not exceeding \$250 or imprisonment for a period not exceeding six months or both. In the debate it was pointed out that while the majority of the Irish people condemned the use of contraceptives as immoral, there were many who did not share this view. A virtuous married woman was often faced with the advice that pregnancy might endanger her life or injure her health. She had no other alternative but abstention from intercourse or contraceptive precautions. Abstention might be almost impossible or lead to grave nervous disturbance and unhappiness in both husband and wife. It was argued that to deny an alternative to those whose consciences allowed them to adopt it was unjust. Nevertheless, this clause of the bill was passed.

#### PARIS

(From Our Regular Correspondent)

July 25, 1934

#### Phonendoscopy and the Diagnosis of Perivisceritis

Articles have appeared recently in regard to certain signs that may aid in the diagnosis of subhepatic perivisceritis. Lardennou called attention to the significance of pain in the right hypochondrium elicited on raising the arms. Lyon discovers subhepatic adhesions with the aid of a tuning fork. A stethoscope is placed on the inner side of the left costal border, and the base of the tuning fork is shifted from the median line toward the axillary line and along the right costal border. Normally the sound thus elicited is weak and far different from the gastric sound which is clear and intense when the tuning fork is placed over the stomach in the left portion of the epigastrium. The gastric sound on the contrary, is heard when the tuning fork is over the ninth or tenth rib if there are peripyloric and perivesicular adhesions. If the adhesions are dense and extend to the ascending colon and the cecum, the gastric sound is heard even when the tuning fork is placed on the axillary line. Ferrabouc and Jude, on studying the transmission of sound produced by a tuning fork the base of which rests on the abdominal wall observed that, in perivisceritis of the right side, the sound is transmitted better between the epigastrium and the right iliac fossa than between the epigastrium and the left iliac fossa. They explained the following technic before the Societe medicale des hopitaux. The stethoscope being on the epigastrium halfway between the umbilicus and the xyphoid appendix, the vibrating tuning fork is carried several times back and forth from McBurney's point to the symmetrical of this point with relation to the median line of the abdomen. If there is perivisceritis of the right side, the sound is heard on the right, sometimes more loudly and sometimes longer than on the left side. The authors noted in ten cases the pain on raising the arms, and the bilateral sign of the tuning fork was positive in thirty-nine cases, but they point out that research by the last mentioned means is delicate. The physical signs have a secondary value, the advantage

remaining with the functional signs, which are strongly supported by radiologic examination. Of the physical signs, the most reliable and the most objective are those that utilize the transmission of sound vibrations through the abdominal viscera.

#### The Dictaphone and Competitive Examinations for Internships

The annual competitive examination to decide which medical students previously appointed, likewise on the basis of a competitive examination, to externships in the hospitals shall become interns, has never ceased, since its institution more than a hundred years ago, to provoke criticism. Those who fail to receive appointments are prone to charge the system with injustices. The committee of award is composed of hospital physicians and surgeons, who are chosen by lot. The members of the committee are frequently accused of favoring externs who have studied under them, with a view to recruiting a scientific entourage and strengthening their own particular "school." New means are therefore constantly being sought to prevent the judges from knowing the names of the candidates whose papers they examine. For the written portion of the examination the papers of the candidates are anonymous, being merely supplied with a number affixed by the administration, the owner of which remains unknown until after the papers are corrected. But for the oral portion of the examination the same method could not be applied. Mr. Mourier, director of the competitive examination, has discovered an ingenious solution. Each candidate will give to the dictaphone his replies to the oral questions, and from the wax records thus made disks will be prepared, which will reproduce, with the aid of a talking machine, the replies of the candidates in the presence of the judges. In this manner the identity of the candidates will be safeguarded. The cost of applying this method will be about 25,000 francs (\$1,500) for each examination.

#### Pericarotid Sympathectomy

Pericarotid sympathectomy, which was performed a few years ago by Mr. Leriche of Strasbourg, was regarded at first as a physiologic curiosity of experimental surgery. It produces a profound modification of the vascular action in the field of the sympathetic and in the area irrigated by the carotid artery. Mr. Magitot, in a communication to the Academy, has pointed out what good results can be secured with this operation in retinal disorders of spasmodic vasomotor origin and even in the progressive atrophies of the optic nerve. He reported six typical observations of persons who were gradually going blind, in whom this operation frankly checked the process and brought about a marked retrogression of the lesions thus far developed. The operation may be indicated also in other spasmodic vasomotor disorders affecting brain circulation. The operation is fairly simple, consisting in the decortication, for about 2 cm., of the nerve sheath of the common carotid; the decortication being continued up to the bulb of the internal carotid. In order to make the destruction of the nerve plexus more certain, the intervention ends with an application of isophenol.

#### The American Hospital (Neuilly)

Mr. Jesse I. Strauss, ambassador of the United States to France, paid an official visit to the American Hospital (Neuilly) to preside over the distribution of nurses' diplomas secured by the sixteen pupils who had completed the courses. Mr. Arthur T. Kemp, chairman of the administrative council of the school, explained to the ambassador that the diploma thus bestowed is highly appreciated, and that nurses who hold such a diploma easily find employment not only in the American Hospital but also in foreign countries. Dr. Georges M. Converse, head of the medical services, expressed regret that the school was obliged to close for lack of financial support which has been the fate of many other American undertakings in France since

the devaluation of the dollar has reduced by 40 per cent the value of the funds supplied from the United States. The departments of the American embassy in Paris have been able to retain their personnel only because they succeeded in bringing it about that, since June 1, their salaries and expense accounts have been paid in French money on the old basis.

#### Street Named in Honor of Dr. Carlos Finlay

The municipal council of Paris recently gave the name of Dr. Carlos Finlay to a street of the fifteenth ward of the capital, an honor to a foreign scientist almost without precedent, Humboldt and Linne being further examples. Finlay, whose mother was French, studied in France and on returning to his native country he announced the theory of transmission of yellow fever by mosquitoes. Last December the Academy of Medicine had celebrated the centenary of Finlay's birth at a special session attended by Professor Dominguez, who came to France to pronounce the eulogy of his compatriot.

#### BERLIN

(From Our Regular Correspondent)

July 23, 1934

#### Special Eugenics Courts

New legislation has provided special courts to determine what cases shall come within the application of the sterilization law. The reports of some of these courts are now available. The first session of a special eugenics court was held in Berlin on March 15. Up to May 30, twenty sessions had been held, in the meantime, a second chamber of the court has been organized. Within the period just mentioned, 348 court decisions were rendered, and in 325 cases sterilization of the person was ordered, while in the remaining twenty-three cases the request for sterilization was denied. In the 325 cases, the request came from the patients in 143 instances, seven times from the guardian, thirty-one times from the health officer, six times from the "court physician," and 138 times from directors of institutions. Table 1 shows the relative frequency of sterilization in males and females of various age groups.

TABLE 1—Relative Frequency of Sterilization in Males and Females

Age Groups	Males	Females
Under 20 years	5	8
20-29 years	80	66
30-39 years	69	50
40-49 years	27	9
Above 50 years	11	0
	192	133

Table 2 shows the condition that was the basis for sterilization.

TABLE 2—Basis for Sterilization

Hereditary Disorder	Number of Cases		Percentage of the Total
	Males	Females	
Congenital feeble-mindedness	52	44	29.6
Schizophrenia	59	53	34.4
Circular insanity	6	3	2.8
Hereditary epilepsy	51	29	24.6
Hereditary chorea (Huntington)	1	0	0.3
Hereditary blindness	0	0	0
Hereditary deafness	1	1	0.6
Grave hereditary bodily deformity	0	3	0.9
Alcoholism	22	0	6.8
Totals	192	133	100.0

It appears that congenital feeble-mindedness and schizophrenia comprised about one third of the cases.

The eugenics court in Kiel ordered 102 sterilizations during the months of March and April. An analysis of the fifty-five

sterilizations ordered in March, with respect to the basis justifying such intervention, is shown in table 3

TABLE 3—Analysis of Fifty-Five Sterilizations Ordered at Kiel in March 1934

Hereditary Disorder	Males	Females
Congenital feeble-mindedness	9	21
Schizophrenia	6	5
Epilepsy	4	6
Alcoholism	4	0

The Hamburg eugenics courts have received 1,325 applications for sterilization, a decision having been reached in 761 cases. Sterilization was refused in only seven cases. About 60 per cent of the cases concerned women.

Eugenics in Relation to Deafness

The sterilization law necessitates a consideration of hereditary deafness, which is one of the notifiable hereditary disorders. For a long time it had been conjectured that deafmutism is hereditary. Hammerschlag has demonstrated that the movement of the Japanese dancing mouse, which is analogous to deafmutism, is transmitted, in accordance with the mendelian law, in the form of a monohybrid, recessive hereditary process. He concluded that the hereditary process of deafmutism in man might be the same. The hereditary disorders of the inner ear can be grouped together under the heading 'heredopathia acustica'. Hammerschlag differentiates (1) hereditodegenerative deafness (identical with constitutional sporadic deafmutism), (2) progressive labyrinthine hardness of hearing, (3) premature occupational hardness of hearing, and (4) otosclerosis. According to Hammerschlag, these disorders form a single unit from the standpoint of hereditary biology, which contention is denied by others, for example, Albrecht, who demonstrated that these various disorders present a diverse mode of hereditary transmission. Constitutional, sporadic deafmutism is transmitted in a monohybrid recessive manner, hereditary labyrinthine hardness of hearing being dominant. Concerning the hereditary type of otosclerosis nothing definite is known. Of these disorders, the law is concerned only with group 1, for the three other groups seldom lead to deafness, and even in the presence of high-grade hardness of hearing patients can be helped by prostheses, particularly in otosclerosis. In spite of its dominant hereditary process, hereditary hardness of hearing due to conditions existing in the inner ear seldom results in deafness in the offspring. There is difficulty in recognizing these cases. The classification into "congenital" or "acquired" cases is not fortunate, since likewise congenital deafmutism may be acquired in utero, for example, through syphilis, meningo-encephalitis or birth trauma. A better distinction would be "inherited" and "acquired" deafmutism. To the former would belong constitutional-sporadic and endemic deafmutism, usually associated with cretinism and idiocy, to the latter would belong the intra-uterine and the postfetal types, resulting from ear suppurations or infectious diseases. The diagnosis is easy if other hereditary stigmas are demonstrable, for example, retinitis pigmentosa, feeble-mindedness or cretinoid habitus. In the other cases the diagnosis can be made plausible only on the basis of researches on the family tree. Likewise the intact condition of the vestibular apparatus points to inherited deafness for the vestibular apparatus, as the phylogenically older organ, does not suffer so easily hereditary injuries as the younger cochlear apparatus. The question as to whether all deafmutes, on proof furnished that their condition is of a hereditary nature, should be sterilized will be negatived, yet it appears justifiable to incorporate hereditary deafness in the law. A conservative estimate places the number of hereditary deafmutes in Germany at about 13,000. This figure would indicate that some 1,500,000 persons are the bearers of the hereditary predisposition. New

patients will be found among the offspring if two persons with such a predisposition become mated. A careful choice of persons to be subjected to sterilization must be made. Obviously deafmutes with other hereditary disturbances of the central nervous system (idiocy, feeble-mindedness, and the like) will be considered first under the law. Importance attaches also to the sterilization of other deafmutes of hereditary origin who wish to enter on the marriage relation. That would be a big accomplishment, since 72 per cent of the deafmutes select life partners from their own group. In all other cases great caution must be exercised in making decisions. There are many highly intelligent deafmutes of hereditary origin who are far above the average of human stock.

Meeting of the Society of Pathologists

The Deutsche Pathologische Gesellschaft convened in Rostock in May under the chairmanship of Hueck of Leipzig, who discussed the formation of metastases. Gliomas may occasionally develop metastases of the meninges but they do not occur outside the meninges, probably because they cannot break through the vessel walls. Henschen distinguishes glioblastomas, astroblastomas, astrocytomas, oligodendrocytomas, glioepitheliomas, choroido-epitheliomas, pinealomas, neuroblastomas and, as a special group, heteromorphous glioblastomas. The gliomas probably develop on a dysontogenic basis. While a traumatic origin may not be impossible, such a conclusion should not be reached without most careful consideration of all the facts.

Schmincke of Heidelberg, among others, pointed out that diffuse meningeal glioma formation is probably due to defects of development. Differentiation from meningeal sarcomas is difficult. These cases may easily be overlooked at operation. W. Müller of Berlin brought out that, during the period between operation and death, not infrequently a marked loss of differential features in the histologic structures of gliomas takes place. Pette of Hamburg emphasized that, from the neurologic standpoint, the clinician is interested, above all, in the question of malignity and cerebral tumefaction in association with gliomas. He is satisfied to divide gliomas into a benign and a malignant group. Malignant gliomas begin with a modification of personality without other demonstrable disturbances of functioning, whereas the onset of the benign type is marked by paralysis.

No further comprehensive papers were presented, but there were numerous other communications on certain details of the subjects. Henke of Breslau cautioned against considering all giant-cell sarcomas as epulis or osteitis fibrosa, for there are giant-cell tumors that occur in the tendon sheaths and the bones and that may be regarded as true sarcomas. Primary carcinoma of the pharyngeal tonsil is less rare than has been supposed, Graeff of Hamburg observed three cancers of the epipharynx among eleven pharyngeal cancers.

By research on the effects of exhaust gases of autos, Schmidt mann of Cannstadt found that rabbits develop at first leukocytosis, which is followed by leukopenia and, if no relief is afforded, by death. Histologically the spleen shows the most marked changes. Similar changes were observable in workmen from the various industrial plants.

Research by Aschoff of Freiburg on the carotene content of human tissue demonstrated that cholesterol from atherosclerotic foci contains ten times as much carotene as ordinary fat, while the cholesterol of the suprarenals contains twenty times as much. In the liver, the carotene is changed to vitamin A, as can be demonstrated from the third fetal month on. In chronic nephritis, however, this transformation is disturbed. While the vitamin A disappears, the carotene content increases greatly. In cirrhosis of the liver, both values decline.

According to the research of Sjoëvall-Lund, the changes in the central nervous system in amaurotic idiocy do not have to

do with a secondary storage of lipoids but with an independent hereditary disturbance of the metabolism of these cells. As an expression of the premature aging of these brains, one may observe an extensive fibrogliosis.

Siegmund of Stuttgart was unable experimentally to produce pneumoconiosis in animals by means of inhalation. On the intravenous injection of pure quartz fibrosis developed only in the liver and not in the lungs. Evidently, fibrosis is produced only by quartz in a colloidal form. Similar conclusions were reached by Giese of Freiburg, who found tubercle-like changes, such as cirrhosis of the liver and fibrosis of the spleen. His experiments led to no involvement of the lungs.

## NETHERLANDS

(From Our Regular Correspondent)

Aug 3, 1934

### Malaria in the Deltas of the Rhine and the Meuse

Malaria persists in the foci of North Holland, Friesland and the island of Walcheren. The foci that one encounters in South Holland, at the mouth of the Meuse and the Rhine, and also to the east of Groningen, at the mouth of the Ems, are even more important. The pathogenic agent is a particularly benign strain of *Plasmodium vivax*. The incubation period in dementia paralytica patients subjected to inoculation with this strain is three weeks (Korteweg). Attention is called to the long duration of the latent state of malaria, persons infected in September, October or December presenting ordinarily their first attack in April, July and August of the following year, after an interval of from seven to nine months. The majority of cases occurring in the Netherlands during the ordinary summer epidemic of malaria are due to infections contracted during the preceding autumn or winter. From April to the end of August, one finds practically no infected *Anopheles*. The secondary autumnal recrudescence of the frequency of malaria is doubtless due to exceptionally massive infections in which the ordinary period of latency is suppressed. Thus it can be understood why a high autumnal frequency of malaria may be the forerunner of an epidemic for the following year.

The deltas of the Rhine and the Meuse are not foci of malaria primarily because of the natural delta formation but because man has influenced their formation by the process of retrieving land, termed "poldering" the result of which is the transformation of harmless but useless salt-water lakes into rich soil areas traversed by ditches, which contain brackish waters, thus facilitating the propagation of *atroparvus* but this system of polders, or dikes which has engendered malaria in North Holland, has brought about its disappearance in South Holland, by substituting fresh water for the previous brackish waters, and thus replacing *atroparvus* with *messeeae*. The hope appears reasonable, therefore that following the completion of the huge undertaking that has been launched in the Zuider Zee, and the transformation of the region that is not retrieved into a fresh-water lake one will witness the disappearance of *atroparvus* and consequently of malaria, and the predominance of the *messeeae* variety. This system of retrieving land is, in principle an antilarval campaign directed against *atroparvus*. If the undertaking succeeds the province of North Holland, the chief focus of malaria, will be the first to get rid of its brackish waters and of its fauna of *atroparvus*. Friesland, which has the second highest frequency of malaria, will also derive great advantages from the great hydrographic revolution that the new system will inaugurate. The foci of malaria in the provinces of Groningen and Zeeland will alone remain uninfluenced by the retrieving of lands in the Zuider Zee. But, in view of the unimportant role of these provinces in the malaria problem of the Netherlands, it is reasonable to hope that most of these foci will disappear, thanks to the measures designed to eliminate not all the *Anopheles* but solely

the fraction that, at the present time, is the cause of malaria. From this point of view, the immense project of retrieving the land occupied by the Zuider Zee may be regarded as a crusade against the carrier species of *Anopheles*.

### Inoculation of Tick-Bite Fever into Dementia Paralytica Patients

In the *Nederlandsch Tijdschrift voor Geneeskunde*, Pijper and Helene Dau give an account of their experiments carried on in Pretoria in treating dementia paralytica patients by inoculation with tick-bite fever. Tick-bite fever is a mild disease of the exanthematic typhus group, with a primary necrotic lesion. The virus may be preserved by passages through the guinea-pig, and such virus was used to inoculate patients having dementia paralytica. While the inoculation produced no therapeutic effect, the patients thus treated developed specific agglutinins, and in one case the virus was transferred from the patient to the guinea-pig without undergoing any apparent modification.

The mildness of the attacks confirms the fact that the virus of tick-bite fever and that of exanthematic typhus are not identical. The experiments brought out also that not all persons are susceptible to tick-bite fever. In persons who are not susceptible, the virus may circulate for two weeks.

### Drinking Water

The Royal Bureau of the Netherlands publishes in the *Verslagen en Mededeel. betr. de Volksgezondheid* a report on its recent activities in improving the drinking water of the whole country. The report gives a survey of the undertakings throughout the country, illustrated by maps and tables. It appears that the communes having their own system of water supply, which on Jan. 1, 1928, numbered about 400 out of 1,081, served a population of 4,600,000 out of a total of 7,500,000. By Jan. 1, 1933 this number had increased to 625 communes (out of 1,076), serving a population of 6,500,000 out of a total of 8,200,000. North Holland and South Holland are the provinces that have the largest percentage of water systems, serving respectively 99.6 and 99.16 per cent of the total population. The provinces of Gelderland and Drenthe have the lowest percentage, 52 and 26.6 per cent respectively. In some provinces a single company has a monopoly not only in a given city but also for the surrounding rural districts. The province of Drenthe is planning to combine its water system with that of Overijssel. Sometimes, for geographic reasons or otherwise, the organization is less centralized, but there is always a tendency to combine smaller systems into one large system. This tendency has its good and its bad features. Many difficulties result from the development of both national and foreign industries, which influence more and more the quality of the water in the rivers, from the greater utilization of dune areas, and from the increase in the amount of water consumed per person.

### Weil's Disease in the Dutch East Indies

The *Geneeskundige Tijdschrift voor Nederlandsch Indië* for Sept. 12, 1933, contains a communication of Dr. Mochtar on the frequency of Weil's disease in Celebes. The disease is rarely observed in Java, and in Batavia only three cases have been seen since 1925. No cases had been reported from Samarang up to 1932. The first case was observed in May 1932, since which time thirty-nine cases have been notified. Infection with *Spironema icterohaemorrhagiae* was suspected, and examination yielded nine cases with positive results. Of these nine cases, eight were reported from Samarang and one from Magelang. Two of these cases were fatal. In one of the two fatal cases, amebic dysentery was a complication. The clinical signs were the ordinary symptoms of Weil's disease. The mode of transmission of the disease to Samarang is

unknown. The large percentage of sewer rats that are carriers of the causative organism is an important factor not to be overlooked and leads to the belief that these rats play a part in the transmission of the disease.

Bezemer states that five cases of Weil's disease were observed between May 20 and June 1, two cases ending fatally. The mode of infection is not clear.

### CAPE TOWN

(From Our Regular Correspondent)

July 31, 1934

#### Payment of Hospital Staffs

During the last six months the profession has seriously considered and reconsidered its attitude toward the problem of the payment of hospital staffs. At the last meeting of the federal council of the association it was decided to leave to individual branches the decision whether or not to demand payment for services rendered to pauper patients in state supported hospitals. Briefly stated, the position in the Union of South Africa is as follows. There are no hospitals supported wholly by voluntary contributions; all hospitals are a charge on the taxpayer and to a lesser extent on the ratepayer, since the municipalities must make good the deficit under certain conditions. The expense of upkeep therefore falls on the doctor just as much as on any other class of taxpayer. But the provinces demand from the doctor free service for pauper patients and in addition mulct him in a yearly "license to practice" fee of £10. Under these circumstances the profession has decided that it will give voluntary service only where other classes of the community also give some voluntary service in teaching hospitals attached to the universities. But no uniform plan to enforce this decision has yet been formulated and in view of the divergence of local conditions and the difference of local views it may be quite impossible to agree on a uniform plan. In one province, Natal, most of the hospitals are already paying their honorary staffs; in a few hospitals in the Transvaal and the Free State the request for payment has been agreed to; in one hospital in the Cape Province payment is made. But the public does not yet understand why this request should be made, and much misunderstanding would be avoided if the profession would frankly disclose to the public what it today gives to the government in the shape of free service, time and experience. There is no reason whatever why the government should adhere to its licensing tax, the income derived from that source is a mere trickle toward the provincial treasury, and the abolition of the tax, which the doctors regard as iniquitous, would to some extent meet the requirements of the profession for the recognition of the general principle that where the pauper is a charge on the taxpayer it is unfair to saddle one class of taxpayer with a disproportionate sum for his support.

#### The New Workmen's Compensation Act and the Medical Association

A measure of considerable interest to the profession was rushed through the last session of parliament and has attracted far less attention than its inherent importance deserves. This is the workmen's compensation act, an act which, thanks to the prompt action of the parliamentary committee of the medical association, is the first piece of legislation that makes definite provision for the treatment of private persons by the medical profession when such persons are injured in the course of their employment. The association, indeed, is actually referred to by name in the act itself in a remarkable clause which states that "the fees and charges for medical aid to workmen shall be in accordance with the scale prescribed by the minister from time to time after consultation with the Medical Association of South Africa, and no claim for an amount in excess of a

fee or charge in accordance with that scale shall lie against any workman or his employer in respect of any such medical aid." This is an advance in the right direction, and the profession is to be congratulated on it. The new act will complicate some matters, and it is unfortunate that the request of the committee of medical men to which the association referred it, that better provision might be made for accident cases admitted to hospitals, was not complied with. In labor circles there was unfortunately, a certain amount of opposition to the bill, caused partly by suspicion of the present government, which has not shown itself particularly friendly toward labor, and partly owing to a misunderstanding of the benefits under the act. Under the circumstances the profession must be satisfied with the benefits it has managed to secure.

#### Tick Bite Fever

There has for a long time been differences of opinion among pathologists in regard to several febrile diseases that belong apparently, to the Rickettsia group of typhus-like fevers. Pijper of Pretoria has now demonstrated that one of these febrile disturbances is a definite clinical entity, to which he has given the name tick bite fever. In recent papers Pijper has dealt with the clinical and serologic aspects of the disease. Tick bite fever is characterized by a primary lesion with a necrotic black center, the result of the infected tick bite, with secondary swelling of the infected lymph glands. The incubation period is eight days. It has an exanthem in the form of macules or maculopapules and is accompanied by severe headache and by a rise of temperature lasting ten days. The diagnosis is easy when one suspects it, and the prognosis is favorable; no fatal case has as yet been recorded. The Weil-Felix reaction is positive only in convalescence, and the disease gives perfect specific immunity. The treatment is symptomatic. In the Transvaal where the disease is common, old practitioners pin their faith to large doses of sodium salicylate, which have an immediate effect on the headache and joint pains. The disease has nothing in common with tick fever. Its virus has characteristics that completely differentiate it from that of a mild typhus. Arsphenamine as a remedy is useless.

#### Medical Service for Natives

The neglect of the native territories so far as education and medical service are concerned has been a blot on the administration of the various governments since the union was established. Public opinion has now forced the present government, which is in many ways especially where health questions are concerned behind its predecessor, to make an attempt to deal with one phase of the problem of medical aid to natives. In the protectorates too the matter is now receiving attention. The scheme of the protectorates provides for a common sense course for medical aids much on the lines that have been developed in Java. That of the union government is more ambitious and may lead to the creation of a class of second grade general practitioners practicing in the native territories only. A definite promise has been made however that the scheme will not be enforced before the medical association has had an opportunity to express its opinion on the details.

#### Deaths

Dr Charles Porter formerly medical officer of health for Johannesburg, has died of coronary thrombosis. He was a forceful personality, a barrister as well as a doctor, and one of the pioneers of child welfare work.

Dr P. de V. Moll died this month as the result of a motor accident. He was one of the younger specialists and lecturer on orthopedics at the University of Cape Town.

Dr D. N. Tomory formerly medical officer of health for Bloemfontein and Dr A. C. Seale formerly superintendent of the New Somerset Hospital Cape Town, died last month.

## Marriages

HELSHEL CLANTON LENNON, Wilmington, N C, to Miss Myrtle Catherine Hendley of Ansonville, at Durham, June 16

FERN WARD BUOBA Des Moines, Iowa, to Miss Neoma Kistenmacher of Davenport, at Chicago, August 27

DAWSON EDWARD WATKINS JR, Waynesboro, Va, to Miss Mary Evelyn Stephenson of Buena Vista, June 23

JAMES WAITON LIPSCOMB JR, Columbus, Miss, to Miss Anne Elizabeth Dubard of Grenada, June 6

LAURIE WALKER MOORE Beaufort, N C, to Miss Anne Pryor Neale of Lanesville, Va, June 2

THOMAS ALLEN LACY, Brantwood N Y, to Miss Cornelia Archer of Montreat, N C, June 30

ROGERS NEWTON HARRIS Port Royal Va to Miss Mary McLaughlin of Lynchburg May 19

CHARLES DUFFY, New Bern N C, to Miss Marv Pickett Breck of Maysville, Ky April 17

CHARLES W LAWRENCE, Emporia Kan, to Mrs W O Thompson of Dodge City, July 2

RUDOLPH ANGUS NICHOLS JR to Miss Elizabeth Williams, both of Richmond, Va, June 1

CARL C CARRICO, Houston Texas, to Miss Helen M Murphy of Denison, August 4

JULIUS CLEON JOSEY to Miss Mary Helen Lancaster both of Spartanburg, S C, June 9

ROYALL MARY CALDER to Miss Laurie May booth both of Durham, N C, August 18

EDWARD WILLIAM SACHS to Miss Mary Clare Smith, both of Dayton Ohio August 29

JOHN LATZO, Wilmington, Del to Miss Agnes Rynkiewicz of Tamaqua, Pa recently

ULIS B HINE, Indianapolis, to Miss Geraldine Jeffries of Newcastle Ind, June 24

JAMES MORRIS PFEIFER, Lawrenceburg, Ind, to Miss Alice Helen Mueller, June 23

WILLIAM BEYERLEY WILKINS Alexandria, Va, to Miss Gladys Nichols, June 2

ARCHER CHARLES BACHMEYER, Cincinnati to Miss Mary Hicks, recently

## Deaths

Augustus Ravogli, Cincinnati Regia Università di Roma degli studi Facoltà di Medicina e Chirurgia, Italy, 1873, chairman of the Section on Dermatology and Syphilology of the American Medical Association, 1896-1897 member and past president of the American Dermatological Association, member of the American Urological Association, fellow of the American College of Surgeons, for many years member and past president of the Ohio State Medical Board past president of the Cincinnati Academy of Medicine professor emeritus of dermatology and syphilology, University of Cincinnati College of Medicine formerly on the staff of the Cincinnati General Hospital, author of Syphilis in Its Medical Medicolegal and Sociological Aspects aged 83 died, July 25, in the Deaconess Hospital, of cerebral hemorrhage arteriosclerosis and chronic nephritis

Samuel Kemp Merrick, Ruxton Md University of Maryland School of Medicine, Baltimore, 1872 member of the Medical and Chirurgical Faculty of Maryland, fellow of the American College of Surgeons professor emeritus of rhinology and laryngology at his alma mater, past president of the Baltimore City Medical Society, member of the Board of Regents of the University of Maryland for many years on the staff of the Maryland General Hospital Baltimore, aged 86 died, July 24 of heart disease.

Peter W Tomlinson of Wilmington, Del, Jefferson Medical College of Philadelphia, 1878, member of the House of Delegates of the American Medical Association, 1907-1908 in 1919 in 1926 and in 1931 past president secretary and counselor of the Medical Society of Delaware past president of the board of medical examiners, consulting medical director of the Continental American Life Insurance Company aged 84, died July 25 in the Beebe Hospital, Lewes of pneumonia.

Henry Louis Stick of Canandaigua N Y College of Physicians and Surgeons Baltimore 1900 member of the

Medical Society of the State of Pennsylvania, the American Psychiatric Association and the New England Society of Psychiatry, served during the World War, aged 61, on the staff of the Veterans' Administration Facility, where he died suddenly, August 15, of cerebral hemorrhage

Albert Winslow Horr of Boston, Boston University School of Medicine, 1891, emeritus professor of ophthalmology at his alma mater member of the New England Ophthalmological Society, fellow of the American College of Surgeons consulting ophthalmic surgeon to the Massachusetts Memorial Hospitals, aged 69, died, August 3, of angina pectoris, at Watertown, N Y

James Spencer Brown, Pinchurst N C, College of Physicians and Surgeons, Medical Department of Columbia College 1885, served during the World War, for many years on the staff of the Mountainside Hospital, Montclair N J, fellow of the American College of Surgeons aged 71, died, August 18, at his summer home in Malletts Bay, Vt, of pneumonia

Frederick Ernest Wilcox of Willimantic, Conn, New York Homeopathic Medical College, 1884, member of the Connecticut Homeopathic Medical Examining Board past president of the Windham County Medical Society on the staff of the Windham Community Memorial Hospital, aged 74 died, August 8, of uremia and pyelonephritis

Goode Cheatham, Henderson, N C North Carolina Medical College, Davidson, 1895, past president of the Vance County Medical Society, formerly county health officer, past president of the Association of Seaboard Railway Surgeons aged 59, died suddenly, August 3, of coronary thrombosis, at the home of his son in Endicott, N Y

Merchant William Colgin, Waco, Texas, Vanderbilt University School of Medicine, Nashville, Tenn, 1905 member of the State Medical Association of Texas fellow of the American College of Physicians, past president of the McLennan County Medical Society, part owner of the Colgin Hospital and Clinic aged 51, died, July 15

Lyle Joseph Willis, Fort Madison, Iowa, University of Illinois College of Medicine, Chicago 1929, member of the Iowa State Medical Society medical superintendent of the Atchison, Topeka and Santa Fe Railway Hospital, aged 33, was killed August 11 when a gun he was cleaning was accidentally discharged

Lawrence Rosboro Craig, Franklin, La, Medical College of Virginia, Richmond, 1906, served during the World War, director of St Marv Parish Health Unit, aged 52, died, August 5 in the Army and Navy General Hospital, Hot Springs National Park, Ark, following a fracture of the fourth dorsal vertebra

Arthur Mitchell, Medfield, Mass, Boston University School of Medicine, 1886, member of the Massachusetts Medical Society, formerly on the staffs of the Framingham (Mass) Union Hospital and the Leonard Morse Memorial Hospital, Natick aged 70, died, July 24, in the Corey Hill Hospital, Brookline

Nathaniel Thackery Stevens of Clifton, Ill, Queen's University Faculty of Medicine Kingston Ont Canada, 1892, past president of the Kankakee County Medical Society, on the staff of St Mary Hospital, Kankakee, aged 70, died, July 26, at the North Shore Health Resort, Winnetka

Gurney Claycomb Wallace, Denver, Denver and Gross College of Medicine, 1906 member of the Colorado State Medical Society, veteran of the Spanish-American War, formerly demonstrator of anatomy at his alma mater, on the staff of the Presbyterian Hospital, aged 56, died, July 7

Benjamin H Blair of Lebanon Ohio, Louisville (Ky) Medical College 1876, member of the House of Delegates of the American Medical Association, 1910-1911 county health officer for many years member and president of the board of education, aged 79, died August 15, of heart disease

Charles E Wilkerson, Greensboro, N C University of Nashville (Tenn) Medical Department, 1907 member of the Medical Society of the State of North Carolina formerly a medical missionary on the staffs of the Clinic Hospital and the Wesley Long Hospital, aged 55 died, July 13

Jean Beatrice Christie, Newberry Mich Woman's Medical College of Pennsylvania, Philadelphia, 1912, member of the Michigan State Medical Society for many years on the staff of the Newberry State Hospital, aged 55, died, July 23, of chronic myocarditis and arteriosclerosis

Ralph Salem Heilman, Sharon Pa University of Pennsylvania School of Medicine, Philadelphia, 1907, member of the Medical Society of the State of Pennsylvania served during



the World War, medical director of the Protected Home Circle, aged 54, died, July 19

**Roy A Windham** \* Port Huron, Mich., Detroit College of Medicine, 1912, past president of St Clair County Medical Society, on the staff of the Port Huron Hospital, aged 55, died, July 18, of arteriosclerosis and coronary and cerebral thrombosis

**David Phipps Rettew**, Coatesville, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1890, member of the Medical Society of the State of Pennsylvania, aged 68, died, July 11, in the Pennsylvania Hospital, Philadelphia

**George A Whitley** \* Anderson, Ind., University of Louisville (Ky.) School of Medicine, 1891, fellow of the American College of Surgeons, aged 65, on the staff of St John's Hospital, where he died, July 4, of heart disease

**Ralph Waldo Holbrook** \* Kansas City, Mo., Kansas City Medical College, 1904, past president of the Jackson County Medical Society, aged 54, on the staff of the Research Hospital, where he died, August 22, of heat prostration

**Robert Wesley Hallenberg** \* Bismarck, N. D., University of Illinois College of Medicine, Chicago, 1932, on the staff of St Alexius Hospital, aged 29, died, August 1, of skull fracture received in an automobile accident

**William Joseph Siegler** \* Chicago, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910, on the staff of the Evangelical Hospital, aged 59, died, August 17, of angina pectoris

**John William Nelson**, Jamestown, N. Y., Columbia University College of Physicians and Surgeons, New York, 1896, aged 67, died, in June, as the result of a severed artery in his thigh, self inflicted with a piece of glass

**Francis Thomas Ridley**, Bluefield, W. Va., University of Virginia Department of Medicine, Charlottesville, 1903, member of the West Virginia State Medical Association and the Medical Society of Virginia, died, July 19

**Samuel Lowery Adair Jr.**, Jeffersonville, Ind., Kentucky University Medical Department, Louisville, 1904, city health officer and formerly county health officer, aged 54, died August 2, of a self inflicted bullet wound

**Trusten Mitchell Hart** \* Los Angeles, University of California Medical Department, Los Angeles, 1911, on the staff of the Los Angeles County General Hospital, aged 53, died suddenly, July 14, of heart disease

**Carl Friedrich Wolff**, New York, Bellevue Hospital Medical College, New York, 1885, aged 70, died, August 7, in the Southampton (N. Y.) Hospital, of a skull fracture received in an automobile accident

**Simeon Gould Start**, Cambridge, Vt., Bellevue Hospital Medical College, New York, 1895, member of the Vermont State Medical Society, aged 64, died, June 20, in the Fanny Allen Hospital, Winooski

**Eugene Eliel Brunson**, Ganges, Mich., Bennett College of Eclectic Medicine and Surgery, Chicago, 1875, past president of the Ottawa County Medical Society, aged 82, died, August 5, of pneumonia

**George Russell Beck**, Detroit, University of Michigan Medical School, Ann Arbor, 1926, aged 31, was drowned August 11, in Northport Bay when the sailboat in which he was riding capsized

**Cyrus A Kirkley**, Los Angeles, Starling Medical College, Columbus, 1868, member of the Ohio State Medical Association, fellow of the American College of Surgeons, aged 89, died, July 27

**Thomas G Cooksey**, Converse, S. C., Louisville (Ky.) Medical College, 1890, member of the South Carolina Medical Association, aged 68, died, July 17, in a hospital at Spartanburg

**Bishop Wash** \* Cornishville, Ky., University of Louisville (Ky.) School of Medicine, 1893, past president of the Mercer County Medical Society, aged 65, died, July 25, of cerebral hemorrhage

**Suther Corbett Murray**, Sackville, N. B., Canada, Harvard University Medical School, Boston, 1871, aged 88, died April 28, in the Moncton (N. B.) Hospital, of cerebral hemorrhage

**Charles Frederick Hunt** \* New York, Columbia University College of Physicians and Surgeons, New York, 1898, served during the World War, aged 59, died, August 2, of cancer

**Lonnie L Wright**, Boaz, Ky., Hospital College of Medicine, Louisville, 1907, member of the Kentucky State Medical Association, aged 53, died suddenly, July 16, of heart disease

**Charles Willis Many**, Doylestown, Pa., Long Island College Hospital, Brooklyn, 1894, served during the World War, county health officer, aged 66, died, July 27, of myocarditis

**William T Campbell** \* Brown City, Mich., Saginaw (Mich.) Valley Medical College, 1899, for twelve years member of the city council, aged 66, died, August 10, of angina pectoris

**Norman Randolph Cook**, Newport, Maine, University of Vermont College of Medicine, Burlington, 1896, member of the Maine Medical Association, aged 63, died, June 30

**Frederick John MacDonald**, Schenectady, N. Y., Albany (N. Y.) Medical College, 1903, city health officer, aged 54, died, August 8, at Rochester, Minn., of hypertension

**Newell Wesley Beane**, East Kingston, N. H., Dartmouth Medical School, Hanover, 1883, member of the state legislature, aged 75, died, August 1, of heart disease

**Pinkney Lee Davis**, Baltimore, University of Maryland School of Medicine, Baltimore, 1888, police surgeon, aged 74, died, July 9, of a self inflicted bullet wound

**Stuart Mills Watson** \* Newark, Ohio, University of Cincinnati College of Medicine, Cincinnati, 1931, aged 37, was killed, July 14, in an automobile accident

**Harve George Young**, Toledo, Ohio, University of Michigan Homeopathic Medical School, Ann Arbor, 1893, aged 62, was found dead, June 2, of a gunshot wound

**Boleslaus Klarkowski**, Chicago, Illinois Medical College, Chicago, 1903, formerly member of the board of education, aged 71, died, August 20, of lobar pneumonia

**James M O Bruner**, Port Byron, Ill., College of Physicians and Surgeons of Chicago, 1887, aged 75, died, August 14, in the Methodist Hospital, Brooklyn

**Dudley H Smith**, Florence, S. C., Medical College of the State of South Carolina, Charleston, 1904, aged 55, died, July 28, of cerebral hemorrhage

**Harvey Combs Asher**, Chicago, Northwestern University Medical School, Chicago, 1907, aged 51, died, July 31, of a self inflicted bullet wound

**G Parker Dillon** \* Sacramento, Calif., Detroit College of Medicine, 1896, aged 62, died, July 17, in the Sacramento Hospital of cholecystitis

**David Osborn**, Stockdale, Ohio, Kentucky School of Medicine, Louisville, 1894, aged 68, died, June 24, in a hospital at Shelbyville, Ind.

**Frank Sherman Alexander**, St. Louis, American Medical College, St. Louis, 1903, aged 66, was found dead, July 28, of heat prostration

**Richard Peter Pattee**, Hawkesbury, Ont., Canada, McGill University Faculty of Medicine, Montreal, Que., 1874, aged 83, died, April 3

**James Milton Montgomery**, Smith's Falls, Ont., Canada, Queen's University Faculty of Medicine, Kingston, 1924, aged 32, died, April 4

**James Robert Hunt** \* Macon, Mo., Beaumont Hospital Medical College, St. Louis, 1897, aged 60, died, July 25, of heat prostration

**Ernest Herbert Brittin**, Auburn, Ill., Barnes Medical College, St. Louis, 1902, aged 59, died, August 7, of cerebral hemorrhage

**Charles W Wyman**, Kansas City, Mo., Ensworth Medical College, St. Joseph, 1904, aged 56, died, July 21, of heat prostration

**George Harper Bland**, Fresno, Calif., College of Physicians and Surgeons of San Francisco, 1901, aged 64, died, June 13

**William L Gaddie**, Upton, Ky., Hospital College of Medicine, Louisville, 1889, aged 72, died, July 8, of chronic nephritis

**Augustus H Brantly**, Atlanta, Ga., Atlanta Medical College, 1866, Civil War veteran, aged 90, died, July 20, of heart disease

**Ralph William Bicknell** \* Winthrop, Maine, Tufts College Medical School, Boston, 1912, aged 48, died, June 7

**Tracy H Smith**, San Leandro, Calif., University of California Medical Department, 1876, aged 83, died, June 24

**Duncan McEdwards**, Hamilton, Ont., Canada, Trinity Medical College, Toronto, 1886, aged 73, died, April 26

**David H Yates**, Madison, Fla., Atlanta Medical College, 1894, aged 68, died, June 21, of Raynaud's disease

**Donald McLeod**, Toronto, Ont., Canada, Trinity Medical College, Toronto, 1890, aged 67, died, April 19

## Correspondence

### POPULAR HEALTH EDUCATION

To the Editor —Driven by a constant bombardment of ridiculous references by patients to library books, I undertook to investigate the popular medical volumes on the shelves at the Springfield Public Library. The result of the investigation was astounding. Most of the books were either so antiquated as to beg retirement or else bore such ignorant, preposterous or downright quack authorship as to make one exclaim with horror. The biggest shock, however, came when in response to a call for assistance, one of the librarians suggested the late Alfred McCann's "The Science of Eating" as a very good book on diets. That McCann (see THE JOURNAL, June 20, 1925, and March 15, 1930) should have created such a piece of quackery is only natural, but that a city library would circularize and even recommend it to its citizenry was rather hard to understand.

An effort to present this unsatisfactory state of affairs before the local library authorities as well as to the public in the form of an open letter to the Springfield *Republican* so far has brought no results.

It is high time that the profession took steps to remedy this perplexing situation. The creation of a committee of experts for the evaluation of popular medical books is to be hailed as a step in the right direction.

MAN MILLMAN, M D, Springfield Mass

### WORKMEN'S COMPENSATION ACTS AND PHYSICIANS' FEES

To the Editor —On July 3, 1934, there ended in the Circuit Court of [Cook County] Illinois a case which will be instructive to all doctors who take care of the occasional case of an employee injured while at his work.

In 1930 one of my regular patients came to me with a hand infection produced by an injury occurring during his work. I treated him. The last time was about forty days after the injury. A week after he first consulted me the Continental Casualty Company sent me a blank form asking for a report on his injury, which I filled out and returned to them. The same was done with one or two later report blanks.

After the patient was well I sent him a bill for services, making my regular charges to him as to any of my other patients. A few days later I received a letter from the insurance company asking for an itemized bill, which I sent them. Later I received a check from the insurance company for about 50 per cent of my bill and a letter saying that the check was in conformity to fees they were regularly paying to other doctors. I returned the check with a letter saying that the fees charged were my regular fees which I expected to be paid that I did not allow any one else to determine the value of my services, and that I did not do enough work for them to justify giving them a special price or discount.

Later I received from them a letter saying that my charges "were not in conformity with the usual and customary rates and were considerably more than the amount designated by the Industrial Commission of this state which has jurisdiction over such matters." They tried to deceive me into believing that the Industrial Commission had established a fee schedule.

I replied that the Industrial Commission had no jurisdiction over my fees to my private patients. Later I sued the patient for the bill in a justice court and got a judgment, though the insurance company lawyer represented him and tried to persuade the justice that the Industrial Commission had set certain fees. He then appealed the case and the appeal recently came to trial with the result that my bill was allowed.

The Chicago Medical Society furnished an attorney to represent me at both trials with the hope of establishing a precedent against these "chiseling" insurance companies. The society has now won two other such cases.

Let me state just what this case determines for you.

1 You can collect your regular fees in cases of industrial accidents if you have not made any agreement as to fees with the employer or the insurance company.

2 The Industrial Commission or even the state of Illinois cannot set your fees. If there is a dispute the court or perhaps the Industrial Commission, in case of workman's compensation, may pass on reasonableness of the fees.

3 Don't let the insurance company "bluff" you out of your regular fees if you have made no definite agreement with them.

4 The Chicago Medical Society is working to protect your financial interests.

LESLIE W BEEBE, M D, Oak Park, Ill

[COMMENT —The following comment is offered by the Bureau of Legal Medicine and Legislation—Ed.]

The workmen's compensation acts of the several states are not uniform. Some of them probably contain provisions differing in detail from those to be stated. What is here stated, however, is believed to represent the prevailing rule.

Workmen's compensation acts do not regulate contracts of physicians with injured workmen whom they treat, or with the employers of such workmen, or with the insurance carriers of such employers. They go no further in this connection than to authorize workmen's compensation boards to award, within statutory limits, to an injured workman, among other items, a sum theoretically sufficient to reimburse him for money which he has paid or has obligated himself to pay for medical services that his employer wrongfully failed to provide.

An employer or an insurance carrier that requests a physician to attend an injured workman, without agreeing on a stated amount to be paid for his services, is liable in an action at law for the reasonable value of such services, to be determined by the court.<sup>1</sup> Workmen's compensation boards have nothing to do with the fees that a physician collects under his contracts with employees, employers and insurance carriers. As a matter of fact, workmen's compensation acts do not provide methods by which physicians can on their own initiative recover their fees for such services, although if an injured workman files a claim for compensation that includes the amount he has paid or is obligated to pay for medical service the physician by filing his claim against the workman may in some states establish what amounts to a lien on any award in the workman's favor. The physician must have recourse to the courts and the ordinary processes of law,<sup>2</sup> if he would establish his claim directly against an employer or an insurance carrier.

An injured workman who requests a physician to attend him is personally liable, in the absence of an express or implied agreement to the contrary, for the reasonable value of the physician's services. An award made by a workmen's compensation board in favor of the workman and against his employer does not limit the amount the physician can recover from the workman in an action at law.<sup>3</sup> A physician may, however, bind himself by an express or implied contract to accept whatever amount the board awards the workman. If, for instance, a physician has customarily demanded of injured workmen whom he has treated fees equal to the amounts awarded to such workmen by the workmen's compensation board for medical service, a court may reasonably conclude that the physician always limits his fees in such cases in that manner.

1 72 American Law Reports 1016 and cases there cited. Knox Stone Works v. Hodge (Tenn.) 289 S. W. 505.

2 Wilson Drilling Co. v. Beyer (Okla.) 280 P. 846. Robinson v. Taylor (Okla.) 244 P. 47. Bloom v. Jaffe (N. Y.) 94 Misc. 222. 157 N. Y. S. 926.

3 Noer v. Jones Lumber Co. (Wis.) 175 N. W. 784.

and that the workman entered into his contract for medical services in reliance on the physician's custom. Moreover, if in any particular community the entire medical profession customarily accepts in satisfaction of all charges for medical service rendered injured workmen the amounts awarded to such workmen for medical service by the workmen's compensation board, that custom, in the absence of an express or implied agreement to the contrary, may operate to limit the amount that the court will award a physician. In any case, the court will endeavor to ascertain the true intent of the physician, the employer, the insurance carrier and the workman when an agreement or contract for medical service is entered into and will see that the agreement or contract is enforced in a manner that accomplishes that intent.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### THYMIC DEATH

*To the Editor*—A multipara with a markedly contracted pelvis gave a history of two previous deliveries with high forceps, one child dying at birth and the other twenty-four hours later. The second was blue and never cried lustily and was given oxygen and stimulants to no avail. In view of the history and a markedly contracted pelvis, I did a cesarean section April 17 at full term. This child had the same appearance of the preceding one. After one hour the color was good and a few breath sounds could be heard. Oxygen and carbon dioxide were given for ten hours with a catheter inserted but the child died. From the history I believe that all three possibly died because of an enlarged thymus. This child post mortem was normal except for a markedly enlarged thymus much firmer in consistency than normal. The lungs were completely atelectatic except in the upper lobes. With this history could any prenatal plan of treatment be instituted to guard against this again? Is it common for a mother to have more than one child with an enlarged thymus? Physical examination and blood tests on the mother, child and father were negative except as given for the child. Would you let me know what can be found in the literature as soon as possible for report at our hospital staff meeting? Please omit name if published.

M D Washington

**ANSWER**—There is a form of sudden death in new-born infants which has been designated by the term "thymic death." This term does not indicate a mode of death by suffocation, coming on after symptoms of obstruction. It is rather a totally unexpected death by asphyxia which occurs in infants immediately after birth, a few hours later or, more rarely, during the first few days. If the case is an early one the infant may be quite healthy and show no signs of respiratory embarrassment. If late, the infant may have already manifested some stridor, and death occurs during a sudden exacerbation. Two explanations are commonly offered to account for the role of the thymus in the causation of sudden death during this period. The gland possibly presses against the trachea and large vessels and thus mechanically causes suffocation and death, or death may be the result of status thymicolymphaticus, an anomaly of the constitution which is held responsible for sudden and unexpected deaths of apparently healthy individuals later in life. Most authorities consider that "thymic death" in new-born infants is to be explained on the mechanical theory. If the infant dies shortly after birth, before complete recovery from asphyxia of the labor, it cannot be assumed that the thymus was the one and only cause unless there is anatomic proof of the enlargement of the gland and of its pressure on the trachea and the large blood vessels. Such cases have been described in the literature but there have been no reports occurring in successive members of the same family. As early as 1906 Hedinger reported the deaths shortly after birth, with signs of asphyxia, of seventeen apparently healthy infants. In all these cases, necropsy revealed a more or less pronounced hypertrophy of the thymus, but enlargement of the thymus without symptoms occurring in more than one member of the same family is not uncommon. The incidence of an enlarged thymus in the new-born varies with the type of infant. For example, infants with congenital defects and malformation have an incidence of over 30 per cent.

Lately there has been some doubt in regard to the causal relationship of an enlarged thymus to sudden death. That the question of sudden death in infants is a more complex one than

can be simply explained by a local cause is indicated not only by presumption of an associated morbid diathesis, status thymicolymphaticus, but also by the association of other constitutional deviations and endocrine defects. Cases of sudden death are recorded in which the necropsy fails to reveal the slightest enlargement of the thymus, and even when a large thymus is found with symptoms of tracheal compression, the actual cause of death may be something quite different. One can only recognize that the thymus may produce signs of obstruction and that this may be the cause of death in some cases. There is no scientific basis, however, for asserting that the thymus is the cause of sudden death by asphyxia which occurs immediately after birth or within the first few days unless it can actually be shown that the thymus produced obstruction. G F Still (*Lancet* 1 431 [March 3] 1923) called attention to five cases showing sudden arrest of respiration immediately after birth and days later in infants apparently healthy. No cause was definitely decided on. A little later Cruickshank called attention to the pressure of the contracting uterine walls on the infant as one of the causes for asphyxial congestion. He is of the opinion that asphyxial congestion is the most usual factor in producing hemorrhage. Such hemorrhage may be in the nature of tiny hemorrhages in the pons. Kirkwood Myers and Lumsden (*Lancet* 2 65 [July 14] 1923) believe that hemorrhage into the pons is doubtless an unrecognized cause of death in new-born infants with inspiratory apnea. Cerebral hemorrhage, atelectasis, congenital debility and supra-renal changes are other causative factors for sudden death in the new-born period which should not be overlooked even in the presence of an enlarged thymus.

In the present state of knowledge there is no effective prenatal treatment to guard against an enlarged thymus in the new-born infant. Irrespective of one's conception of how symptoms are produced the value of roentgen therapy for enlargement of the thymus during the neonatal period, however, is tangible.

### LOSS OF HAIR

*To the Editor*—Can you tell me what possible deficiency might exist in the case of a patient who has progressive loss of hair, with absence of any known disease and a scalp that has no appearance of being diseased? If you cannot give me this information can you tell me where I can get it?

M D Conn

**ANSWER**—Progressive loss of hair (alopecia) may be seen as senile alopecia occurring most frequently in men and developing in advancing years. It is thought in some instances to be a result of the cutaneous atrophic changes associated with old age. Since the loss of hair in these cases is usually on the vertex and above the forehead where pressure of the aponeurosis of the occipitofrontalis muscle is greatest this is thought to be a factor. A mild seborrhea, so slight as to escape notice, undoubtedly exists in many cases. Premature baldness (alopecia prematura) is divided etiologically into idiopathic and symptomatic. Idiopathic alopecia is in many instances hereditary, and the stretched condition of the aponeurosis of the occipitofrontalis muscle, which becomes hereditary in certain families, is stressed by Pincus as a factor. He also states that a chronic eczema or impetiginous eruption of the scalp in the years preceding puberty, is a more frequent cause, and that it is often associated with symptoms of relative or absolute debility. Because of the prevalence of this type of baldness in those leading sedentary lives and in brain workers Jamieson advances the theory that the nerves supplying the scalp are in direct connection with those supplying the coverings of the brain and that an irritable condition of the brain due to cerebral congestion would reflexly interfere with hair growth. Compression of the anterior temporal arteries by stiff hats, which also excludes sunlight and air, have been assigned as causes. Undue exposures to the rays of the sun without head covering is given significance by Harding. Lack of care of the hair and excessive use of water are also considered factors.

The symptomatic variety of premature alopecia has a recognizable cause, which differs widely in each case. The hair loss may result from general or local disease of the scalp or body. It may occur after fevers or severe acute systemic disease (defluvium capillorum) when it is rapid, or the hair loss may be slow as in alopecia pityrioides, in which seborrhea is a factor, and this is probably the most frequent local cause of alopecia.

Conditions affecting the patient generally, such as anemia, anxiety and worry, dyspepsia, rheumatism, malaria, the menopause and neurotic disturbances, are cited as predisposing causes by Jackson and McMurtry (*Diseases of the Hair* Philadelphia Lea & Febiger, 1912). Endocrine factors related

to deficiencies of the anterior pituitary gland (Bengtson, B N Pituitary Therapy of Alopecia, *THE JOURNAL*, Nov 7, 1931, p 1355) have received attention as causal factors. The role of the thyroid in the alopecias has also been stressed. While endocrine therapy has given results in individual cases, these results on the whole have been variable and inconclusive. The toxic action of certain drugs, such as thallium and arsenic, in the production of baldness must be considered, and the possible contributory factors of these drugs should be ruled out in every case.

The role of sulphur in alopecia has recently been reviewed by Brown and Klauder (Sulphur Content of Hair and of Nails in Abnormal States, *Arch Dermat & Syph* 27 584 [April 1933]). They feel that the metabolism of sulphur is only one phase of the mechanism of the growth and loss of hair and state that "this mechanism apparently involves an interplay of other factors, notably the endocrine glands and the sympathetic nervous system."

#### HEMATOMA AFTER EXTRACTION OF TOOTH

To the Editor—A woman aged 25 had the upper left first molar extracted under local anesthesia (procaine hydrochloride) one year ago. This extraction was followed by swelling over the left zygomatic bone and infraorbital region the following day. This region became discolored (ecchymotic) about seven days later. The discoloration and swelling varied in amount and intensity throughout the next ten months associated with considerable pain. The condition had improved to some extent at the end of that time. One month ago (ten months after the first extraction) the upper right first molar was extracted under local anesthesia. This was followed by swelling and discoloration over the right zygomatic bone and infraorbital region the next day. This condition accompanied by considerable pain has persisted up to the present time. Neither extraction was followed by loss of more than a few drops of blood. Seven years ago the patient suffered a nervous breakdown. Thyroidectomy was performed without improvement in the symptoms according to her statement. For two or three years following this operation she was treated in nervous and mental institutions. She has been under home treatment for the past three years. She is still extremely nervous and starts crying at slight provocation. She has had four other molars extracted under local anesthesia during the past few years with out untoward results. The Wassermann reaction is negative. There is no history of purpura. The left side of the face is still improving. Physical examination is essentially negative except for the condition noted and extreme nervousness. Roentgen examination seven months after the extraction of the upper left first molar revealed no infection or bone injury at the site of the extraction. Laboratory and other examinations one month before the second extraction revealed red blood cells 5,010,000 white blood cells 10,200, hemoglobin 95 per cent polymorphonuclears 48 per cent lymphocytes 52 per cent clotting time two minutes. Urinalysis was negative for albumin sugar and pus the specific gravity was 1.018. The blood pressure was 120 systolic 80 diastolic pulse 100 temperature 98. I feel that this condition is due to repeated self-inflicted trauma arising from a desire for sympathy. Could there be a pathologic cause for this condition? Kindly omit name and address if this is published. MD Virginia

ANSWER—Hematoma following the extraction of teeth under local anesthesia is not uncommon. Sometimes the swelling and discoloration appear immediately even before the hypodermic needle is removed. More commonly it occurs a number of hours later or on the following day. In rare instances it is recurrent, lasting for a few weeks but the condition recurring over ten months has not been observed. We know of no other condition that could produce the symptoms described.

#### BRACHIAL PLEXUS INJURY DURING BIRTH

To the Editor—A baby delivered with considerable difficulty by breech extraction some ten days ago appears to have an upper arm paralysis on the left side. For the first two days it was observed that the infant moved only its fingers. Gradually movements of the wrist and forearm have appeared but so far no movements of the upper part of the arm have been observed. The arm assumes a position of inward rotation with the thumb pointing backward. Apparently the paralysis involves the deltoid infraspinatus and supraspinatus muscles which constitutes I believe the Erb-Duchenne type of paralysis. What is the prognosis of this type of injury? Can anything be done to restore function? Is there any particular position in which the arm should be placed and held? Please omit name. MD Wisconsin

ANSWER—The clinical picture of a baby which has not moved its arm from the time of birth but with gradual increase of the movements of the fingers, wrist and forearm suggests at once a brachial plexus injury which probably resulted from overstretching the nerves of the brachial plexus during the delivery of the aftercoming head. Such paralysis may involve almost wholly the nerves supplying the muscles by which the arm is moved at the shoulder and constitutes the typical Erb-Duchenne syndrome.

When the hand and wrist muscles are involved and not the shoulder the injury is usually due to traction on the arm in a breech delivery. The eighth cervical root and the first thoracic nerve roots are involved in this Klumpke paralysis.

Usually, however the paralysis is of the whole arm type but more severe in the upper or lower part of the arm, as the case may be.

The treatment should be one of protection through splinting with the arm held in a strap hanger or airplane splint which maintains 90 degrees abduction and, as nearly as possible, complete external rotation. If the hand is involved, the upright part of the splint should have a flat surface at the side of the hand to which the fingers should be strapped in the extended position. This splint should be worn for twenty-four hours a day for several days and should be removed only for bathing the baby. After one week it is advisable to remove the splint for one hour each morning during which the arm is allowed to rest at the infant's side and the shoulder and arm may be gently massaged. After two weeks the splint should be removed for one hour both morning and afternoon and each time the arm should be massaged for about fifteen minutes. If the recovery of the muscles has been quite definite, it will then be safe to leave the splint off for two hours morning and afternoon and permit the infant to use the arm as much as possible during that interval. The length of time which the splint is removed should be increased at the rate of an hour a week until it is left off all day after from three to four months. If there is still weakness at this time in the shoulder muscle group, it is advisable to continue wearing the splint at night for as long as a year or until such time as a normal range of active shoulder motion is definitely established. This splinting relaxes the tension on the brachial plexus and also prevents contractures of muscles or ligaments about the shoulder.

The prognosis for about 70 to 80 per cent recovery in most of these cases is good. Occasionally these infants seen during the first few days after delivery with apparently total whole arm paralysis make so nearly a complete recovery that an examiner cannot detect any weakness when the patient is 1 year of age.

#### NUPERCAINE AND TOXICITY OF LOCAL ANESTHETICS

To the Editor—There are hospitalized at this facility about 1700 patients. Almost every conceivable type of disease is to be found at one time or another among this large group of patients. From time to time attention is called to new anesthetics both local and general. We have no desire to be the last to try out new remedies but on account of the nature of our work and the fact that this is more or less a public institution we must maintain a certain amount of conservatism in the use of new anesthetics. Nupercaine (Ciba) is one of the newer local anesthetics and from the description given in New and Nonofficial Remedies, one is led to believe that it possesses a high degree of toxicity. A great deal of local anesthesia is used in our genito-urinary department eye ear nose and throat department cancer service and in some cases of tuberculous of the larynx. If nupercaine may be used generally with safety, we are anxious to give it a trial. However before attempting its use extensively a few questions should be answered satisfactorily. 1 May this local anesthetic be injected into the larynx in a 2 per cent solution? If not what percentage should be considered as the limit of safety? Also what quantity should be used? This question is prompted by the fact that in your description you mention that cases have been reported in which it caused necrosis of the tissue. 2 May a 2 per cent solution be injected into the urethra? If so in what quantity? 3 May this solution be used in eye work? Is there any danger of necrosis when used in this manner? If nupercaine has proved to be more than ordinarily toxic, we should like to know and we shall not adopt it as a local anesthetic. W E KENDALL, M D, Hines III

ANSWER—When one is warned that a given local anesthetic is highly toxic, one is prone to forget that the toxicity of a substance may be actually high but may be relatively low, and it is the relative toxicity of an active substance that determines the safety with which it may be used by one who understands its possibilities and limitations. It is the accepted policy of the Council on Pharmacy and Chemistry not to accept a new local anesthetic merely because it is capable of inducing anesthesia, and before accepting a new substance of this class for New and Nonofficial Remedies the Council demands evidence that it possesses some advantage over other well known local anesthetics.

The important thing to be borne in mind constantly when one uses any local anesthetic for any purpose is to use the smallest amount and the lowest concentration that are effective. The Committee for the Study of the Toxic Effects of Local Anesthetics (*THE JOURNAL*, March 15, 1924) concluded that the local anesthetics may be used safely if the conditions laid down in the report are observed.

It is well known that, grain for grain, nupercaine is more toxic than procaine but it is also more active in inducing local anesthesia, consequently, much less of it is required. It has the advantage that the anesthesia induced usually lasts for from two to three hours or even longer, whereas the anesthesia induced by procaine usually does not last more than two hours and often less than that. It is plain, therefore, that a local

anesthetic of the nupercaine type is desirable for those operations which cannot be completed in less than two hours.

It is a remarkable fact that the more active local anesthetics are often used in doses comparable to those of procaine, in entire disregard of the known difference in toxicity. It is no cause for wonder that fatal accidents have resulted from such misuse of these local anesthetics.

1 The 2 per cent solution of nupercaine is intended for local application in the throat and nose, procaine is preferable for injection, or one may inject small amounts of nupercaine 1 1,000, to which may be added one-tenth its volume of epinephrine solution 1 1,000, that is, 0.1 cc of the epinephrine solution to each cubic centimeter of nupercaine solution 1 1,000. Necrosis of the tissue may occur after the use of any local anesthetic, and one does not know in any case when such an accident may happen. It occurs but seldom when any of the local anesthetics is used properly.

2 It is distinctly dangerous to inject an effective dose of any of the local anesthetics in common use into the urethra in the presence of trauma. Disregard of the oft repeated warning has been responsible for many fatalities. The manufacturers themselves urge great caution when injecting nupercaine into the urethra in greater concentration than 1 500, and it does not seem justifiable to use a solution of ten times that concentration. Some observers have found a solution of 1 2,000 effective.

3 The manufacturers warn of the danger of using a concentrated solution of nupercaine in the eye and state that drying and cloudiness of the cornea may result from the use of a solution of 1 100. They state that it may be used in the eye with safety in the concentration of 1 1,000.

#### PSYCHOSIS OF GAS POISONING

To the Editor—What effect would the following composition of fuming gases have on a patient eighteen months after exposure: cyanide chloride, cyogen chloride, sodium cyanide and inert materials? The specific case I have reference to concerns a woman aged 25, well developed, well nourished, fairly intelligent, circumstances poor. She and her sister were both overcome by the foregoing mixture of gases when an adjoining apartment was fumigated in November 1932. What followed immediately afterward is rather vague, although the sister was evidently unconscious for several hours but recovered. My patient ran to an open door when she felt herself becoming dizzy and did not lose consciousness. There was some vomiting, with considerable fright. I saw her for the first time in February 1934. She said that she had not been well since the accident, although no physician had attended her. Chief complaints were sinking spells with her heart, insomnia, flatulence and general weakness. The former history was negative except for renal calculus years before. Examination of the heart and lungs was negative. There were no murmurs. The pulse was rapid (120). The blood pressure was 120 systolic, 70 diastolic. The thyroid was palpable. No other signs of toxic gases were present other than the rapid pulse. A basal metabolism test and roentgen examination of the chest were not made as the patient refused to assume financial obligations for this work. The conjunctivae were very pale. No symptoms were obtainable in the abdomen. No tenderness or masses were found. Examination of the extremities was negative. The patient was placed on an iron tonic and bromides. Feeling that she was not making progress, she requested a consultation. The consultant diagnosed the case as neurasthenia from the bizarre symptoms and absence of physical changes. At present the patient is ambulatory, but contents herself with short walks and spends much of her time sitting in an easy chair or in the porch swing. When asked how she feels she says that her heart sinks all the time. The sister has been under the care of a physician almost continuously since the accident and while she appears much the less robust of the two she is able to get about quite well. Neither has worked since November 1932. A lawsuit is pending. My opinion is that the patient will make a rapid recovery when a settlement is made. What I want to know is whether you think her trouble would likely be due to the experience she had in 1932. What are the sequelae in patients who have recovered from cyanide gas poisoning? Two doctors who have gone over her carefully have said there is just nothing that you can put your finger on in this case and I am admittedly up a stump. Can you help me? Kindly omit name if published. M D, Indiana

ANSWER—The symptoms here described originated in fright, not in the physical effects of the gas. Henderson and Haggard in "Noxious Gases," page 112, say that "nonfatal cases of poisoning (by hydrocyanic gas) result in headache, a feeling of suffocation, and some nausea, these symptoms pass off after several hours." Hamilton in "Industrial Poisons in the United States," pages 348, 350, says that "chronic cyanide poisoning from HCN and its compounds is certainly rare and there are even skeptics who refuse to believe that any indubitable cases have ever occurred." This author quotes from Reed (*J Indust Hyg* 2 140 [Aug] 1920) reports of cases exhibiting dizziness, nausea, lacrimation, blurring of vision, gasping, coughing, staggering, prostration and irregular pulse. The men with these symptoms had been exposed every day for months. Authorities agree that, if death does not result from the immediate effects of cyanide poisoning, recovery is rapid and complete.

#### PTERYGIUM OR MALADIE DE CROCODILE IN PAPYRUS EBERS

To the Editor—Costomuri, page 50 in his book on ophthalmology of ancient Greece, quotes Ebers as saying in the papyrus that the *maladie de crocodile* is applied to the pterygium because of a resemblance with the head of that animal. Hirschberg does not confirm what Costomuri has to say. I have neither the history nor the papyrus yet I should like to have something definite on this point.

T J DIMITRY, M D, New Orleans

ANSWER—It is rather difficult to answer this question without having the original papyrus of Ebers at hand. Ebers (George Moritz Ebers, a German Egyptologist, 1837-1894) obtained this famous papyrus from a citizen of Luxor in the winter of 1873-1874 and published the first edition in 1875. The papyrus was 30 cm high and over 20 meters long and was written in hieratic script. Ebers' edition covered 108 pages, each with from twenty to twenty-two lines. Eight pages is devoted to ophthalmology, but the demarcation of this section was not sharp. The first complete translation of the papyrus was published by Dr H Joachim of Berlin in 1890.

According to this translation, the section on ophthalmology seems to end with a "Method of removing fat (Xanthelasma) from the eye, Messerstein in frischer Milch mischen und sehr häufig auf das Auge bringen." Then follow several formulas to be used in case of a bite by a human being. These are followed by this paragraph:

"Zu machen gegen den Biss eines Krokodiles," to which Joachim has appended the following footnote: "Eigentlich gegen den Krokodilrachen Ebers, der diesen kleinen Abschnitt noch wie oben erwähnt zu den Augenkrankheiten rechnet, sieht hierin eine Augenkrankheit, nämlich das Pterygium. Er hat wohl übersehen das oben (Tafel 59,1) adēt anders determiniert ist als hier und dass oben vor allem von 'adēt m mērt' die Rede ist, cfr auch Tafel 59,10." This may be translated as follows: "Ebers considered that this small section belonged to the section on ophthalmology, as was mentioned previously and believed that this referred to a disease of the eye, namely, pterygium. He evidently overlooked the fact that in plate 59,1, adēt was determined as having another meaning and that especially in this section, the question dealt with adēt m mērt (compare plate 59,10)."

The question seems to simmer down to the rendition of adēt. According to Ebers it could refer to pterygium, but his reasoning here is rather weak. Hirschberg translates it as ocular carcinoma, but he himself questions the validity of the rendition. Lüring offers the most logical translation as injury, which seems to fulfil all requirements. If this is accepted the section in question deals purely and simply with the bite of a crocodile and has nothing to do with diseases of the eye.

#### TREATMENT OF CARDIAC DECOMPENSATION

To the Editor—A patient of mine is a 46 year old woman with a badly decompensated cardiac condition who is being given 1 cc of salyrgan intravenously once a week. Following the first four injections marked subjective improvement was noted. Following the last two injections however she has had rather abrupt drops in her systolic blood pressure from 200 to 140 or 150 mm of mercury. Accompanying this drop she has had severe aching, slight febrile reaction and marked weakness. The reaction came on in each case approximately four hours after the injection and persisted until the blood pressure had been elevated to its former level by repeated small injections of epinephrine. Urinalysis reveals a trace of albumin and very occasional hyaline casts. Moderate diuresis has followed each injection. Kindly inform me whether the salyrgan should be stopped. Please omit name. M D West Virginia

ANSWER—Reactions from salyrgan in 1 cc doses are infrequent, particularly when used in patients with edema.

Mercurial diuresis is intimately associated with the available sodium chloride and during mercurial diuresis large quantities of sodium chloride are eliminated in the urine. When salyrgan is used, the sodium chloride reserves of the body often become depleted, particularly if the patient is on a low sodium chloride intake. When this occurs the diuretic effect of the drug is decreased but can oftentimes be enhanced again by giving preliminary doses of sodium chloride. Furthermore, some authors have felt that following sodium chloride depletion in the body further doses of salyrgan may give reactions as a result of hypochloremia.

The question does not state whether preliminary treatment to salyrgan medication was given. This is important, because if salyrgan diuresis is enhanced by other innocuous drugs such as the acid base salts, it is not necessary to give salyrgan as often to obtain the same results. The following regimen is suggested:

The patient is given 4 cc of a 40 per cent solution of ammonium nitrate three times a day in half a glass of water after eating. Then the salyrgan is given not oftener than every

three days On the second day after the salyrgan the patient should take a saline cathartic

If the patient becomes nauseated from the ammonium nitrate, hydrochloric acid 5 per cent can be substituted with good results The dose commonly used is 4 cc three times a day in half a glass of water after eating Ammonium chloride is considered by some preferable to ammonium nitrate

#### PREGNANCY IN PATIENT WITH ONE KIDNEY

To the Editor—I should like your advice on the following problem A woman aged 41, has two living children aged 18 and 20 years About ten years ago she had one kidney removed following its almost complete destruction as the result of obstruction of the ureter by a stone In the past three years she has had two or three spontaneous abortions in the early months of pregnancy not apparently associated with any signs of low renal function She earnestly desires another child My questions are 1 Would you advise against any woman with only one kidney becoming pregnant? 2 If so what results of what kidney function tests would you expect before you advise such a woman that she could successfully withstand the demands made on her organism by a pregnancy? 3 Is it possible that her abortions were the protective acts of nature against a possible damaging of her one kidney?

LEON PARIS MD Bronx N Y

ANSWER—1 A woman with one perfectly functioning kidney usually stands pregnancy and labor well and therefore, in the absence of other contraindications, may take the slight risk

2 Of the kidney function tests during pregnancy only one has proved even partly reliable, the urea clearance test, and even this one has to be discounted somewhat since urea clearance is naturally lower during gestation

3 It is possible that nature throws off an offending parasite (the ovum) by abortion to protect an inadequate renal function Kidney disease may exist with minimal symptoms and tests may not discover it Many evidences of this exist in the "latent nephritis" of older authors and "low reserve kidney" of Williams and Stander Indeed, there are rare cases in which the only evidences of maternal kidney damage are to be found in the fetus and the placenta of the aborted ovum—particularly the placenta

Have all the other causes of habitual abortion been ruled out in this case?

In this particular patient it is justifiable to let pregnancy supervene if at present no renal inefficiency is discoverable, treat the case as if there were latent nephritis, and watch with exceeding care for the very first manifestations of kidney trouble This means, most of all, clinical supervision but with aid from the laboratory In addition to urea clearance tests, nonprotein nitrogen, creatinine and blood concentration readings must be made regularly

#### PARAFFIN BATH METHOD FOR ARTHRITIS

To the Editor—Kindly give details regarding the paraffin bath for rheumatoid arthritis of the interphalangeal joints of the fingers Kindly omit name

MD Pennsylvania

ANSWER—The equipment for treatment by means of hot paraffin dips includes a metal or enamel-ware container which may be of various shapes and sizes, cakes of paraffin, and a heater

The container may be the ordinary double boiler that is used in cooking cereals It may be the shape of an electrical sterilizer It may be the shape of a large coffee pot It may be like a small clothes boiler used in the laundry

For the hand and arm, a container shaped like a medium-size electrical sterilizer is filled two-thirds full with paraffin, which can be melted by gas or electric heat The paraffin comes like cakes of chocolate The Standard Oil Company puts out a satisfactory product These cakes are put into the container and heated to the melting point One may use a thermometer in order to keep the temperature between 118 and 136 F A simpler method is to keep the heat at the point where it will melt the bulk of the paraffin, but a fresh half cake will remain in solid form at the bottom of the container

The patient stands or sits and plunges his hand and lower forearm into the hot paraffin and removes it after from ten to thirty seconds A coating of paraffin adheres to the part At the end of from thirty to sixty seconds, when the coat is dry, the hand and forearm are again plunged in and another coat is added to the first This process is repeated at intervals of from thirty to sixty seconds until six or eight coats have been applied

The hand is then removed, placed on a pillow and remains for a period of from eight to ten minutes The entire period, from the time the hand is first placed in the paraffin until the entire paraffin glove or gauntlet is removed should occupy from fifteen to twenty minutes

#### MASTODYNIA

To the Editor—I would welcome therapeutic suggestions in the following case of mastitic engorgement A woman, aged 27 married with one child, aged 5 years had an oversupply of milk during the nursing period and the milk was pumped out of her engorged breasts and fed to other infants She tries to limit her fluid intake because immediately after fluids are taken, her breasts undergo enlargement As she puts it everything that she drinks runs to her breasts She has a slight tendency to obesity, but her breasts are out of proportion to the rest of her body and she feels self conscious Before the menstrual period the breasts undergo similar hypertrophy Kindly omit name

MD Massachusetts

ANSWER—The engorgement of the breasts in this case most likely is due to some endocrine disturbance It may be related to the condition of "painful breasts," or mastodynia, which many women experience just before or at the menstrual periods It occurred to Cutler (*THE JOURNAL*, April 11, 1931, p 1201) that the syndrome of "painful breasts" might be associated with diminished follicular function He has obtained good results with hypodermic injections of estrogenic substance G Van S and O W Smith (*Am J Physiol* 103 356 [Feb] 1933) showed that large doses of estrogenic substance (e g, theelin) prevent lactation in rabbits after parturition This has since been shown by other workers to result from suppression of the anterior pituitary, which secretes the lactogenic principle In the experiments of the Smiths it was not always possible to inhibit lactation by estrogenic substance after the secretion of milk had continued for some time Desiccated thyroid may be tried, because it not only inhibits the secretion of milk but also acts as a diuretic Wachtel (*Zentralbl f Gynaek* 53 987 [April 20] 1929) successfully used thyroid to diminish the flow of milk in women Pituitary extract definitely diminishes or stops the flow of milk in animals Fauvet (*Arch f Gynaek* 155 100, 1933) succeeded in inhibiting the flow of milk in 121 out of 123 women by administering thyroxine tablets and phenobarbital

#### HEREDITY IN HARELIP

To the Editor—A young couple, both university graduates, have recently consulted me in regard to the possibility of having another child One year ago they had a baby born with a harelip although the pregnancy was apparently normal The question asked me was 'In the event of another child what are the possibilities of a recurrence of harelip or some other anomaly?' The mother has recently been examined by a physician, who suggested a possibility of a hypothyroidism a basal metabolism test has been arranged for Is there anything that can be done to assist in the prevention of such an anomaly? Is harelip a recessive or a dominant trait? In view of the chances of a recurrence is it best to advise those parents to have no more children? Kindly withhold name and address

MD California

ANSWER—The available statistics would suggest that there is a hereditary predisposition in something like 30 per cent of the occurring cases of congenital facial clefts However, if there are no other cases in the family there is probably no more reason to expect other children to be so afflicted than in a family with a negative history of such a deformity There does not seem to be anything that can be done to assist in the prevention of such an anomaly, although there is a suggestion that some of these cases are associated with extreme vomiting early in pregnancy In some others the mother gives a history of having had a serious tooth complication early in pregnancy, but the relationship of this to the occurrence of harelip is not conclusive Harelip is a negative and not a positive condition, and there probably are as many causes for it as there might be for a fracture of a leg There is no apparent reason why the parents should be advised not to have other children If properly cared for, these children are about as well off as the average

#### FRACTURE OF THE OLECRANON

To the Editor—What is the latest approved method in treating a complete fracture of the olecranon? A advised an open reduction with the elbow maintained in flexion while B advised closed reduction and extension Is flexion now the preferred position when the closed reduction is used? Please discuss with regard to functional recovery and length of convalescence Please omit name

MD New York

ANSWER—The treatment of this case depends on several factors, including the degree of separation, occupation of the person, risk of operation equipment from the standpoint of the hospital and surgical team and whether the fragments can be perfectly approximated when the elbow is in extension In fracture of the olecranon, under anesthesia with gas, the arm may be completely extended and the smaller fragment manipulated in line with the larger one If it can be perfectly approximated, a plaster-of-paris cast may be applied with the elbow in extension for about three weeks Then the cast is



bivalved so as to apply radiant heat, gentle massage and careful flexing movements twice daily. If the fragments cannot be perfectly approximated, an open operation consisting of approximation of the fragments, four drill holes inserted and the fragments united by living suture, such as fascia lata, may be attempted. In many cases the smaller fragment is only a flake of bone and cannot be drilled sufficiently to permit suturing by this method. In that case, catgut is used.

#### POSSIBLE EPILEPSY

*To the Editor*—A man aged 58 a lawyer, has spells at night of jerking muscles of the body and legs that wake him up. The condition is severe as the jerks are violent and they even draw his legs backward but they do not occur in the daytime nor have they interfered with his work. But they may keep him awake half the night more or less. His physique is good. He hunts and fishes and is active. The jerks have persisted for several years but they are getting worse and now he seems to get a pressure or pain in his head with the attack. Physically he is well. The urine is normal. He eats properly. He has a good business with a large clientele. He smokes cigarettes quite freely. He has used considerable liquor in years past and was addicted to quite a spree now and then but usually was ready for business when needed. He is pleasant and affable but when the jerking spells seize him he curses and becomes angry. In fact he is said to have gotten up recently and pounded with his fists. He even threw a glass and broke it. Then he cleaned up the pieces and simply told his wife that he had had a terrible night and dismissed the subject. I have urged him to go to a neurologist and be checked up but so far have not been able to get his consent so I am writing to you for advice. M D Minnesota

**ANSWER**—Your advice to the patient is eminently sound, as it is obviously essential for a rational therapy that a thorough examination be made, general as well as neurologic. The account given suggests that the seizures are of an epileptic nature, though no guess can be hazarded as to their etiology or significance. The onset of seizures late in life—the date of onset is not given—always suggests an organic basis which should be discovered if possible. Temporizing is unwise and one would hesitate, if not refuse, to advise any merely symptomatic therapy.

#### TOXICITY OF DIBUTYL PHTHALATE

*To the Editor*—Kindly advise me whether the handling of dibutyl phthalate is in any way injurious to the health of an individual. Is there any connection between the handling of this drug and kidney stones? JOSEPH L. NORTELL M D Chicago

**ANSWER**—Dibutyl phthalate long has been used as a plasticizer in cellulose nitrate and acetate lacquers and in the manufacture of safety glass. No experience is known to have developed indicating that this substance possesses toxic properties. In free form this phthalate comes in direct contact with the skin of certain classes of glass workers. No skin irritation has been observed. Its high boiling point (340 C) is unfavorable to the ready formation of vapors. Burke, in an article entitled "Lacquers and Their Hazards" (*New York Bull Indust Hyg* April, 1932, p 23), states that phthalate esters may be considered free of health hazards. In the state of Ohio, wherein there is a compulsory system for the reporting of occupational diseases, apparently no cases of dibutyl phthalate poisoning have been recorded. While the total amount of information on the action of this phthalate on the human body is scanty, the stand may be taken that no sound reason exists for the attribution to this agent of the formation of kidney stones.

#### ESTIMATING BASAL METABOLISM IN PATIENT WITH AMPUTATION

*To the Editor*—How can the basal metabolic rate be estimated in a male patient with bilateral mid thigh amputation? This patient has a pulse rate of 94 and a blood pressure of 160 systolic 94 diastolic. Can the increased pulse rate and elevated blood pressure be attributed to the amputation assuming that the general physical examination is negative? M I MENDELOFF M D Charleston W Va

**ANSWER**—Aub and Du Bois (*Chemical Calorimetry, Arch Int Med* 19 840 [May, part 2] 1917) discuss the basal metabolism of dwarfs and legless men. They conclude that "the law of surface area holds good for men of unusual body shape." Based on this authoritative statement, which has never been disputed, calculations in this case are the same as in any other individual. One would therefore proceed as in the following sample calculation in an "assumed case with a bilateral mid-thigh amputation. Mr X, aged 43, height 105 cm weight 58.8 Kg, body surface 1.19 square meters, total calories per hour determined by basal metabolism test 517, or 433 calories per square meter of body surface. The predicted normal (Aub Du Bois) in this case is 385 calories for each square meter

per hour. This represents, in this assumed case, a basal metabolic rate of +13. The body surface is conveniently obtained by the use of the well known nomographic body surface chart of Boothby and Sandiford (Du Bois Basal Metabolism in Health and Disease, edition 2, p 120, also table 29, p 169). It is quite evident that in the application of the body surface formula the loss of weight by amputation compensates to some extent for the reduction, if any, in body height even in a one legged subject.

One of the legless men discussed by Aub and Du Bois (p 848) had a blood pressure of 188 systolic, 130 diastolic. This hypertension, however, can be accounted for by the other clinical observations reported. Although data on this point are not obtainable at present, a normal blood pressure should be expected in a normal individual after full recovery from the amputation.

#### PALPITATION AND NERVOUSNESS AFTER PROCAINE AND EPINEPHRINE

*To the Editor*—It has come to my attention that occasionally after the injection of a local anesthetic solution such as procaine combined with epinephrine the patient complains of palpitation and nervousness. Kindly outline the anatomic course of the impulse generated by the vasoconstriction at the site of the injection (for example an injection surrounding the tonsil) to the structures involved in producing the subjective symptoms of palpitation. Do you know of any method of preventing these symptoms from developing in sensitive patients? H C SCHOLER M D, Detroit.

**ANSWER**—These are not uncommon symptoms following such injections. Unfortunately, a general satisfactory explanation cannot be offered. The palpitation of nervousness following injections of procaine solution containing epinephrine is not due to a reflex generated at the site of vasoconstriction but probably to the following factors:

1 Anxiety and fear of operation in highly nervous individuals which will induce palpitation and this, in turn, more nervousness.

2 A too rapid entrance into the circulation of some of the epinephrine and procaine from the site of injection.

3 The possibility that at the time of injection the point of the needle may empty directly into a small vein and hence a fairly large quantity of the substance enter the general circulation rather rapidly.

4 Hypersusceptibility of some individuals to both epinephrine and procaine and its allies. Patients with hyperthyroidism, many women at the menopause, persons with hypertension, and those with neurocirculatory asthenia are said to be highly susceptible to epinephrine. All the commonly used local anesthetics have caused such untoward symptoms, which have been attributed to idiosyncrasy or hypersusceptibility.

There is a possibility that these symptoms may be prevented by the preliminary administration of a sedative such as barbitol, about 0.3 Gm (5 grains) by mouth, half an hour before the local injection is made. Secondly, all injections should be made rather slowly precautions being taken to avoid the possibility of direct entrance of the needle into a vein. With slow injection the operator may better detect an idiosyncrasy to the drugs.

#### PARALYSIS OF CONVERGENCE OF EYES

*To the Editor*—A man, aged 23 presents a negative medical history until six months ago when he began to get attacks of a "feeling of uncertainty about him and his eyes just seemed to gaze into space." He was examined several times but nothing seems to have been found. Refraction gave no relief. Recently I examined the patient; the only significant observations were in the eyes. The left pupil is slightly larger than the right. Both react to light but only feebly in accommodation. The eyegrounds are normal. The patient is able to move his eyes in all directions freely but is unable to converge them. Convergence seems to be less on the left side. There is no nystagmus or squint. This appears to be more than an ordinary exophoria. The Wassermann reaction is negative. Urinalysis is negative. The visual fields are not altered. What diagnosis does this suggest? Is there any relation between the weakness of the left interior and the dilatation of the pupil? Where is the lesion? Is there any treatment? M D Pennsylvania

**ANSWER**—The one missing point in the enumeration of symptoms is whether diplopia exists or can be elicited and whether such diplopia is for distance or for near. The recital indicates a paresis of convergence, which is not at all uncommon. True paralysis of convergence, according to Bielschowsky, does not exist whereas a weakness or paresis of convergence is a well recognized clinical entity. This is, of course, in direct connection with the lack of convergence reaction of the pupil, as the centers of convergence and of pupillary contraction to convergence or accommodation are side by side and are stimulated simultaneously. These centers are in close asso-

ciation with the third nucleus but anatomically are probably located in the occipital cortex. The most common cause of this trouble is epidemic (lethargic) encephalitis although other cortical lesions must be taken into consideration. The treatment must be based on the underlying cause.

# LIQUID FACE POWDER

To the Editor—Have you a formula for a liquid suspension powder which is known in the cosmetic trade as a liquid face powder? Could something like this be used as a medium for pigments to be applied over disfiguring marks on the face or arms? I mention this type of preparation because of the fact that it covers better and seems to cling to the skin better than the dry powder dusted or rubbed on. Kindly omit name.

M D Minnesota

ANSWER—Calamine lotion, composed of calamine powder, a pink crude zinc carbonate, and zinc oxide in lime water is such a so called liquid powder. Any suitable inert insoluble powder can be used. If used on dry skin, equal parts of lime water and rose water will probably be more agreeable. A small amount of glycerin may be added if this combination is too drying.

Zinc paste composed of 25 per cent of zinc oxide, 25 per cent of starch and petrolatum or ointment of rose water 50 per cent is another good covering preparation.

# IONIZATION OF NASAL MUCOSA

To the Editor—Have you any data concerning the origin of the fad for ionization of the nasal mucosa which is so extensively exploited at the present time? My own information is to the effect that it was initiated by an electrical engineer in San Antonio Texas who sold the idea to the present manufacturers.

CHARLES H EVERMANN M D St Louis

ANSWER—It is difficult to state absolutely the origin of the employment of ionization of the nasal mucous membrane. There is herewith submitted a list of references beginning in 1917 and ending with a recent paper by Dr Harold L Warwick in the March issue of the *Laryngoscope*.

- Kesteven L. Notes on Ionic Medication and the Method of Administration. *Brit M J* 2: 423 (Sept 29) 1917. This article contains a brief paragraph on the reduction of enlarged turbinates.
- Kesteven L. Ionic Medication in Diseases of the Ear Throat and Nose. *Therap Gaz* 42: 613 (Sept) 1918.
- Friel A R. Treatment of Sepsis in Nose and Ear by Ionization. *Practitioner* 103: 449 (Dec) 1919.
- Friel A R. Zinc Ionization and Zinc Electrolysis in Diseases of Throat Nose and Ear. *Dublin J M Sc* February 1922, p 640.
- Pradhan K N. Electric Ionization and Nose Operations. *Indian M Ga.* 57: 137 (April) 1922.
- Warwick H L. Treatment of Hay Fever and Its Allied Conditions by Ionization. *Laryngoscope* 44: 173 (March) 1934.

# TREATMENT OF OLECRANON BURSITIS

To the Editor—I am treating a healthy man aged 53 for an olecranon bursitis which followed a bruising of the left elbow on his car door a month ago. Hot applications, rest and light bandaging have failed to cure it. Under strict asepsis I have aspirated it twice but it soon fills up again. The fluid obtained is a clear straw color tinged with blood. Would injection with some sclerosing solution cure it? Would such an injection affect the elbow joint in any way? What type of solution would you recommend should you deem this treatment advisable?

DONALD B KNOWLES M D Chicago

ANSWER—Injection with a sclerosing solution might effect a cure. One must be careful that there is no connection between the joint capsule and the bursal sac. The most commonly used preparations for injection are camphor and phenol compound solution of iodine and Pregl's solution of iodine. Some cases of olecranon bursitis do not clear up until foci of infection are removed, the most common being in the intestinal tract. Scarification of the bursal sac walls or excision may be necessary.

# INCOMPATIBILITY OF ACETYSALICYLIC ACID (ASPIRIN) AND SODIUM BICARBONATE

To the Editor—I have had several minor arguments with several confreres about combining acetylsalicylic acid (aspirin) and sodium bicarbonate. I have always felt that since one is an alkali and the other an acid combining them in the same prescription is incompatible. Will you please tell whether or not they may properly be combined? If so what are the advantages? If not what are the disadvantages other than mixing any acid with an alkali? Please omit name.

M D Pennsylvania

ANSWER—The alkali decomposes the acetylsalicylic acid into acetic and salicylic acids. Hence the incompatibility is worse than merely any mixture of acid and alkali. There are no advantages in this mixture.

# HONEY IN DIABETES

To the Editor—Would you please advise whether honey is permissible in diabetes? If so what quantity? If not what form of sweets can be given? Please omit name.

M D, Arkansas

ANSWER—That diabetic patients can tolerate honey better than other sweets has been reported at various times. However, the sugars in honey, including levulose, are not oxidized in complete diabetes, and this being true it is unlikely that the patient with mild diabetes is injured any less by honey than he would be by dextrose. Glucose sweetens without adding either sugar or calories to foods, and in divided doses not exceeding 4 or 5 grains (0.26 or 0.32 Gm) daily it appears to be harmless. Further details are given in Joslin's Manual for Diabetic Patients, ed 5 Philadelphia, Lea & Febiger 1933, or Wilder's Primer for Diabetic Patients, ed 5, Philadelphia, W B Saunders Company, 1934.

# PIPERAZINE FOR RENAL CALCULI

To the Editor—Please inform me whether piperazine is of any value in dissolving renal calculi. Will its continued use cause any damage to the kidneys or other organs? Please omit name.

M D, North Carolina

ANSWER—Piperazine is of no value in dissolving renal calculi. It does not dissolve uric acid in the presence of sodium salts any better than any other alkali and, as part of it is oxidized in the system, its effect on the alkalinity of the urine and therefore its solvent power is less than that of sodium bicarbonate. It is virtually nontoxic.

# NATURE OF INFECTIOUS DISEASE

To the Editor—Is there any disease which may be contracted a number of times and in which each succeeding exacerbation is less severe and also in which finally immunity is established?

STANLEY M GATES M D Monticello Ark

ANSWER—Tularemia and undulant fever appear to be good examples of the kind of infectious disease indicated in the question.

# TRYPARSAMIDE IN SYPHILIS OF THE OPTIC NERVE

To the Editor—In Queries and Minor Notes' August 11 appears a question from Dr W W Pike of Binghamton N Y on the use of tryparsamide in syphilis of the optic nerve. The answer to this query betrays unfamiliarity with the recent literature.

In part 1 of Dr Pike's query, he himself is in error in stating that Woods and Moore have shown improvement with tryparsamide in cases of optic atrophy. On the contrary Woods and myself have definitely advised against the use of this drug in optic atrophy and the authors to whom Dr Pike has reference are probably Cady and Alvis (*THE JOURNAL* Jan 16 1926 p 184). On the basis of my own experience with Woods I am therefore diametrically opposed to the answer to part 1 of this query and in my opinion it would be most unwise to use tryparsamide.

In response to the question 'What is the present status of the Swift-Ellis treatment in the treatment of optic atrophy?' the answer is given. There is no known treatment which can cure optic syphilitic atrophy [sic]. While it is true that no known form of treatment will cure syphilitic optic atrophy its progress can be arrested in about 50 per cent of the cases treated (provided vision in the better eye is 20/40 or more) by the use of subdural treatment. The literature on this point is summed up in an article 'The Syphilitic Optic Atrophies' (*Medicine* 11: 263 [Sept] 1932) and is more briefly summarized in chapter XVIII of my recent monograph 'The Modern Treatment of Syphilis' Springfield Ill Charles C Thomas.

To the question 'Have any benefits been observed from the use of fever therapy in arresting optic atrophy?' the answer is an unequivocal No. This answer is quite untrue. Definite arrest of the progress of syphilitic optic atrophy in many cases has resulted from the use of malaria.

To the question 'Is there any other treatment that you could suggest to arrest advancing impairment of vision and perhaps restore sight?' the answer is again No. As a matter of fact in the particular case described by Dr Pike the atrophy is apparently largely unilateral with normal fields and fundi in the right eye. The prognosis from either subdural or fever treatment in cases of this type is an extremely favorable one.

The benefits derived from malarial therapy are not thought by most observers to be mainly due to the rise of temperature and its persistence. References to this point may be found in chapter XXV of my own monograph and in many other papers prominent among which are:

- Bruetsch W L. Activation of the Mesenchyme with Therapeutic Malaria. *J Nerv & Ment Dis* 76: 209 (Sept) 1932.
- Bruetsch W L. Histopathology of Therapeutic (Tertian) Malaria. *Am J Psychiat* 12: 19 (July) 1932.
- Freeman Walter. Malaria Treatment of Paresis. *Am J Syph* 14: 326 (July) 1930.
- Freeman Walter Fong T C and Rosenberg S J. The Diathermy Treatment of Dementia Paralytica. *THE JOURNAL* June 3 1933 p 1749.
- J E Moore M D, Baltimore

## Council on Medical Education and Hospitals

### COMING EXAMINATIONS

**AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY** *Written (Group B candidates)* The examination will be held in various centers throughout the country, Oct. 1 *Oral (Group A and Group B candidates)* San Antonio Texas Nov 13 16 Sec Dr C Guy Lane 416 Marlborough St Boston

**AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY** *Written (Group B candidates)* The examination will be held in various cities of the United States and Canada, Nov 3 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh

**AMERICAN BOARD OF OPHTHALMOLOGY** San Antonio Texas Nov 13 Philadelphia, June 10 *Application must be filed at least sixty days prior to date of examination* Sec Dr William H Wilder 122 S Michigan Blvd Chicago

**AMERICAN BOARD OF OTOLARYNGOLOGY** San Antonio Texas Nov 16 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

**ARIZONA** Phoenix Oct 23 Sec Dr J H Patterson 320 Security Bldg Phoenix

**CALIFORNIA** Sacramento Oct 15 18 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

**COLORADO** Denver Oct 2 Sec Dr Wm Whitridge Williams 422 State Office Bldg Denver

**CONNECTICUT** *Basic Science* New Haven Oct 13 *Prerequisite to license examination* Address State Board of Healing Arts 1895 Yale Station New Haven

**GEORGIA** Atlanta Oct 9 10 Joint Secretary State Examining Boards Mr R C Coleman 111 State Capitol Atlanta

**IDAHO** Boise Oct 2 Commissioner of Law Enforcement Hon Emmitt Post 205 State House Boise

**ILLINOIS** Chicago Oct 16 18 Superintendent of Registration Department of Registration and Education Mr Eugene R Schwartz Springfield

**IOWA** Des Moines Oct 8 10 Dir Division of Licensure and Registration Mr H W Grefe Capitol Bldg Des Moines

**MICHIGAN** Lansing Oct 9 11 Sec Board of Registration in Medicine Dr J Earl McIntyre 202 34 Hollister Bldg Lansing

**MINNESOTA** *Basic Science* Minneapolis Oct 23 Sec Dr J Charney McKinley, 126 Millard Hall University of Minnesota Minneapolis *Medical* Minneapolis Oct 16 18 Sec Dr E J Engberg 350 St Peter St St Paul

**MISSOURI** Kansas City Oct 24 State Health Commissioner Dr E T McLaughlin State Capitol Bldg Jefferson City

**MONTANA** Helena Oct 2 Sec Dr S A Cooney 7 W 6th Ave Helena

**NEBRASKA** *Basic Science* Lincoln Oct 23 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln

**NEW JERSEY** Trenton Oct 16 17 Sec Dr James J McGuire 28 W State St Trenton

**NEW MEXICO** Santa Fe Oct 8 9 Sec Dr P G Cornish Jr 221 W Central Ave Albuquerque

**NEW YORK** Albany Syracuse and New York Sept 24 27 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany

**RHODE ISLAND** Providence Oct 4 5 Dir Public Health Commission Dr Lester A Round 319 State Office Bldg Providence

**WISCONSIN** *Basic Science* Madison Sept 22 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee

**WYOMING** Cheyenne Oct 1 Sec Dr W H Hassel Capitol Bldg, Cheyenne

### Utah July Report

Mr S W Golding, director, Department of Registration, reports the written examination held in Salt Lake City, June 27-29, 1934. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Twenty candidates were examined, all of whom passed. Twelve physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Northwestern University Medical School		(1934)	81
85 7 86 5 86 8 * 87 1 * 87 3			
Rush Medical College	(1934)	82 2 83 4 * 83 6	
University of Louisville School of Medicine	(1934)	86 3 †	
Harvard University Medical School	(1933)	89 4	
Wayne University College of Medicine	(1934)	85 3	
Creighton University School of Medicine	(1933)	80 8 84 8	
University of Nebraska College of Medicine	(1933)	83 7 (1934) 82 7 †	
University of Pennsylvania School of Medicine	(1931)	88 1	
(1933) 79 4, 85 2 85 4			
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Stanford University School of Medicine	(1933)	California	
University of Colorado School of Medicine	(1932)	Missouri	
Northwestern University Medical School	(1933)	Illinois	
(1934) Illinois Minnesota			
Rush Medical College	(1933)	Illinois 2 Michigan	
State University of Iowa College of Medicine	(1931)	Iowa	
University of Louisville School of Medicine	(1932)	Kentucky	
University of Nebraska College of Medicine	(1925)	Nebraska	
Jefferson Medical College of Philadelphia	(1933)	California	

\* This applicant has completed his medical course and will receive his M D degree and Utah license on completion of internship  
† License withheld pending completion of internship

### Kentucky June Report

Dr A T McCormack, secretary, State Board of Health, reports the written examination held in Louisville, June 6-8, 1934. The examination covered 11 subjects and included 110 questions. An average of 70 per cent was required to pass. Seventy-four candidates were examined, 73 of whom passed and 1 failed. Six physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad	Per Cent
University of Louisville School of Medicine		(1932)	86
88, (1933) 79 83 85 (1934) 79 79 79 79 80			
80 80 81 81 81, 81 81 81 81 81 81 81			
82 82 82, 82 82 82 82 82 83 83 83 83 83,			
84 84 84 84 84, 84 84 84 85 85 85 85 85			
85 85 85, 86 86 87 87 87 87 88 88 88 89 90 91			
University of Cincinnati College of Medicine	(1934)	82*	
Temple University School of Medicine	(1933)	81	
University of Tennessee College of Medicine	(1934)	77 81	
School	FAILED	Year Grad	Per Cent
Memphis Hospital Medical College		(1904)	52
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Stanford University School of Medicine	(1932)	California	
Emory University School of Medicine	(1930)	Georgia	
University of Michigan Medical School	(1933)	Michigan	
University of Cincinnati College of Medicine	(1927)	Ohio	
Vanderbilt University School of Medicine	(1928)	(1930) Tennessee	

\* This applicant has received an M B degree and will receive an M D degree on completion of internship

### Alabama July Examination

Dr J N Baker, secretary, Alabama State Board of Medical Examiners, reports the written examination held in Montgomery, July 10-13, 1934. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Eleven candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Emory University School of Medicine	(1934)	88 8	
Rush Medical College	(1934)	90	
Louisiana State University Medical Center	(1934)	85 9	
Tulane University of Louisiana School of Medicine	(1933)	86 8	
(1934) 86, 87 3 89 1 89 8			
Harvard University Medical School	(1932)	89 6	
University of Tennessee College of Medicine	(1934)	82	
Osteopath		83 7	

Seventeen physicians were licensed by reciprocity from January 15 to July 6. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Univ of Arkansas School of Medicine	(1930) La	(1933)	Arkansas
Rush Medical College	(1931)	Indiana	
College of Physicians and Surgeons of Chicago	(1911)	Illinois	
Louisiana State University Medical Center	(1934)	Louisiana	
Tulane Univ of Louisiana School of Medicine	(1931)	(1933)	Louisiana
Johns Hopkins University School of Medicine	(1904)	Tennessee	
University of Pennsylvania School of Medicine	(1931)	N Carolina	
(1932) D C			
University of Tennessee College of Medicine	(1932 2)	Tennessee	
(1933) Mississippi			
Vanderbilt Univ School of Med	(1926) (1929),	(1931)	Tennessee
University of Virginia Department of Medicine	(1931)	(1931)	Virginia

### District of Columbia July Examination

Dr W C Fowler, secretary, Commission on Licensure, reports the written examination held in Washington, July 9 10, 1934. The examination covered 6 subjects and included 58 questions. An average of 75 per cent was required to pass. Thirty-three candidates were examined, 32 of whom passed and 1 failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
George Washington University School of Medicine	(1931)	85,	
86 5 (1932) 84 9 (1933) 83 4 84 4 84 6 85 6 86		86 9 87 2	
Georgetown University School of Medicine	(1933)	82 5	
(1933) 82 4 83 83 5 83 5 84 3 85 4			
Howard University College of Medicine	(1932)	81 9	
82 5 (1933) 82			
State University of Iowa College of Medicine	(1926)	81 5	
Tulane University of Louisiana School of Medicine	(1933)	86 2	
Johns Hopkins University School of Medicine	(1926)	92 5	
(1927) 83 8 (1929) 85 2 (1932) 85 3			
University of Nebraska College of Medicine	(1933)	89 4	
New York Univ Univ and Bellevue Hosp Med Col	(1931)	79 4	
Jefferson Medical College of Philadelphia	(1926)	88 8	
University of Nashville Medical Department	(1905)	85	
Medical College of Virginia	(1930)	86 6	
University of Virginia Department of Medicine	(1925)	81 6	
School	FAILED	Year Grad	Per Cent
Georgetown University School of Medicine		(1932)	71

## Book Notices

**Foreign Body in Air and Food Passages Roentgenologically Considered**  
By Chevalier Jackson MD Sc D LL D Professor of Bronchoscopy and Esophagoscopy Temple University and Chevalier L Jackson MD M Sc FACS Professor of Clinical Bronchoscopy Temple University Philadelphia Volume XVI Annals of Roentgenology A Series of Monographic Atlases Edited by James T Case MD Professor of Roentgenology Northwestern University Medical School Chicago Cloth Price \$12 Pp 265 with 145 illustrations New York Paul B Hoeber Inc 1934

The material in this excellent monograph is selected from 3,000 cases in the authors' own experience and is representative of practically every form of pathologic change resulting from or complicating a foreign body. The book covers the subject from the clinical point of view and its brief but ample text, numbered by paragraphs, is well illustrated by 145 roentgenograms. Great stress is laid on systematic roentgen studies, and the routine procedure for all cases is clearly mapped out. Repeated exposures are recommended in doubtful cases and overexposures when superimposed pathologic change obscures the foreign body. Pre-existing pathologic change together with that produced by the foreign body is properly evaluated through roentgenographic studies, and every effort is made to learn the exact condition of the host as well as the type and location of the foreign body before the latter is removed. Certain definite axioms, the fruit of the authors' wide experience, with illustrative cases are clearly set forth in fourteen paragraphs. These bear on diagnosis in general and point out various complicating factors that may interfere with a proper diagnosis. An excellent chapter on biplane fluoroscopy should be well received by many who have read of this procedure but have not fully understood its details. The authors have been successful in removing 98 per cent of all foreign bodies. Such a high achievement was made possible only through the most meticulous attention to details and the closest cooperation between bronchoscopist and roentgenologist.

**Les prématures I—Physiologie du prématuré** Par H Vignes professeur agrégé à la Faculté de médecine de Paris II—Étude clinique et thérapeutique Par G Blechmann Paper Price 20 francs Pp 163 with 40 illustrations Paris Masson & Cie 1933

The first part of this book is in the form of lectures given at the Hospital of Charity, Paris, by Henri Vignes. These lectures are in effect a summarization of important books and studies in the field of pediatrics. The first chapter discusses the underdevelopment of the various organs of premature infants and indicates clearly why one three months under term cannot be raised, even under ideal extra-uterine conditions. Several graphs are included in the first chapter showing the intra-uterine growth in weight the proportional increase in body height and the measurement of organs, the surface or area of the premature infant relative to weight, and other items. A table is presented showing the term and weight of several abnormally small premature infants observed by various pediatricians. The author emphasizes three circumstances that tend to aggravate the risks of immaturity, namely, obstetric injuries, intra-uterine conditions and hereditary diseases. The second chapter describes the potentiality of the various organs of premature infants for adaptation to extra-uterine life. Although prematurity is the most important cause of infant mortality and a high percentage of infants born prematurely cannot be saved the author concludes that the premature infant has great potentiality of adaptation to extra uterine life provided it is protected from exposure to cold, infectious diseases and gastro-intestinal disturbances. Emphasis is placed on the fact that the premature child has need for adequate nourishment, not only for the sake of growth, but also to produce heat, because his small body surface radiates proportionally much more heat than the full-term infant. The latter part of the book discusses the immediate effects of prematurity on a child and enumerates the various imperfections and retardations manifest during the first two or three years of life.

After indicating the distinction between the premature infant (born before term) and the infant with congenital weakness (born before or at term), the author presents in the second part a study of the cardinal characteristics of congenitally weak

infants. A classification is made of the different grades of prematurity, and the imperfections to be found in the various organs of such infants, as well as the complications of prematurity, such as sclerema, edema, infection and rickets, are studied. The elements of favorable and unfavorable prognosis are given, and mention is made of exceptions, as cited by Variot, Lambinoy and others. A premature infant whose weakness does not have a pathologic origin and who quickly gains in weight ordinarily develops into a normal child, among other premature infants, the development is not always normal. The author treats in a complete manner the different methods of feeding premature infants and cites the methods of certain foreign pediatricians. This is followed by a study of the hygiene of premature infants, the use of stimulants, methods of maintaining body temperature, and the therapeutics of the important diseases of the premature infant.

**Geschlechtsentstehung und willkürliche Geschlechtsbestimmung** Von Dr E Kramer Paper Pp 40 Berlin & Leipzig Deutsches Verlagshaus Bong & Co 1934

The pamphlet begins with a brief review and criticism of various antiquated ideas and erroneous popular beliefs regarding a possible control of the sex of human offspring. This introduction is followed by a rather lengthy exposition of the chromosome theory of sex determination. The assumption is then made that since there exists, in all vertebrate species studied, a more or less substantial deviation from the 50:50 sex ratio expected according to the sex chromosome theory, the process of sex determination must involve the working of an additional modifying factor, which, when identified, may prove exceedingly valuable to man in his effort to control the sex of his progeny. On the basis of the works of Bluhm (1924) and Unterberger (1930 and 1932) the author concludes that such a modifying influence, at least in man, is exerted by the differential  $pH$  toleration of the X and Y sperms. The slightly acid reaction given by the secretions of the human vagina and serving to protect the female genital tract from invasion of pathogenic bacteria offers a medium tolerated, within certain time limits, by both X and Y sperms. When, however, the acidity of the vaginal secretions is too high, the vitality of both varieties of sperm may be impaired to such an extent that sterility results. Unterberger, a Königsberg gynecologist, successfully combated this type of sterility by recommending an alkalization of the vaginal tract, before coitus, with an aqueous solution (strength not indicated) of sodium bicarbonate. The results of this treatment were both striking and instructive quite unexpectedly, in all cases thus treated, only boys were born. Alkalization of the vaginal secretion apparently acted depressingly on the X sperm, so that only the Y spermatozoa were able to reach the oviduct and fertilize the ovum. With this idea in mind, Unterberger proceeded to advise the same manipulation to normal married women who expressed the desire of "having a boy." Again the offspring reported were invariably of the male sex. In later practice this worker simplified the technic of vaginal alkalization by instructing the husband to powder the glans penis, immediately preceding coitus, with dry sodium bicarbonate. This modification likewise proved to be effective. Thus far seventy-four cases, all with positive results, have been reported by Unterberger. All attempts, however, to influence experimentally sex determination in the female direction have as yet been unsuccessful. Similarly ineffective were endeavors to influence, in either male or female direction, the sex of the offspring in lower mammals. In most of the latter the secretions of the vaginal mucous membrane always give an alkaline reaction, and neither their further alkalization nor acidulation brought the expected results. In spite of these failures, which lead one to wonder whether the entire "discovery" is based on sound and fundamental biologic principles, the overenthusiastic author hastens to proclaim it as the beginning of a new era. He seeks, moreover, to explain such phenomena of human reproduction as the fluctuation in the sex ratio of the offspring from copulations at various periods of the menstrual cycle or in relation to the age of the mother, also on the basis of changes in the  $pH$  of vaginal secretion.

The booklet is written in a popular style and is apparently intended for the public. This practice of communicating directly

to the general public, as facts, matters which are still far from being substantiated and which still require extensive experimentation and rigid testing by qualified physiologists and clinicians, is objectionable and must be condemned. To the medical profession, however, the ideas expressed in the paper under discussion should serve as a challenge. The cooperation of men and women in medical practice will no doubt result, within a reasonably short time, in the accumulation of sufficient statistical data to confirm or disprove the effectiveness of the procedure suggested by Unterberger and approved by Kramer for artificial sex determination in the male direction, particularly since the operation involved is simple and harmless. It must, however, be made frankly clear to the intelligent layman whose interest is enlisted for this purpose that he is dealing here with an experiment and not with a new conquest which bears the "tested and approved" seal of science.

**Urinary Analysis and Diagnosis by Microscopical and Chemical Examination.** By Louis Heltzmann MD. With a chapter on the Determination of the Functional Efficiency of the Kidneys. By Walter T. Dannreuther MD. FACS. Professor of Gynecology and Director of Department New York Post Graduate Medical School and Hospital Columbia University. Sixth edition. Cloth. Price \$5. Pp 385 with 131 illustrations. Baltimore. William Wood & Company 1934.

This edition embodies extensive changes and additions. New chemical tests have been added, but the author has given only those examinations which can be performed by the technician or physician without the necessity of a complete chemical laboratory. The author stresses the great value of microscopic examination of the urine, when carefully conducted. He gives many original illustrations of the different epithelial cells found in the urine and emphasizes their value in the diagnosis of diseases of the genito-urinary tract. A small drop of thick urinary sediment evenly spread out under a cover glass and examined with the high power (at least 400 to 500 X) is essential for a satisfactory examination. There are chapters in part I on the histology and secretion of the kidneys, chemical examinations for organic and inorganic substances, proteins, carbohydrates and abnormal constituents. Part II contains microscopic examination and includes crystalline and amorphous sediments, cellular elements, mucus, connective tissue casts, micro-organisms and parasites. Part III contains microscopic urinary diagnosis with chapters on diseases of the kidney and its pelvis, diseases of the bladder, and diseases of the generative organs. A chapter on tests of renal function and one on the hormone tests for pregnancy complete the volume. There are numerous illustrations. This book can be recommended as one of the most complete works on urinary analysis.

**Leitfaden der Pathologie und Therapie der Kampfgaserkrankungen.** Von Dr. med. Otto Muntsch. Oberstabsarzt im Reichsheere. Mitglied des Preuss. Landesgesundheitsrates. Second edition. Boards. 9.60 marks. Pp 110 with 33 illustrations. Leipzig. Georg Thieme 1934.

It is presumed that during the next period of major warfare large groups of the civilian population may be subjected to the action of war gases. This prospect has prompted the author to seek the cooperation of Red Cross units throughout the world in the collection and appraisal of all possible information bearing on the prevention and treatment of injuries resulting from exposure to these toxic chemicals. The author states in substance, "with this point in mind the purpose of this book is to offer such knowledge as has been gathered from the different parts of the world as to ways and means for protecting the civilian population against the ravages of war gases." In the several chapters are discussed such topics as the development of chemical warfare, the statistics derived from the late war, the general toxicology and classification of chemical fighting materials, the chemistry of the principal war gases, the special pathology and treatment of such war gases as phosgene, chlorpicrine, dichlorodithylsulphite, lewisite, arsine, the oxides of nitrogen, and carbon monoxide. One of the most attractive features of this book are the numerous illustrations in color presenting the clinical appearance of various types of disorders following exposure to war gas. In addition, various illustrations in black and white and in color present the results of animal experimentation and the appearance of various organs at necropsy. At present this book holds only limited value in the practice of medicine. Against the day when thousands of

persons may be attacked through the medium of gas warfare it contains all the substantial information available to the best known means of preventing the malaction of war gases and the diagnostic treatment of these conditions when produced, together with extensive discussion as to the prospective effects following in the wake of acute damage after exposure to gas warfare materials.

**Frakturen und Luxationen. Ein Leitfaden für den Studenten und den praktischen Arzt.** Von Professor Dr. Georg Magnus. Leitender Arzt der chirurgischen Abteilung des Krankenhauses Bergmannshöhe in Bochum. Second edition. Paper. Price 3.60 marks. Pp 86 with 43 illustrations. Berlin. Julius Springer 1933.

The first edition of Professor Magnus's primer on fractures and dislocations appeared in 1925. This edition is no larger than the original. The book is offered as a help for students and general practitioners. It is not meant for surgeons. The material is divided into two parts: general and special. General considerations of fractures, as classification, mechanism, clinical picture, methods of examination and diagnosis, associated injuries, healing and interference with healing and general considerations of the handling of fractures occupy twenty-four pages. General considerations of dislocations are covered in five pages. The second—the special—part devotes six pages to fractures of the skull and head and five pages to the trunk, leaving forty-four pages for presentation of fractures and dislocations of the extremities. The author takes up his subject in the most elementary manner, and there is nothing new in what he has to offer. Any first class single volume on surgery presents the subject at least as well, if not better. It is difficult to understand the need for such a volume. The illustrations are equally simple. The enterprise seems hardly worthy of a university professor, and there is nothing in the little volume to interest American physicians.

**Contribution à l'étude radiographique du sein normal et pathologique.** Par le Dr. Alexandre Espalliat G. de la Faculté de médecine de Paris. Travail de la clinique chirurgicale du Professeur Gossset et du laboratoire de radiologie clinique de la Faculté (Dr. Ledoux Lebard chargé de cours). Paper. Pp 154 with 18 illustrations. Paris. Librairie Louis Arnette 1933.

A brief review of the anatomy and histology of the breast is followed by a description of the various physiologic and pathologic changes which this organ may undergo. A careful description is given of the various benign lesions and their differentiation from malignant changes. Based on these anatomic, physiologic and pathologic considerations, the roentgenologic aspects of the mammary gland are thoroughly discussed and the utility of the roentgen study is evaluated. Forty-one cases are reported in detail by way of exemplifying the text. The author believes that the roentgen examination of the breast is of practical utility if carried out with sufficiently rigorous technique. Before attempting the interpretation of the pathologic lesions, the physician must become familiar with the aspects of the normal breast with its various physiologic alterations corresponding to the state of repose of activity and of atrophy of the gland. Due credit is given to the American investigators for their priority in this work.

**Medicine in Canada.** By William Boyman Howell MD. Anaesthetist in Charge, Royal Victoria Hospital, Montreal. IX. Clio Medica. A Series of Primers on the History of Medicine. Edited by E. B. Krumbhaar MD. Cloth. Price \$1.50. Pp 137 with 6 illustrations. New York. Paul B. Hoeber Inc. 1933.

The author purposely gives a "relatively large amount of space to biographies of pioneer medical men in order to 'show not only the conditions under which medicine was practiced, but the relation of the practitioner to the community as well.'" The rise of the various prominent hospitals and medical schools is sketched from their humble beginnings in Quebec, Montreal and Toronto and short chapters are devoted to James Douglas, John Christian Schultz, Archibald Menzies, William T. Tolmie and John Sebastian Helmcken. The meagerness of preparation for the practice of medicine of the early physicians, the hardships endured by most of them in their contentions with the elements, hostile Indians and epidemic diseases, makes the account most fascinating reading. The picturesque "wild west" days of Canadian medicine are gone forever.

**Radiotherapy in the Diseases of Women** By Malcolm Donaldson B.A. FRCS M.B. Physician Accoucheur with Charge of Out Patients St Bartholomew's Hospital Cloth Price 7/6 Pp 131 with 16 Illustrations London Hodder & Stoughton Ltd 1933

As the author states, some books on radiotherapy are too dogmatic and optimistic, others express an unwarranted pessimism based on the disappointment of certain surgeons who seemed to expect that after a local application of radium every growth however far advanced, would disappear, together with all secondary deposits. This pessimism has been accentuated by the unsatisfactory results of treatment in small institutions with inadequate amounts of radium, especially when applied in an amateur fashion. Attention is called to the requisite of much specialized knowledge and suitable apparatus. The present work attempts to state an authoritative, unbiased opinion on the value of radiation therapy in gynecology. In spite of the existing lack of agreement on the optimum time factor, the optimum intensity and the optimum dose it is none the less true that radiation therapy has already revolutionized the treatment of many types of cancer, and there is little doubt that as more efficient methods are evolved and practiced the number of permanent good results will be considerably increased. Attention is called to the common mistake of considering radiotherapy as a technic employed purely for malignant diseases. Many benign conditions, such as menopausal hemorrhage, fibroids and tuberculosis, respond. Chapter II, on the biologic action of radium, is delightfully succinct, readable and satisfactory, in spite of its brevity. There are many tables of results in the British clinics as well as other clinics throughout the world.

**Corrective Physical Education** By Josephine Langworthy Rathbone M.A. Instructor in Physical Education Teachers College Columbia University Cloth Price \$2.50 Pp 292 with 153 Illustrations Philadelphia & London W. B. Saunders Company 1934

This book presents, for students of physical education and physical therapy, the essential facts of human anatomy and physiology as they pertain to the subject of corrective exercise. There is nothing original in the text except its arrangement and the emphasis placed on certain phases of the subject. The material has been gathered from medical literature and from clinical experience. The purpose of this little book is twofold. First, it aims to convince the student of health and physical education that one of his greatest concerns should be to help children and young people build efficient and beautiful bodies. Second, it aims to furnish the student with some basic fundamental facts and principles on which to build a sound program of reconstructive health and physical education.

**Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern. Die kombinierte Enzephal Arteriographie** Von W. Lohr und W. Jacob. Fortschritte auf dem Gebiete der Röntgenstrahlen Herausgegeben von Prof. Dr. Grashof. Ergänzungsband XLIV. 1. Heft. Paper Price 16 marks Pp 83 with 75 Illustrations Leipzig Georg Thieme 1933

This work emanates from the surgical clinic of the state hospital at Magdeburg-Altstadt under the direction of Professor Lohr and from the state neurologic clinic at Magdeburg-Sudenburg under the direction of Professor Jacob. The collaboration of these eminent authors has resulted in a distinct advance in the diagnostic methods relating to cranial lesions. The dangers of the method are recognized as being similar to but no greater than those attending encephalography and ventriculography. The authors prefer the introduction of air into the ventricular system through a lumbar puncture rather than its introduction into a ventricular puncture. Thorium dioxide is used as the opaque substance for arteriography. The authors' technic for the injection is described. A 5 cm. incision is made over the anterior upper border of the sternocleidomastoid muscle down to the internal carotid artery. The needle is introduced quietly for about 1.5 cm and the roentgenograms made during the introduction of the opaque material. The injection has to be made quickly and the roentgenograms must be made promptly as the injection proceeds. Later films also have some value. Beautifully illustrative roentgenograms are reproduced, illustrating the topographic anatomy of the visualized blood vessels of the brain under normal and pathologic conditions. Cases reported include hemangioma of the face and brain, various cases of epilepsy, arteriosclerosis, hydrocephalus,

and brain tumors. Even should the diagnostician not care to undertake this method of injection, he will find it valuable to have in his reference library this beautiful atlas of illustrative roentgenograms covering the various subjects listed.

**Grundlagen und Praxis der Röntgenstrahlendosierung. Dosismessung und Dosisfestsetzung** Von Prof. Dr. med. H. Holthausen leitender Oberarzt am Allgem. Krankenhaus St. Georg Hamburg. Cemeissam mit Dr. med. R. Braun Assistent am Strahleninstitut des Allgem. Krankenhauses St. Georg Hamburg. Paper Price 18 marks Pp 249 with 180 Illustrations Leipzig Georg Thieme 1933

In recent years a complete revolution in x-ray dosage has taken place and the nations are now in agreement on an international unit of measurement called the roentgen, the symbol of which is r. Dosage meters of numerous types have been devised, and it is now possible with a small outlay for any physician practicing roentgenology to measure the output of his apparatus under various conditions and to give any desired dosage with reasonable accuracy. The physician must be specially trained in the production of radiation of given wavelengths and he must have the necessary apparatus with which to do this. The reading of the dosage, however, is not so complicated that any physician who sets himself up as a radiologist should feel excused from accurately measuring the radiation delivered to his patients. The present work is an attempt to explain some of the problems concerned in the effects of different doses of x-rays acting on the organism and the effects of the same dosage under different circumstances. The first part of the book is devoted to the physical aspects of the measurement of x-ray dosage, including an exhaustive treatise on the measurement of the quality and quantity of what constitutes a dose. The second portion of the book (from page 85 on) concerns the practical applications of existing knowledge of the physical and biologic effects. Readers who understand German will welcome this work as an authoritative, readable discussion of a complicated subject.

**Précis de sémiologie médicale appliquée** Par M. Chiray professeur agrégé à la Faculté de médecine de Paris et P. Chene médecin assistant à l'Hôpital Saint Antoine. Cloth Price 75 francs Pp 607 with 364 Illustrations Paris Masson & Cie 1934

One of the contrasts between many of the French and English medical textbooks and the German and American ones is the condensation and smaller size of the former. There is probably a place for both types of books, the shorter serving as a more readable introduction to the subject, the latter usually being much superior as a book of reference. The book under review is of handy size and aims to be an introduction to medical symptomatology. The ground covered is amazing. Physiologic, anatomic, pathologic, clinical, roentgenographic and laboratory considerations are evoked for each of the systems of the body. Fever, alterations of the general state, skin diseases, syphilis and endocrine disorders are discussed. Considering the extensive nature of the subject, the book is remarkably accurate. As an introduction to medical students just entering their clinical years, such a book as this should be valuable. The obvious danger is that the attempted completeness might discourage the reading of more detailed textbooks on sections not adequately covered here.

**Allgemeinere und örtliche Betäubung. Zusammenfassende Darstellung für die Praxis auf pharmakologischer und klinischer Grundlage** Von Dr. Fritz Hesse Privatdozent für Chirurgie Dr. Ludwig Lendle Privatdozent für Pharmakologie und Prof. Dr. Rudolf Schoen Direktor der medizinischen Universitäts-Poliklinik zu Leipzig. Mit einem Geleitwort von Erwin Pajr. Paper Price 16 marks Pp 307 with 50 Illustrations Leipzig Johann Ambrosius Barth 1934

The collaboration of a pharmacologist, a surgeon and an internist in the preparation of a monograph on anesthesia is an excellent idea. There are many important questions in this field, which in the past were discussed by pharmacologists or surgeons alone, such a group study can only be of benefit to the subject. The pharmacologist, Dr. Lendle, discusses the general and local anesthetics with much clarity and a critical attitude. The chapter on tribrom-ethanol and two other barbituric derivatives, picroton and evipan, which are now under trial in Germany, is instructive. There is not much that the American medical profession can profit from the technical part written by the surgeon, Dr. Hesse. The description of methods in general and local anesthesia is rather brief, the illus-



trations are from other well known textbooks, some of them definitely antiquated. The most valuable part of the book was written by the internist, Professor Schoen, who discusses constitutional factors, diseases of the circulation, respiration, metabolism and the kidney in their relation to anesthesia. Particularly the preoperative investigation of the cardiovascular system is interesting, although it is perfectly obvious that a simple reliable test for latent myocardial insufficiency is still lacking. The book is recommended to all those who believe in a group study of patients coming to operation.

## Medicolegal

**Workmen's Compensation Acts Testimony of Experts Who Ignore Uncontradicted Evidence Evaluated**—Daugherty, 48 years old and in good health, seemed to catch his heel in some way while descending a stairway in the course of his work. He fell backward and when he got up he seemed "dazed." No wound was observed. He was assisted to a place where he could sit down and was left there. The accident occurred Aug 24, 1931, about 7 o'clock in the morning, near the end of the night shift on which Daugherty was employed, and he arrived home about the usual hour in the morning. From the day of his fall his health continued to fail. Ultimately he ceased work. On January 22, 1932, he died. The cause of death stated in the death certificate was "epilepsia caused by clog on brain." Daugherty's widow and daughter instituted proceedings for compensation under the workmen's compensation act of California.

Before the industrial accident commission, physicians who had attended Daugherty testified that his death was caused by intracranial trauma and concussion, followed by intracranial hemorrhage, the result of an accidental fall. On behalf of the employer and his insurance carrier, three physicians filed written reports, which apparently were accepted as evidence. One of these physicians stated that "the record does not show that the employee's death was due to an injury sustained on August 24, 1931," and notwithstanding the undisputed testimony as to the fall, he reported that it was questionable whether Daugherty really fell. The other two physicians made a joint report, recording their opinion that Daugherty's disability and death were not due to the fall but that the fall was the result of a "petit mal" type of seizure, the initial symptom of a pre-existing lesion in the cerebrum. Daugherty, according to these two physicians, died from a pre-existing tumor of the brain. The industrial accident commission denied compensation. The claimants appealed to the district court of appeal, second district, division 1, of California.

If the opinions of the physicians called by the employer were based on correct assumptions of fact, said the court, they would unquestionably support the decision of the industrial accident commission. These opinions, however, were faulty in that they did not accept the uncontradicted facts about the accidental fall, which marked the beginning of Daugherty's pathologic history. Two of the physicians summoned by the employer reported that the most striking symptom was convulsions, which began on the day the patient fell, but that there was no evidence to show that any head injury occurred at that time. They admitted, however, that it was not necessary to receive a direct blow on the head in order to sustain intracranial damage. These two physicians, said the court, failed to recognize that Daugherty's first convulsion occurred several hours after the accident and that it was the first convulsion he had ever had, so far as could be ascertained.

The only foundation for the decision and order of the industrial accident commission, said the court, rested on the opinions of three expert witnesses, based on assumptions by them different from the established facts. The opinions of these witnesses were regarded by the court as insufficient to produce such a conflict of evidence as would make the determination of the case by the industrial accident board final. The court accordingly annulled the award of the commission denying compensation—*Daugherty v Industrial Accident Commission (Calif)* 27 P (2d) 774

**Workmen's Compensation Acts Bronchial Asthma or Anthracosis Due to "Accident"**—The claimant's employment with the defendant oil refining company required him to clean the petroleum coke out of stills. While doing so he was exposed to gas fumes and coke dust. On April 14, 1931, there were more fumes than usual in the stills, which caused him to vomit and to suffer from shortness of breath. He became temporarily totally disabled, from what one physician stated was bronchial asthma and another diagnosed as anthracosis, and subsequently instituted proceedings for compensation under the Oklahoma workmen's compensation act. On his behalf, two physicians testified, in effect, that the excessive quantity of fumes present on April 14, while not the sole cause of his condition, was the exciting cause. The state industrial commission awarded him compensation. The employer brought an action in the Supreme Court of Oklahoma to reverse the award, contending that the claimant was suffering from an occupational disease not compensable under the act, and not from a compensable accidental injury.

It is well settled, said the Supreme Court, that the Oklahoma workmen's compensation act does not apply exclusively to traumatic injuries. The act provides compensation for "accidental injuries." The adjective "accidental" does not indicate the existence of an accident but rather that the injury was either unintended or unexpected. An "accident" such as is contemplated by the act is distinguished from an occupational disease in that it arises from some definite event the date of which can be fixed with certainty, which cannot be done in the case of an occupational disease. Under the evidence here presented the condition of the workman was probably progressively brought about by the inhaling of gas fumes and dust for a period of time, but on a definite and specified date he went to work as usual and after working a short time became suddenly ill and was unable to work further. The evidence is that on this certain date he had reached his limit and that the breathing of the gas fumes and coke dust on this particular occasion was the exciting cause of his present condition. Under the circumstances his injury is the result of an accident and is not an occupational disease. The Supreme Court accordingly affirmed the award of compensation made by the industrial commission—*Johnson Oil Refining Co v Guthrie (Okla)*, 27 P (2d) 814

## Society Proceedings

### COMING MEETINGS

American College of Surgeons Boston Oct 15-19 Dr Franklin H Martin 40 East Erie Street Chicago Director General  
American Hospital Association Philadelphia Sept 24-28 Dr Bert W Caldwell 18 East Division Street Chicago Executive Secretary  
American Roentgen Ray Society Pittsburgh Sept 25-28 Dr Eugene P Pendergrass 3400 Spruce Street Philadelphia Secretary  
Associated Anesthetists of the United States and Canada Boston Oct 15-19 Dr T H McMechan 318 Hotel Westlake Rocky River Ohio Secretary  
Association of Military Surgeons of the United States Carlisle Barracks Pa Oct 8-10 Dr J R Kean Army Medical Museum Washington D C Secretary  
Colorado State Medical Society Colorado Springs Sept 19-22 Mr Harvey T Sethman 537 Republic Bldg Denver Executive Secretary  
Delaware Medical Society of Dover Oct 9-10 Dr William H Speer 917 Washington Street Wilmington Secretary  
Indiana State Medical Association Indianapolis Oct 9-11 Mr T A Hendricks 23 East Ohio Street Indianapolis Executive Secretary  
Inter State Postgraduate Medical Association of North America Philadelphia November 5-9 Dr W B Peck 27 East Stephenson Street Freeport Illinois Managing Director  
Kansas City Southwest Clinical Society Kansas City, Mo Oct 1-4 Dr Hugh Wilkinson 750 Minnesota Avenue Kansas City Kan Secretary  
Kentucky State Medical Association Harlan Oct 14 Dr A T McCormack 532 West Main Street Louisville Secretary  
Nevada State Medical Association Reno Sept 21-22 Dr Horace J Brown 120 North Virginia Street Reno Secretary  
New England Surgical Society Burlington Vt Sept 28-29 Dr J M Birnie 14 Chestnut Street Springfield Mass Secretary  
Ohio State Medical Association Columbus Oct 4-6 Mr Don K Martin 1005 Hartman Theatre Building Columbus Secretary  
Omaha Mid West Clinical Society Omaha Oct 29-Nov 2 Dr Joseph D McCarthy 107 South 17th Street Omaha Secretary  
Oregon State Medical Society Corvallis, Sept 27-29 Dr L Howard Smith Medical Arts Building Portland Secretary  
Pennsylvania Medical Society of the State of Wilkes Barre Oct 1-4 Dr Walter T Donaldson 500 Penn Avenue Pittsburgh Secretary  
Vermont State Medical Society Burlington Oct 4-5 Dr W G Ricker 33 Main St St Johnsbury Secretary  
Virginia Medical Society of Alexandria Oct 9-11 Miss Agnes V Edwards 1200 East Clay Street Richmond Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### Alabama Medical Association Journal, Montgomery

4 140 (July) 1934

- Treatment of Congestive Heart Failure T E Harrison Nashville Tenn—p 1  
Recent Advances in Treatment of Chronic Bronchitis J F Alison and J P Chapman Selma—p 3  
Cancer of Uterus N R Clarke Jr Mobile—p 5  
Prepsychotic Trends in School Age F A Kay Tuscaloosa—p 12  
Granulocytopenia C Thornton Montgomery—p 15

#### American Journal of Anatomy, Philadelphia

55 1166 (July 15) 1934

- Irradiation of Ovaries of Guinea Pigs and Its Effect on Subsequent Pregnancies Ida T Genther Cincinnati—p 1  
Microscopic Observations in Living Rabbit of New Growth of Nerves and Establishment of Nerve Controlled Contractions of Newly Formed Arterioles E R Clark Eleanor L Clark and R G Williams Philadelphia—p 47  
Later Postnatal Skull Growth in Sheep T W Todd and R E Wharton, Cleveland—p 79  
Effect of Thyroid Deficiency on Skull Growth in Sheep T W Todd and R E Wharton, Cleveland—p 97  
Structural Changes During Contraction in Striped Muscle of Frog H E Jordan, Charlottesville Va—p 117  
\*Studies on Experimental Rickets in Rats I Structural Modifications of Epiphyseal Cartilages in Tibia and Other Bones G S Dodds and Hazel C Cameron Morgantown W Va—p 135

**Modifications of Epiphyseal Cartilages in Rickets**—Dodds and Cameron base their conclusions on the study of thirteen normal rats of both sexes, between the ages of 2 and 12 weeks and nineteen rachitic rats from 5 to 12 weeks of age. 1 Rickets caused impairment of the growth of the long bones by the action of slowing of cell multiplication followed by its practical cessation, failure of cartilage cells to grow to normal thickness and crushing of cartilage matrix due to weakness resulting from inadequate calcification. 2 In mild rickets the leg bones of rats continued to elongate at a reduced rate throughout the experiment. In severe rickets the leg bones grew in length for a limited time only. 3 The thickening of the epiphyseal cartilage in rickets is due not to accelerated growth but to retarded cartilage removal. 4 In mild rickets cell multiplication, cell growth, calcification of the matrix and cartilage removal all continue, but calcification and removal lag behind cell multiplication and growth with the result that the cartilage becomes somewhat thickened, mainly in the zone of fully grown cells. 5 In severe rickets after about three weeks, calcification and cartilage removal stop entirely, and in a short time cell multiplication and cell growth stop also. This produces a thickened cartilage that is in a static condition. After a time cartilage removal is resumed and progresses into the uncalcified cartilage in a modified manner which results in the production of the peculiar rachitic metaphysis. The number of enlarged cells in the elongated rows does not increase demonstrably after the third week. 6 Cupping is produced by a greater retardation of calcification near the axis of the cartilage than near its margin. 7 In severe rickets there is sometimes a rejuvenation and resumed mitotic division of the enlarged cartilage cells in certain areas which produces a structure much like ordinary hyaline cartilage.

#### American Journal of Diseases of Children

48 1242 (July) 1934

- The Child's Family Adviser C A Fife Philadelphia—p 1  
Control of Dental Caries in Children Martha Koehne R W Bunting and Elise Morrell with cooperation of Rebecca B Hubbell and Mary Crowley Ann Arbor Mich—p 6  
Enteropressant Factor in Stools and Spinal Cords of Monkeys Infected with Poliomyelitis J A Toomey and W F von Oettingen Cleveland—p 30

- Growth and Basal Metabolism II Basal Metabolism of Elementary School Children I Nakagawa Tokyo Japan—p 35  
Id III Biometric Study of Basal Metabolism of Preschool and Elementary School Children I Nakagawa Tokyo Japan—p 39  
Paracentesis of Pericardium as a Therapeutic Measure Lucy Porter Sutton New York—p 44  
Cerebral Involvement in Acute Anterior Poliomyelitis Report of Experimental Case M Brodie Montreal—p 57  
\*Cutaneous Lesions in Rheumatic Fever Predominating Signs of Active Rheumatic Fever During Ward Epidemic W Chester and S P Schwartz New York—p 69  
Acetarsone in Treatment of Syphilis in Negro Children J Yampolsky with collaboration of D F Cathcart and I Smith Atlanta Ga—p 81  
Susceptibility of Nursery School Children to Certain Communicable Diseases of Childhood Ruth Updegraff Iowa City—p 101

**Cutaneous Lesions in Rheumatic Fever**—In an epidemic of acute rheumatic fever Chester and Schwartz observed that ten of twenty-one children showed cutaneous lesions as the predominating sign of the recurrence or exacerbation of rheumatic fever. The lesions were bluish, were not tender, and appeared mainly on the lateral surface of the legs and the extensor surface of the forearms. Most often they appeared as maculopapular purpuric spots and persisted for from one to six months. No scarring or desquamation followed their disappearance. During the period of observation, such cutaneous manifestations were not observed in children without cardiac conditions. In nineteen of these children an increased cardiac rate was an accompanying sign. Fever was present in a mild form on thirteen occasions. Pains in the joints and muscles, choreiform movements, epistaxis and congestive cardiac failure were each present in two instances. Hematologic studies in these children during the epidemic showed a persistent secondary anemia in all, a leukopenia and a positive Schilling count in two, and a transient thrombocytopenia and a positive tourniquet test in one. In one instance the PR interval was prolonged. The appearance of cutaneous lesions in children who have already had rheumatic fever should be considered a criterion of reactivity just as many other manifestations are now accepted.

#### American Journal of Syphilis and Neurology, St Louis

18 289 432 (July) 1934

- Syphilitic Fibrosis and Status of Iodides in Present Day Treatment of Syphilis S S Greenbaum and J Cobane, Philadelphia—p 289  
Hemorrhagic Purpura Following Bismarsen H D Niles New York—p 300  
\*Another Diagnostic Sign Preliminary Report J B Biederman Cincinnati—p 306  
Tryparsamide Dermatitis Case Report and Survey of Literature L J Bragman Syracuse N Y—p 308  
Unsuspected Syphilis Its Importance in Differential Diagnosis of Obscure Medical Cases G D Astrachan New York—p 311  
Effect of Lecithin on Experimental Syphilis in Rabbit S Harris Jr, Edna H Tompkins H J Morgan and R S Cunningham Nashville Tenn—p 333  
Standardization of Hemolytic System for Use in Complement Fixation Reaction for Laboratory Diagnosis of Syphilis B S Levine, Chicago—p 341  
Zone of Precipitation in Kahn Test Doris Wilson M B Kurtz and N W Larkum Lansing Mich—p 355  
Value of Early Lumbar Puncture in Prognosis of Central Nervous System Syphilis M A Schnitker Boston—p 360  
Effect of Cerebral Lipoids on Basal Metabolism in General Paresis Oxidation Reduction in General Paresis E T Hoverson, Kankakee Ill—p 373

**Another Diagnostic Sign in Syphilis**—Biederman discusses a diagnostic aid which is concerned with a change in the appearance of the anterior pillars of the throat. The anterior pillars in the normal throat have a certain healthy pinkish color merging imperceptibly with the pink of the surrounding healthy mucous membrane. During the recent examinations of the throats of a large number of patients having so-called latent syphilis it was observed that frequently there was an associated change in the appearance of the anterior pillars. This change was apparently due to an alteration in color in which the pillars assume a dark, dusky red shade, in a well defined congested area. This area began at the base of the pillars and extended upward from 0.5 to 2.5 cm and was approximately from 6 to 10 mm in breadth. The appearance was that of a definite vascular congestion. In the examination of 469 syphilitic patients this sign was present in 69.1 per cent. Not every case of syphilis presented this sign, nor could every patient having this sign be proved to be syphilitic. This sign should not be

confused with the secondary erythema of syphilis, which may be localized only on the anterior pillars or be present on any other portion of the mucous membrane

### Anatomical Record, Philadelphia

59 395 506 (July 25) 1934

- Effect of Ultracentrifuging on the Mitochondria of Hepatic Cells of Rat H W Beams and R L King Iowa City—p 395
- Observations on Innervation of the Macula Sacculi in Man Mary Hardy Baltimore—p 403
- \*Cross Section Areas of Vessels That Form Torcular and Manner in Which Flow Is Distributed to Right and to Left Lateral Sinus Erna Leonhardt Gibbs and F A Gibbs Boston—p 419
- Cholecystographic and Fluoroscopic Study of the Reaction of Human Gallbladder to Faradic Stimulation of Stomach and Duodenum E A Boyden and L G Rigler Minneapolis—p 427
- Microfluoroscopic Study of Teleostean Kidneys A L Griffin and M J Eisenberg Boston—p 449
- Transformation of Adipose Tissue into Hemocytopoietic Tissue H E Jordan Charlottesville Va—p 461
- New Type of Slide Holder for Projection of Serial Sections J L Bremer Boston—p 477
- Cinematic Study of Distribution of Pressure in the Human Foot H Elftman New York—p 481
- Visualization of Movement of a Brominated Oil Along Peripheral Nerves W E Sullivan and O A Mortensen Madison Wis—p 493

**Cross Sections of Vessels that Form the Torcular**—The Gibbss studied specimens of falx, tentorium and occipital dura, removed in a single piece at the time of postmortem examination. They observed that the torcular usually directs the greater part of the flow from the straight sinus into the left lateral sinus and the greater part of the flow from the superior sagittal sinus into the right lateral sinus. The cross section of any given vessel in the torcular is extremely variable even relative to the cross section area of the other vessels in the same torcular. The cross section area of the right lateral sinus tends to be greater than that of the left lateral sinus.

### Annals of Internal Medicine, Lancaster, Pa

8 1114 (July) 1934

- Inhibitory Hormones and Principle of Inverse Response J B Collip Montreal—p 10
- Lymphosarcoma and Hodgkin's Disease Biologic Characteristics S Ginsburg New York—p 14
- Encephalitis Epidemic in St Louis D P Barr St Louis—p 37
- \*Changes in the ST Segment of Electrocardiogram in Acute Rheumatic Fever Mary H Fasby and H Roesler Philadelphia—p 46
- Galactose and Urobilinogen Tests in Differential Diagnosis of Obstructive and Intrahepatic Jaundice D H Rosenberg Chicago—p 60
- Pleural and Pulmonary Complications of Carcinoma of the Esophagus C S Keefer, Boston—p 72
- \*Further Observations on Heart in Myxedema J Lerman R J Clark and J H Means Boston—p 82
- Small Intestinal Intubation Experiences with Double Lumen Tube T G Miller and W O Abbott Philadelphia—p 85
- Diagnosis and Treatment of Certain Types of Chronic Diarrhea P W Brown Rochester Minn—p 93

**ST Segment of Electrocardiogram in Acute Rheumatic Fever**—Easby and Roesler report three cases in which, during the course of a rheumatic infection, the following electrocardiographic changes were seen. Of the ST (RT) segment a low or high take off, a convex upward bowing, a depression and an absence of the iso electric portion. Of the T wave iso electricity, low voltage, origin below the basal line, simple inversion and coveshaped inversion. The electrocardiogram approached a normal form if the rheumatic infection cleared up, but even at the stage of complete recovery there was in one case persistence of iso-electricity of the T waves. In none of the three cases was evidence of a pericardial effusion present. These changes, though not pathognomonic for rheumatic fever occur rather commonly, as a review of the literature shows. Anatomic studies from the literature are reported which support the conception that the ST (RT) and T changes express an alteration of the musculature caused by the effects of the acute infection on the coronary circulation.

**The Heart in Myxedema**—Lerman and his associates discuss the changes in the size of the heart and in the blood pressure of eighteen patients having myxedema under thyroid medication, supplementing the data of thirty cases reported previously. It appears to be characteristic of the heart in myxedema to be enlarged and to undergo appreciable shrinkage as the disease is ameliorated by the administration of thyroid substance. The electrocardiograms of these patients taken before treatment showed abnormalities. None of the patients showed congestive failure.

### Archives of Ophthalmology, Chicago

12 1156 (July) 1934

- \*Primary Glaucoma Symptom Complex of Epidemic Dropsy E W O Kirwan, Calcutta India—p 1
- Plea for Greater Uniformity in Methods of Field Taking A H Thomasson New York—p 21
- Neoplasms of Lacrimal Gland Report of Two Cases W S Davies Ann Arbor, Mich—p 33
- Psychogenetic Disturbances of Vision W Stekel Vienna Austria translation and abstract by L S London New York—p 38
- Lamp for Determination and Measurement of Preferred Intensity of Light for Reading and Other Work C E Terree and G Rand Baltimore—p 45
- Blue Sclerotics Fragile Bones and Deafness J Dessoff Washington D C—p 60
- Bilateral Cavernous Sinus Thrombophlebitis Without Involvement of Ophthalmic Vein Report of Case J J Keegan Omaha and W E Ash, Council Bluffs Iowa—p 72
- Instrument for Determining Course of Dark Adaptation and Measuring Minimal Light Threshold J B Feldman Philadelphia—p 81
- Metastatic Carcinoma of Optic Nerve and Choroid C E McDannald and B I Payne New York—p 86
- Involvement of Cornea in Arsenic Poisoning Report of Case A V Hallum Atlanta Ga—p 93

**Primary Glaucoma and Epidemic Dropsy**—Kirwan presents twelve cases that are illustrative of typical epidemic dropsy associated with glaucoma, from the study of which he points out that primary glaucoma in association with epidemic dropsy is due to toxins which contain bodies of the histamine group and that the glaucoma is of the chronic primary non-inflammatory type. The toxin circulating in the blood causes a vascular disturbance, which in some way upsets the normal function of the intra-ocular capillary endothelium as well as causes dilatation of the general capillary field, which leads to an increased output of tissue fluid. As the glaucoma is only part of a generalized disorder, the treatment should be medical if only a speedy method were known to rid the body of the toxins. The operative treatment is symptomatic and is intended to prevent permanent damage being done to the retina by the increased intra-ocular tension till the general disease has been cured by the elimination of the offending toxins.

### Arch of Physical Therapy, X-Ray, Radium, Chicago

15 383 448 (July) 1934

- Medical Diathermy in Prostatitis and Seminal Vesiculitis A E Jones Chicago—p 389
- Diathermy in Urology W H Haines Philadelphia—p 392
- Rationalization of Physical Medicine on a Basis of Biochemical and Biophysical Effects F T Woodbury New York—p 398
- New Conceptions of Arthritis and Their Relation to Physical Therapy H F Wolf New York—p 405
- Electrical Accidents H E Fisher Chicago—p 408
- Physical Therapy in Traumatic Surgery H H Ritter, New York—p 413
- Treatment of Athletic Injuries G G Deaver, Chicago—p 415
- Ultraviolet Treatment in Chronic Otitis Media in the Tuberculous A J Weinstein and R A Bendove New York—p 419
- Wessely Radiation Apparatus in Laryngeal Tuberculosis Further Experiments J W Miller New York—p 422
- Scientific and Practical Aspects of Massage C G A Bjorkman New York—p 425

### Archives of Surgery, Chicago

29 171 336 (Aug) 1934

- Symmetrical Traumatic Fractures of the Cranium Symmetrical Fracturementation Comments on Their Mechanism E R LeCount and J Hockzema Chicago—p 171
- Bile Peritonitis S H Mentzer San Francisco—p 227
- I Therapeutic Use of Bacteriophages Against the Colon Bacillus W J MacNeal Frances C Frisbee and Martha Applebaum New York—p 242
- Perforation of Jejunal Ulcer into the Free Abdominal Cavity H A Singer and K A Meyer Chicago—p 248
- \*Pepsin in the Prevention of Abdominal Adhesions K Yardumian and D H Cooper Pittsburgh—p 264
- Progressive Obstructive Jaundice Changes in Certain Elements of the Blood and Their Relation to Coagulation J L Carr and F S Foote San Francisco—p 277
- Atlanto Epistropheal Subluxations M B Coutts New York—p 297
- \*Local Atrophy of Bone III Effects of Vitamin D and of Calcium on Local Atrophy and Union F Fischer Detroit and J A Key, St Louis—p 312
- Review of Urologic Surgery A J Scholl Los Angeles E S Judd Rochester Minn J Verbrugge Antwerp Belgium A B Hepler Seattle R Gutierrez New York and V J O'Connor Chicago—p 316

**Pepsin in the Prevention of Abdominal Adhesions**—In the prevention of abdominal adhesions, Yardumian and Cooper used an extract of pepsin, first in hydrochloric acid and then in glycerin but free from iodine, in their experiments on forty-four rabbits, on which 104 laparotomies were performed.

formed. Most of the animals survived the operations, but in those which died not a single case of intestinal obstruction was found at necropsy. Peritonitis and hemorrhage were the causes of death in all cases. To produce adhesions that may be considered permanent there must be sufficient trauma to produce an exudate capable of forming fibrin to a marked degree. Therefore the abdomen was entered through a midline incision, and the small intestine was rubbed vigorously with a gauze-covered finger for a distance of from 6 to 8 inches (15 to 20 cm) in several places. The peritoneum on each side of the incision was forcibly scraped with the sharp end of a scalpel. The contents of the abdomen were replaced and the abdomen was closed in layers, catgut being used for the peritoneum and dermal for the skin. Before the peritoneum was closed the pepsin fluid was instilled. The active principle of pepsin was extracted from hog stomach with a 0.4 per cent solution of hydrochloric acid and with glycerin and water. The strengths used ranged from 0.5 to 2 per cent. When the abdomen was reopened and required extensive separation of adhesions, further trauma was not employed except incident to separation. The pathogenic adhesions were subdivided into four types: filmy, fine, moderate and dense. The cases were divided into two classes: class 1, in which filmy, fine or no adhesions were obtained, and class 2, in which moderate or dense adhesions resulted. The hydrochloric acid extract was used in one series and the glycerin and water extract in another. The results were as follows: In group 1 hydrochloric acid was used and nineteen operations were performed, 45.5 per cent of the cases were in class 1, and of these 25 per cent showed no adhesions. In group 2 glycerin and water was used and twenty-two operations were performed, 63.2 per cent of the cases were in class 1, and of these 39.1 per cent showed no adhesions. In group 3 a 0.5 per cent solution of pepsin in glycerin and water and traumatization by scarification were used and twenty-two operations were performed, 86.4 per cent of the cases were in class 1 and of these 75.8 per cent showed no adhesions. In group 4 a 0.5 per cent solution of pepsin in glycerin and water was used and lysis was obtained without further irritation, twenty-one operations were performed, 62 per cent of the cases were in class 1, and of these 33 per cent showed no adhesions. In group 5 lysis was obtained with irritation and of the twenty operations performed 50 per cent were in class 1, and of these 25 per cent showed no adhesions. Since their results show the decreased tendency to the formation of adhesions, the authors assume that the benefit from the digestive action of the pepsin is realized before absorption takes place. There was a gradual decline in the incidence of adhesions, with decreased trauma and in the presence of pepsin. The greatest tendency in the reformation of adhesions is when trauma is induced in the presence of existing adhesions and their separation, indicating the futility of any effort to prevent the reformation of adhesions in cases in which additional trauma is induced.

**Effects of Vitamin D and of Calcium on Local Atrophy and Union of Bone.**—The observations of Fischer and Key indicate that local atrophy of bone is the result of local conditions and that it cannot be prevented or appreciably lessened by an abundance of vitamin D and calcium in the diet. Likewise the healing and union of bones appear to require a certain amount of time, and no evidence was found that the addition of vitamin D and calcium to an adequate diet will reduce this time. The authors' patients received an adequate diet and their results should not be interpreted as evidence that patients convalescing from fractures and operations on the bones should not receive vitamin D and calcium. It is probable that a diet deficient in vitamin D and calcium would lead to increased local atrophy and delayed union of bone. It is further to be noted that therapeutic doses of vitamin D and calcium do not cause increased local atrophy or delayed union of bones.

### Canadian Public Health Journal, Toronto

25 307 358 (July) 1934

- Insurance and Public Health H H Wolfenden Toronto—p 307  
Trends in Public Health and Medical Care in Canada W J Bell Toronto—p 316  
Ice Supplies and Associated Health Problems A E Berry, Toronto—p 321  
Antituberculous Activities in New Brunswick R J Collins St John N B—p 326

### Delaware State Medical Journal, Wilmington

6 153 174 (July) 1934

- Diagnosis and Treatment of Lesions of the Cranial Nerves W E Dandy Baltimore—p 153  
The Young Psychopath C Uhler Farnhurst—p 160

### Endocrinology, Los Angeles

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\*Sex Determination Test of Dorn and Sugarman Report of Fifty One Experiments D P Murphy and G S De Renyi Philadelphia—p 521  
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**Iodine Tolerance Test for Thyroid Insufficiency.**—Elmer describes an iodine tolerance test that he has found to be highly characteristic of thyroid insufficiency. In the performance of the test, 0.658 Gm of potassium iodide is dissolved in 500 cc of water at a temperature of 110 C, in 500 cc of iodine free water. This solution contains 1,000 micrograms of iodine in 1 cc. After sterilization the solution is kept in 1.3 cc (1,300 micrograms of iodine) amounts in dark phials. After the skin is disinfected with iodine-free alcohol the contents of the phial are injected intravenously and the patient is instructed to drink a glass of water every one or two hours for six hours. The drinking of water facilitates the output of the urine, which in hypothyroidism may be insufficient. The urine is collected within the first six hours after the intravenous injection of iodine. The elimination of iodine within twenty-four hours may show at times only a slight difference in cases of hypothyroidism and normal thyroid function, but the differences are markedly evident in the first six hours after administration. The author adds the following modification to the method described previously for the determination. From 1 to 1.5 cc of a 50 per cent solution of potassium carbonate is added to from 10 to 20 cc of urine in a nickel dish. This is evaporated on a water bath, dried in an electric oven at a temperature of from 70 to 80 C or over a gas burner, and incinerated in an electric oven with the presence of air or oxygen at a temperature of about 350 C within from ten to fifteen minutes. After the dish is cooled, a little water is added to the residue. The contents are minced with an agate pestle and filtered with an ordinary blotting filter, the filtrate must be clear or at the most slightly yellow. The filter is incinerated with its content in the nickel dish in an electric oven within ten minutes at a temperature of 350 C. After complete incineration the residue of the filtrate must be pure white. The rest of the procedure is carried out according to the method reported previously. The author investigated fifty-five cases of different diseases with normal or disturbed function of the thyroid. The proportion of eliminated iodine in urine within six hours after intravenous injection of 1,300 micrograms of iodine as potassium iodide showed in hypothyroidism (seventeen cases) a constant and marked increase and amounted to from 23 to 40 per cent, and in euthyroidism (nineteen cases) from 12 to 20.5 per cent. In hyperthyroidism (ten cases) and in nontoxic goiter (nine cases) it was either decreased (as much as 0.8 per cent) or normal. The increased elimination was also noted in three patients with hyperthyroidism to whom iodine had been administered previously. This fact does

not diminish the value of the test, for not only the clinical picture but the simultaneous determination of the basal metabolic rate and the fasting blood iodine enables one in a definite way to differentiate between these two diseases and to detect the presence of hypothyroidism. The test is of especial value for the determination of atypical hypothyroid forms, for which the clinical picture, the determination of fasting blood iodine or the examination of the basal metabolic rate do not give sufficient grounds for the diagnosis of hypothyroidism. In all subjects showing a decreased basal metabolic rate the negative results of the test exclude thyroid insufficiency.

**Fat Tolerance Test in Pituitary Disease**—Goldzicher and his collaborators confirm the presence of a fat metabolism hormone of the anterior lobe of the pituitary, which causes a rise of the acetone bodies of the blood. A similar rise of blood acetone after intake of a fat meal seems to denote the physiologic discharge of the fat metabolism hormone. A fat tolerance test was devised to demonstrate the functional status of the anterior lobe of the pituitary. The test meal consists of 4 ounces of heavy sweet cream, 4 ounces of milk, 1 ounce of butter and two slices of toast. Examination of 109 cases after a test meal showed absence of the physiologic rise of blood acetone bodies in fifty-six cases, which consisted almost exclusively of those of pituitary deficiency. A rise was obtained in the normal controls, in all other endocrinopathies and also in some hypopituitary patients. The physiologic reaction was obtained in those hypopituitary patients who had been under specific organotherapy over a prolonged period. Analysis of the forty-two cases in which the blood acetone content dropped after a test fat meal showed a low specific dynamic action averaging 6.3 per cent, the blood uric acid in these cases averaged 3.9 mg per cent. The constant combination of a low specific dynamic action, high uric acid and increased fat tolerance appears to characterize pituitary insufficiency. Preliminary studies suggest that the determination of oxybutyric acid instead of the total acetone content is likely to improve the results of the fat tolerance test. The relation of the fat metabolism hormone to the thyrotropic hormone is discussed and the distinct identity of the two principles is emphasized.

**Sex Determination Test of Dorn and Sugarman**—In determining the validity of the Dorn and Sugarman test for prophesying the sex of the unborn fetus, Murphy and De Renyi injected (intravenously) urine from fifty-one women in the last two months of pregnancy into the same number of male rabbits approximately 3 months of age. Gross and microscopic examination of testicles removed both before and after treatment gave the following results: 1. The urine injection had no appreciable effect on the gross appearance of the testicles, the diameters of the seminiferous tubules or the number of different kinds of germinal epithelial cells. 2. In an insignificant number of instances the treatment may have initiated or increased spermatogenic activity. 3. The testicles of animals treated with urine from women who later were found to have given birth to female children exhibited the same microscopic picture as the testicles from animals treated with urine from women who had later given birth to male children. From these observations it is concluded that the urine of pregnant women does not offer a means for predicting the sex of the unborn child by the rabbit testicle reaction. The use of the testicle reaction for determining the existence of pregnancy in the human being would also seem to be of little if any value.

### Florida Medical Association Journal, Jacksonville

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- Ophthalmology and Its Relation to General Medicine and Surgery N M Black Miami—p 9  
Surgical Management of Thyrotoxicosis J S Helms Jr Tampa—p 12  
Some Interesting Phases in the Practice of Proctology J Halton Tampa—p 17  
Cancer of Larynx C G Coakley New York—p 23  
Essential Features in Diagnosis and Treatment of Acute Fractures of the Skull J R Wells Daytona Beach—p 25

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Angina Pectoris Report of Case Relieved by X Radiation J H Luciman Miami—p 65

### Journal of Bacteriology, Baltimore

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### Journal of Experimental Medicine, New York

60 127-268 (Aug 1) 1934

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\*Fate of Bilirubin in Small Intestine M S Sackey, C G Johnston and I S Ravdin Philadelphia—p 189  
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\*Vaccination of Monkeys and Laboratory Workers Against Psittacosis T M Rivers and F F Schwenker New York—p 211  
Biochemical Studies on Fibrinolytic Activity of Hemolytic Streptococci I Isolation and Characterization of Fibrinolysin R L Garner and W S Tillett Baltimore—p 239  
Id II Nature of the Reaction R L Garner and W S Tillett Baltimore—p 255

**Fate of Bilirubin in Small Intestine**—Since there was no loss of bilirubin from the jejunal loop and no loss of bilirubin when pigment was incubated with juice from the loop segment or juice from the entire small intestine, Sackey and his associates conclude that the intestinal juice alone has no effect in converting bilirubin to urobilin during a period of two hours and that in the jejunal loop there was no absorption of pigment or no conversion to urobilin. The experiments, on dogs, showing loss of pigment in the entire intestinal tract suggest that in some place other than the jejunal portion of the intestine the combined activity of intestinal contents and intestinal cells does affect the bilirubin in the intestine. Whether the loss of bile pigment under such circumstances is due entirely to conversion, to conversion and absorption, or to absorption of bilirubin as such remains to be answered.

**Vaccination Against Psittacosis**—The results of the work of Rivers and Schwenker indicate that, when psittacosis virus produces a pneumonia in man, its portal of entry is the upper respiratory tract. The fact is plain that man is unlikely to contract psittacosis pneumonia as the result of the subcutaneous or intramuscular introduction of active virus. It is not known whether the persons who have received repeated intramuscular injections of active virus possess an increased resistance to psittacosis in addition to the neutralizing antibodies in their serums and, if they do possess such a heightened resistance, there is no evidence in regard to the length of time they will retain it. In view of the results that they obtained with monkeys, they believe that one is justified in assuming that a certain degree of protection against psittacosis was afforded the human volunteers by means of vaccination. Monkeys that have recovered from psittacosis pneumonia have an increased resistance to infection with the virus and possess neutralizing antibodies in their serums. Large amounts of active psittacosis virus can be introduced intravenously and intramuscularly into monkeys without the production of a serious infection, such as pneumonia. Relatively small amounts of virus introduced intratracheally into monkeys usually lead to psittacosis pneumonia. Monkeys vaccinated intramuscularly with unattenuated psittacosis virus have an increased resistance to the active agent and possess neutralizing antibodies in their serums.

## Journal of General Physiology, New York

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## Journal of Infectious Diseases, Chicago

55 1 122 (July Aug) 1934

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Protective Action of Sodium Thiocyanate Against Dysentery Toxin  
(Shiga) Experimental Study in Dogs and Rabbits P E Reid,  
M A Anderson, H I Stubblefield and A C Ivy Chicago—p 112

**Elimination of Brucella Abortus with the Milk of "Carrier" Cows**—Thompson examined the milk of ten high producing cows that never manifested clinical symptoms of infectious abortion but whose blood serum showed agglutinins for Brucella abortus in dilutions of from 1:50 to 1:500 for the presence of Brucella abortus at intervals of thirty days over an entire lactation period by both the direct petri plate method and inoculation of guinea-pigs. The results indicate that inoculation of guinea-pigs is slightly more efficient than the direct petri plate method of examining milk for the detection of Brucella abortus. The results further demonstrate that Brucella abortus may be constantly eliminated with the milk of cows classified as "healthy carriers."

**Immunization with Tetanus Toxoid**—Bergey observed that alum precipitated tetanus toxoid induces, in a dose of 1 cc, a higher degree of immunity than three doses of the toxoid without alum. The tetanus toxoid is of value only as a prophylactic agent against tetanus infection. It has no therapeutic value in persons who are infected with tetanus bacilli. Active immunization against tetanus infection should be carried out as follows: A primary stimulus is given by injecting a dose of 1 cc of the toxoid, this is followed by a rest period of three months, and then a secondary stimulus of 1 cc of toxoid is given. On injury, a third dose of 1 cc of the toxoid is given.

**Dissociation of Streptococci Obtained from Acute Rheumatic Fever**—Howell and Burton endeavored to dissociate the freshly isolated strains of streptococci obtained by blood culture from four patients during acute attacks of rheumatic fever. The four strains were not in the same group according to bacteriologic classification. On blood agar, two of the four strains (102 and 109) were nonhemolytic, one (107) was hemolytic, and one (108), green producing. The nonhemolytic strains grew in broth with uniform turbidity, the others grew with granular sediment. The four strains could not be classified by immunologic methods. Rabbits were immunized with each of the four bacterial strains, and the resulting immune sera were treated for agglutinins, opsonins and complement fixation antibodies. The four freshly isolated strains of streptococci remained virulent, smooth and stable for eight months in spite of efforts to incite dissociation by chemical and physical means and by inoculation of animals. Elements of dissociation in the strains are suggested by pleomorphism and by occasional S-R colonies. The experiments with animals suggest little possibility of changing a smooth virulent strain to a rough

avirulent strain in vivo. Accepting the definition that dissociation is a permanent change that takes place in a bacterium and is then transmitted to subsequent generations, the authors have so far been unable to dissociate the four strains of streptococci obtained by blood culture from patients with acute rheumatic fever.

**Protective Action of Sodium Thiocyanate Against Dysentery Toxin (Shiga)**—Reid and his associates investigated the accidental discovery by Reid and Stubblefield and Crandall and Anderson that dogs which had received thiocyanate from four to five weeks previously failed to react in the usual manner after receiving lethal doses of Shiga dysentery bacillus filtrate. They found that the intravenous (20 mg per kilogram of weight) or oral (60 mg per kilogram of weight) administration of sodium thiocyanate from fourteen days to several (four or five) weeks prior to the administration of a toxic filtrate of Shiga dysentery bacilli affords protection against the lethal action of the filtrate in some but not in all dogs. They can offer no explanation. They did not obtain any protection in rabbits.

## Journal of Nervous and Mental Disease, New York

80 125 252 (Aug) 1934

- Sex Factors in Intelligence A J Rosanoff, Leva M Handy, Isabel Avis Rosanoff and Christine V Inman Kane Los Angeles—p 125  
Intracranial Hydrodynamics Central Nervous System Shock and Edema Following Rapid Fluid Decompression of the Ventriculo-subarachnoid Spaces J H Masserman Baltimore—p 138  
Postencephalic Narcolepsy and Cataplexy Muscles and Motor Nerves Electrical Inexcitability During the Attack of Cataplexy J C Mussio Fournier and R A Larrosa Helguera Montevideo, Uruguay—p 159  
Galvanic Skin Reflex and Blood Pressure Reactions in Psychoneuroses A P Solomon and T L Fentress Chicago—p 163  
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## Journal of Nutrition, Philadelphia

8 1 124 (July 10) 1934

- Studies of Raw Egg White Syndrome in Rats W D Salmon and J D Goodman Auburn Ala—p 1  
Storage of Vitamin A in Cattle H R Guilbert and G H Hart Davis Calif—p 25  
Vitamin A Storage in Livers of Turkeys and Chickens H R Guilbert and W R Hinshaw Davis, Calif—p 45  
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## Journal of Pediatrics, St Louis

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- Poliomyelitis Treated in Drinker Respirator Analysis of Eighty Eight Cases and Control Series of Sixty Eight Cases I Clinical Studies in Poliomyelitis J F Landon New York—p 1  
Serum Therapy in Preparalytic Poliomyelitis II Clinical Studies in Poliomyelitis J F Landon New York—p 9  
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Early Signs of Vitamin A Deficiency in Albino Rats F F Chu and Anna Murphy Boston—p 68  
Parenteral Use of Carotene in Treatment of Vitamin A Deficiency in Albino Rats F F Chu and Harriet Coady, Boston—p 75

**Prevention of Initial Loss of Weight in the New-Born**—Halpern confirms the contention of Kugelmann and his collaborators that hydrating solution reduces the initial loss of weight. In seventy-five new-born infants who received a



hydrating solution for from one to four days after birth the reduction amounted to 394 per cent, and to 368 per cent in thirty-four infants who received it for the first two days of life. Birth weight was recovered on an average of from 13 to 15 days earlier in the treated infants than in a group of seventy-five controls. An average intake of 11 per cent of the solution per birth weight, affording an average of 161 calories, was obtained on the second day of life. A slight benefit resulted from the administration of the solution on the subsequent progress, particularly striking in those infants who received the solution for the first two days only. The administration of the solution for the first two days of life yielded better results from the standpoint of reduction of initial loss of weight, recovery of birth weight and effect on subsequent progress than when it was given for the first three days, the first day or the first four days.

**Huge Tension Cavity in Primary Tuberculosis**—Sanes and Kenny report a case of primary pulmonary tuberculosis in a Negro infant, aged 10 months, the pathologic features of which—cavitation, bronchogenic spread and absence of acute miliary dissemination—resembled those of postprimary tuberculous infection. The primary cavity was of singularly large size. Clinically, the cavity showed distinct tympany.

**Lymphatic Leukemia Resembling Rheumatic Fever**—Sutton and Bosworth describe a case of lymphatic leukemia that draws attention to the fact that joint symptoms may be a prominent part of the picture of acute leukemia in children and emphasizes the fact that the absence of evidence of acute carditis in the presence of polyarthritides in a child less than 3 years of age is presumptive evidence that the carditis is not rheumatic in origin. In their case recurrent joint symptoms masked the true nature of the disease for six months during two admissions to the ward and persisted throughout the remaining six months of life. The clinical picture was atypical enough to cast doubt on the initial diagnosis of rheumatic fever, for it was felt that in so young a child an extensive and protracted polyarthritides should be accompanied by a severely damaged heart, a factor that was lacking in this instance. The child was admitted three times in the course of one year for pain and swelling of various joints. It was not until the third admission, when a generalized lymphadenopathy was also present, that the diagnosis of acute leukemia was made.

### Journal of Urology, Baltimore

32 131 230 (Aug.) 1934

- \*New Colorimetric Test for Renal Function Using Intravenous Iodine Preparations. Preliminary Report. R H Herbst and G O Baumrucker. Chicago—p 131
- Incontinence of Vesical and Renal Origin (Relaxed Urethra and Vaginal Ectopic Ureter). Case Report. M B Wesson. San Francisco—p 141
- Ketogenic Diet in Treatment of Bacilluria of Females. E N Cook. Rochester. Minn.—p 153
- Primary Pneumaturia. Report of Case. F W Mulsow and C L Gilles. Cedar Rapids. Iowa—p 161
- Kidney Suspension by Use of Fascia Lata. J E Strode. Honolulu. Hawaii—p 171
- Differential Diagnosis and Treatment of Tumors of the Testicle. Report of Case of Bilateral Fibroma of the Testicles. R B Henline. New York—p 177
- \*New Sign in Differential Diagnosis Between Torsion of Spermatic Cord and Epididymitis. D T Prehn. Brooklyn—p 191
- Staining and Morphology of Human Spermatozoon. W W Williams. A McGugan and H D Carpenter. Springfield. Mass.—p 201
- Interesting Case of Priapism Due to Multiple Secondary Carcinomatous Nodules in the Corpora Cavernosa. J S Kessell. East Orange. N J—p 213
- Clinical Study of Male Sterility with Particular Reference to Endocrine Dysfunction and Therapy. C W Charny. Philadelphia—p 217

**Colorimetric Test for Renal Function**—Herbst and Baumrucker describe a colorimetric test for renal function using diodrast intravenously. A specimen of urine containing excreted diodrast is diluted to 1,000 cc with tap water, and 0.5 cc is placed in a pyrex test tube and evaporated to dryness. 3 drops of a saturated solution of potassium nitrate is added and again evaporated to dryness, 2 cc of concentrated sulphuric acid is added and the whole is corked and heated. It is then cooled, and water is added and cooled again. It is then shaken with 2 cc of chloroform and compared to a colorimeter. The entire procedure is performed in the same test tube from evaporation to color comparison and does not take more than from seven to ten minutes. The color scale may be made by dissolving 100 mg of iodine in 128.5 cc of chloroform and adding 0.1 cc

of this solution for each 5 per cent, diluting up to 2 cc with chloroform. The acidified iodine chloroform solution has a slightly deeper shade than the plain iodine chloroform solution. This can be corrected by layering a few cubic centimeters of water acidified with sulphuric acid over the iodine chloroform solution. The iodine-chloroform scale, if made in sealed glass ampules, will keep its color for months without changing. This test, unlike the phenolsulphonphthalein test, can be performed on bloody urine. The urine is diluted to 1,000 cc to have it correspond more closely to the phenolsulphonphthalein test.

**Differential Diagnosis Between Torsion of Cord and Epididymitis**—Prehn discusses a diagnostic sign for the differential diagnosis of torsion of the spermatic cord and epididymitis. He illustrates this sign by reporting two cases of torsion in which acute epididymitis was ruled out, as elevation of the scrotum increased the pain and tenderness and did not give relief as it would in acute epididymitis. The swelling of the scrotum by edema frequently makes it difficult to distinguish the testicle from the epididymitis which may accompany torsion, and then the scrotal contents are not differentiated. Tenderness along the cord may be present with epididymitis. Nausea and vomiting with some elevation of temperature may be present in both conditions but are more likely in torsion and are usually more severe. Suspicion should always center on inguinal canal or lower abdominal pain when the scrotal sac on one side or both sides is empty to rule out torsion of the cord. In the undescended testicle, with a tumor in the inguinal canal, the condition calls for surgical intervention. It is more important to differentiate torsion from acute epididymitis in the descended testicle, because the treatment here is usually quite different. The treatment should be surgical. Torsion may be prevented by plastic correction of the undescended testicle before puberty by suturing the organ to the scrotum. After puberty, removal is indicated in the partially descended testicle, owing to the danger of peritoneal injury. In the fully descended testicle if early, the torsion may be untwisted and repaired plastically, otherwise removed.

### Kentucky Medical Journal, Bowling Green

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- Growing Interdependence of Medical and Dental Practice. O B Coomer. Louisville—p 334
- Dental Infection as Related to the Field of Medicine. J Stites. Louisville—p 337
- Clinical Consideration of Brain Tumors. R G Spurling and F Jelsma. Louisville—p 348
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- Jaundice. Its Cause and Cure. C F Long. Elizabethtown—p 367
- Carcinoma of the Lip. Report of Cases. L W Frank and C D Enfield. Louisville—p 366
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- Diagnosis and Treatment of Chronic Sinus with Especial Reference to the Antrum. C T Wolfe. Louisville—p 372
- Birth Control. G Fulton. Louisville—p 378
- Epidemic Encephalitis. G Eith. Newport—p 383
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### Medical Bull of Veterans' Adm, Washington, D C

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- \*Thrombo Angitis Obliterans. Significant Findings and a Theory of Etiology. H J Gray—p 16
- Occurrence of Typhoid Fever After Prophylactic Inoculation. E J Butzke—p 24
- Vitamin D Milk in Pulmonary Tuberculosis. M L McClung and L G Gluckman—p 26
- Artificial Pneumothorax. Treatment of Pulmonary Tuberculosis in Negroes. A D Simington—p 29
- Results of Extra Intensive Treatment of General Paralysis of the Insane. C L Carlisle and R T O Neil—p 31
- Gastrohepatic Fistula. C G Lyons—p 59
- Supernumerary Stomach with Duodenal Bulb Associated with Diaphragmatic Hernia. W A Cashion—p 61
- \*Fungicidal Treatment of Pruritus Ani. C M Creech and C J McGillicuddy—p 63

**Etiology of Thrombo-Angitis Obliterans**—Gray believes that 1 Thrombo-angitis obliterans is the end result of an intestinal putrefaction, with resultant toxins in the blood stream having a selective action on the vascular intima. 2 Intensive research into metabolism and blood chemistry will reveal the cause and develop preventive measures for thrombo-angitis obliterans and probably other vascular diseases. 3

Tobacco and infections are only predisposing factors. In early cases and cases with gangrene of the ends of the toes, medical treatment should be used, while in gangrene with severe involvement amputation is the procedure. In the intermediate group, in which vasospasm is noted as improved, sympathetic ganglionectomy is indicated by the work of others, but the author prefers vaccine treatment. Thrombo-angitis obliterans, angina pectoris, arteriosclerosis, Raynaud's disease, erythromelalgia and sclerodactylia are possibly different from one another only in the distribution and clinical manifestation of the same etiologic disease.

**Treatment of Pruritus Ani**—In pruritus ani, with the area infiltrated, Creech and McGillicuddy swab the area lightly with a 30 per cent solution of salicylic acid in alcohol. This is repeated at intervals of seventy-two hours. The patient is instructed to swab the perianal and pericoccygeal regions freely night and morning with a 1 per cent solution of copper sulphate. The infiltration disappears after a few applications. The salicylic acid solution if lightly applied, causes only moderately severe pain, which lasts but a few minutes. In no case has the copper solution caused irritation.

### Military Surgeon, Washington, D C

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A Naval Medical Officer on Duty with the Civilian Conservation Corps. C R Ball—p 12  
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### Minnesota Medicine, St Paul

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Control of Tuberculosis: Its Economic and Scientific Factors. L S Mariette Oak Terrace—p 393  
Surgical Treatment of Pulmonary Tuberculosis. T J Kinsella Oak Terrace—p 399  
Eczema in Infancy and Childhood. T L Birnberg St Paul—p 407

### Missouri State Medical Assn Journal, St Louis

31 261 304 (July) 1934

Treatment of Some Diseases of the Blood. J H Musser and D O Wright New Orleans—p 261  
Pathology of Carcinoma of the Breast. L H Jorstad St Louis—p 272  
Radical Operation for Cancer of the Breast. W E Leighton St Louis—p 275  
Radiologic Point of View of Cancer of the Breast. E C Ernst St Louis—p 277  
Cancer from the Internist's Point of View. C M Stroud St Louis—p 281  
Endometriosis. E F Schmitz St Louis—p 282

31 305 340 (Aug) 1934

Tetanus Infection Treated with Antitoxin and Avertin. F A Harrison Springfield and H L Higgins Boston—p 305  
Clinical Appraisal of Water Metabolism. B A Glassberg St Louis—p 308  
Roentgen Therapy of Bone Metastases Following Carcinoma of the Breast. J C Peden St Louis—p 310  
Pyridium in Treatment of Gonorrheal Vaginitis in Children. T K Brown S D Soule and H L Klein St Louis—p 313  
Abdominal Lithopedion Developing from a Twin Pregnancy. J D Hayward St Louis—p 315  
Ice Cream America's Most Excellent Health Food. W H E Reid Columbia—p 317  
The Soda in Every Hospital and Home. R H Monier Carrollton—p 319  
Medical Ethics. O B Hall Warrensburg—p 323  
Concerning Heredity in Diabetes. A Bleyer, St Louis—p 325

**Clinical Appraisal of Water Metabolism**—Glassberg states that the minimal water intake compatible with optimal nutrition is more than 2 quarts (liters) a day in temperate climates, in hot weather or during excessive physical exertion more should be ingested to aid the body in the elimination of heat. If considerably greater amounts of water are required under these circumstances, its value may be enhanced by the addition of table salt in physiologic proportion (2 teaspoonfuls to the quart). The minimal water intake in infectious or toxic states should be 3 quarts a day in the absence of contraindications. There is no physiologic reason for limiting the water ingested with meals or that allowed during the course of a reducing cure. If an obese patient fails to lose weight under adequate management faithfully executed the cause should be

sought in water retained in the tissues. Dehydration treatments for disease should not be inaugurated thoughtlessly, nor should they be continued longer than absolutely necessary.

**Pyridium in Gonorrheal Vaginitis in Children**—Brown and his co-workers treated gonorrheal vaginitis in twenty-one children by inserting a vaginal suppository of 0.16 Gm of pyridium in a boroglyceride of gelatin base every night followed by a 500 cc cleansing douche. The solution, 1 1,500 potassium permanganate was given by way of the Dakin tube under low pressure every morning. Under such a regimen the duration of treatment has been reduced gradually so that with a cooperative family the average treatment extends from four to eight weeks.

### Nebraska State Medical Journal, Lincoln

19 281 320 (Aug) 1934

Clinical Recognition of Acute Coronary Thrombosis. J B Herrick Chicago—p 282  
Present Status of Serum Therapy in Pediatrics. J H Hess Chicago—p 288  
Some Commonly Misunderstood Features About Cutaneous Cancer. F D Weidman Philadelphia—p 295  
Neurology and General Medicine. L J Pollock Chicago—p 298  
Effects of Pregnancy and Disease on Each Other. H Ehrenfest St Louis—p 304  
Dermatophytosis Down to Date. F D Weidman, Philadelphia—p 309  
Birth Injuries of the Child. H Ehrenfest, St Louis—p 313  
Acute Encephalitis and Inflammatory Cerebral Complications as Found in the General Practice of Medicine. H A Wigton Omaha—p 316  
Rational Treatment of Encephalitis. G A Young Omaha—p 318

### New England Journal of Medicine, Boston

211 143 188 (July 26) 1934

\*Use of Ketogenic Diet in Chronic Pyuria. Preliminary Report. J M Rector San Francisco and W E Wheeler Boston—p 143  
Clinical Basis and Present Status of Vaccination Against Tuberculosis. C A Smith, Boston—p 147  
Fulminating Streptococcus Infections in Infancy as a Cause of Sudden Death. S Farber, Boston—p 154  
Pyogenic Infections of Bones and Joints in Infancy. W T Green Boston—p 159  
Gastrointestinal Allergy as Cause of Intestinal Obstruction. D T Gallison Boston—p 164  
Cancer of the Pancreas. F L Hoffman Philadelphia—p 165  
Resection of the Lower End of the Ulna (Subperiosteal). F J Cotton and G M Morrison, Boston—p 170  
Some Present Day Conceptions of Phototherapy. F P Lowry, Newton Mass—p 171

**Ketogenic Diet in Chronic Pyuria**—Rector and Wheeler treated fourteen cases of chronic urinary tract infection with the ketogenic diet. Practically all the patients had received more or less intensive therapy previously, with little or only temporary benefit. The diet was instituted only in cases that were essentially afebrile. The average duration of the diet was fifteen days. The urine became sterile in eight of the fourteen cases during the course of the dietary treatment and remained sterile for six months (length of follow-up study). In two cases a satisfactory ketosis could not be produced and sterilization was never effected. They showed demonstrable anatomic deformities of the urinary tract. In two other cases the urine was sterile on discharge from the hospital, but the infection recurred later. These two children resumed a normal diet as soon as the cultures became negative. In no case in which the patient was kept on the diet for a week or longer after the cultures became negative has there been a recurrence. In one case, satisfactory ketosis was not attained in the hospital. Later by using a higher ratio diet and by restricting fluids at home the urine became sterile but the infection recurred four months later. The urine of one patient was sterile on discharge, but he did not return for bacteriologic follow up.

### New Jersey Medical Society Journal, Trenton

31 377 438 (July) 1934

Medical Problems in New Jersey. Study of Contract Practice and Dispensary Abuses. T K Lewis Camden—p 383  
Anesthesia from a Surgeon's Point of View. M Danzis Newark—p 390  
Disease of Coronary Arteries. D Riesman and S E Harris Philadelphia—p 396  
Operative Treatment of Ruptured Duodenal Ulcers. A S Harden, Newark—p 400  
Gastrointestinal Manifestations of Food Allergy. A F R Andresen Brooklyn—p 402  
Anorexia in Children. F E Johnson New York—p 408  
Hodgkin's Disease. W E Chamberlain and B R Young Philadelphia—p 415  
Problems in Medical Diagnosis. A Stengel Philadelphia—p 417

**New York State Journal of Medicine, New York**

34 621 664 (July 15) 1934

- Physical Therapy in a Health Resort W S McClellan, Saratoga Springs—p 621  
 Personality Make Up of the Criminal V C Branham, Albany—p 626  
 Continuous Intravenous Method of Fluid Administration (Venoclysis) in Pediatrics S Karelitz New York—p 631  
 Clinical Study of Herpes Review of Fifty Eight Cases A R McFarland, Rochester—p 637  
 Management of Placenta Praevia Analysis of End Results of Fifty Seven Personal Cases L E Phaneuf, Boston—p 641  
 Epilepsy of Allergic Origin T W Clarke, Utica—p 647  
 Program of Division of Cancer Control of New York State Department of Health B T Simpson, Buffalo—p 652

34 665 706 (Aug 1) 1934

- Prevention of Asphyxia During Anesthesia P J Flagg New York—p 665  
 Treatment of Asphyxia in Clinical Disease with Especial Reference to Recent Developments in the Use of Oxygen in Heart Disease A L Barach New York—p 672  
 Lingual Death Zone in Asphyxia C Jackson and C I Jackson Philadelphia—p 681  
 \*Clinical Experience with Vitamin D Milks J M Lewis New York—p 685  
 Work of the Council on Physical Therapy of the American Medical Association J S Coulter and H A Carter Chicago—p 689  
 Early Diagnosis of Carcinoma of the Cervix N P Sears Syracuse—p 692  
 The Modern Psychiatric Hospital in Relation to Public Health W W Wright, Marcy—p 695

**Clinical Experience with Vitamin D Milks**—Lewis discusses the antirachitic value of various types of vitamin D milk. His observations show that vitamin D milks are effective antirachitic agents and require fewer units to prevent or cure rickets than are necessary in the form of cod liver oil or viosterol. In nine rachitic infants 80 units of crystalline vitamin D incorporated in milk brought about definite healing in one month, whereas 80 units dissolved in oil brought about healing in only three of nine rachitic infants during the same period of observation. These results indicate that the medium of milk allows for better absorption or utilization of the antirachitic vitamin and offer an explanation why vitamin D milks as a group require fewer units than cod liver oil or viosterol to prevent or cure infantile rickets. The administration of vitamin D milks to lactating mothers cannot be relied on to prevent rickets in breast-fed infants. Antirachitic agents will have to be given directly to nursing infants in order to protect them against this nutritional disorder. Vitamin D milk might be given with advantage from infancy to adolescence in order to bring about an optimal phosphorus and calcium retention during the growing period.

**Philippine Islands Med Association Journal, Manila**

14 249 288 (July) 1934

- Bacterial Variation So Called Microbic Dissociation M H Soule Ann Arbor Mich—p 249  
 Food of Inmates of Correctional Institutions for Women F O Santos and N A Pidlaoan Manila—p 252  
 Importance to Filipinos of Mental Hygiene J A Fernandez Mandaluyong—p 259  
 Report on Some Instructive Cases of Heavy Ascariasis J Albert and P H Paulino Manila—p 269

**Psychiatric Quarterly, Albany, N Y**

8 435 650 (July) 1934

- Functions of Psychiatry in a Training School for Juvenile Delinquents C O Cheney New York—p 439  
 The Physician and His Training in a Public Mental Hospital A E Witzel Brooklyn—p 450  
 Palliative Psychotherapy in a Case of Obsessional Neurosis W J Spring New York—p 466  
 Colonization as a Therapeutic Measure H G Hubbell Newark N Y—p 476  
 Retrospective Evaluation of Therapy H A Steckel Syracuse N Y—p 489  
 Treatment of Problems of Nutrition in Mental Cases C L Wittson Central Islip N Y—p 499  
 Results of Habit Training R E Herold Willard N Y—p 511  
 Ego Status in Psychoanalysis A Eisendorfer Manhattan N Y—p 515  
 Amentia in Medical Diagnosis G V N Dearborn New York—p 525  
 Studies of Catatonia I Introduction C Landis New York—p 535  
 Id II Central Control of Cerebral Flexibility T W Forbes New York—p 538  
 Id III Bodily Postures Assumed While Sleeping P H Du Bois and T W Forbes, New York—p 546  
 Hereditary and Environmental Factors in Causation of Dementia Praecox and Manic Depressive Psychoses H M Pollock B Malzberg and R G Fuller—p 553

**South Carolina Medical Assn Journal, Greenville**

30 139 156 (July) 1934

- Value of Vital Statistics to Public Health Workers M B Woodward Columbia—p 142  
 Brain Tumor Presentation of Case C T Bullock Columbia—p 151

**Texas State Journal of Medicine, Fort Worth**

30 239 302 (Aug) 1934

- Thoracic Actinomycosis Report of Case of Primary Type L P Go Texarkana—p 245  
 Ruptured Esophageal Varices S E Russ San Antonio—p 250  
 Skeletal Distraction in Treatment of Fractures of Forearm C Clayton, Fort Worth—p 254  
 Radiation Therapy of Malignant Diseases H G F Edwards Shreveport La—p 260  
 \*Are Peptic Ulcers Varicose Ulcers? P Riddle Dallas—p 267  
 Alum Precipitated Toxoid in Diphtheria Prevention T J McElhenn Austin—p 271  
 Effect of Irradiation of Hypophysis on Experimental Diabetes W Selle, J J Westra and J B Johnson Galveston—p 275  
 Diagnosis of Obscure Fevers S J Lewis Beaumont—p 279  
 Food Poisoning Food Infections and Food Intoxications M Rouse, Dallas—p 283  
 Methods of Diagnosis in Allergy, Especially Skin Tests and Their Limitations I S Kahn, San Antonio—p 286

**Peptic and Varicose Ulcers**—Riddle shows that varicose ulcers of the leg and peptic ulcers have many features in common—their size, shape, chronicity, multiplicity and tendency to heal and reappear in old or new regions. Supportive treatment of varicose ulcers of the leg has been used effectively for many years, treatment being based on the theory that the stagnant blood is pumped back to the heart. Likewise supportive treatment, with the employment of corsets, has been used for many years in treating peptic ulcers, but the satisfactory results obtained were not explained with reference to the varicose theory. The improved condition was thought to result from relief of the splanchnic pull in visceroprotic and neurotic persons. The author observed that bandaging the abdomen with a 3 in. elastic bandage, in a way similar to bandaging the leg, gives great relief in cases of peptic ulcer. He has also used an elastic girdle with good results. He explains this relief on the basis that the stagnant blood is pumped out of the stomach at duodenum back through the liver into the systemic, venous circulation. In this manner a peptic ulcer patient may remain ambulatory. The author has been able to cause varicose ulcers of the leg of a duration of forty years to heal by the proper bandaging and by prescribing the proper amount of exercise. Likewise, a regimen of bandaging the abdomen, sufficient walling along with small frequent meals that keep the stomach pumping, has given relief not only to peptic ulcer patients who have not been operated on but to those who have been unsuccessfully operated on. The author employed this method of treatment in twelve cases, with much relief in all and complete relief in the majority.

**Western J Surg, Obst & Gynecology, Portland, Ore**

42 373 434 (July) 1934

- Hernia Into Descending Mesocolon (Left Duodenal Hernia) I Mechanism Preliminary Report C L Callander G Y Rusk and Alma Nemur, San Francisco—p 373  
 Peritoneoscopy J C Ruddock Los Angeles—p 392  
 Reticulo Endothelial System J T Mason Seattle—p 406  
 Subcutaneous Bursting of Jejunum R Brown Santa Barbara Calif—p 413  
 Treatment of Septic Abortions and Their Complications J L Buhl Cleveland—p 417

**West Virginia Medical Journal, Charleston**

30 289 336 (July) 1934

- Infant Mortality Studies in West Virginia G M Lyon, Huntington—p 289  
 Silicosis D N Barber Charleston—p 310

30 337 384 (Aug) 1934

- Obstetric Application of Surgical Progress J R Bloss, Huntington—p 337  
 Mechanism and Treatment of the Neuroses I J Spear, Baltimore—p 342  
 Cancer of the Breast R J Wilkinson Huntington—p 348  
 Syphilis from the Standpoint of the General Practitioner T G Reed Charleston—p 352  
 Prophylaxis of Gallbladder Disease G F Grisinger Charleston—p 357  
 Diagnosis and Treatment of Some Conditions Requiring Bronchography V A Williams Pittsburgh—p 358  
 Extragenital Chancres H T Phillips and W J Morginson Wheeling—p 363  
 Hay Fever Methods of Treatment L A Gay Baltimore—p 366

# FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Surgery, Bristol

22 1200 (July) 1934

- Examination of Fresh Tissues by the Wet Film Method L S Dudgeon and N R Barrett—p 4
- Reconstruction of the Forearm After Loss of the Radius R W Jones—p 23
- Localized Hypertrophic Enteritis as Cause of Intestinal Obstruction Report of Two Cases W A Jackman—p 27
- Gastrojejunal Ulceration A J Walton—p 33
- Protrusion Acetabuli (Central Luxation) F C Golding—p 56
- Bone Graft for Nonunion of the Carpal Scaphoid G Murray—p 63
- Ray Investigation of the Upper Right Quadrant W H Dickson—p 69
- \*Changes in Blood Sugar Level Associated with Surgical Operations A G Weddell and H E D Gale—p 80
- Diverticula of Vermiform Appendix H C Edwards—p 88
- \*Acute Enteric Intussusception in Adult Caused by Lipoma Survey of Literature R I Poston—p 108
- Cysts of External Cartilage of Knee with Erosion of Head of Tibia H A T Fairbank and E I Lloyd—p 115
- Adolescent Kyphosis J M Edelstein—p 119
- Enterogenous Cysts W E A Hughes Jones—p 134
- Origins and Evolution of Colostomy T Dinnick—p 142
- Relation of Extrinsic Nerves to Functional Activity of Esophagus G C Knight—p 155
- Growth of Periosteum in Long Bones W T Warwick and P Wiles—p 169

**Changes in Blood Sugar Level Associated with Surgical Operations**—The blood sugar level associated with surgical operations, Weddell and Gale found, runs parallel with the clinical condition of the patient. Operations on the upper part of the abdomen round the celiac ganglions are more marked in their effect on the blood sugar level than those more remote from this region, irrespective of their duration. If a high blood sugar level is to be avoided, gentle handling is an essential factor in this neighborhood. In patients who appeared comfortable and relatively free from pain on the day following operation, the blood sugar was found to have reached a lower level than in those who were uncomfortable and in pain. The rise in the amount of the blood sugar level depends far more on the nature of the operation than on its duration. A persistently high blood sugar level is a feature to be expected when the patient is not doing well.

**Intussusception in Adult Caused by Lipoma**—Poston reports a case of acute enteric intussusception involving only the small intestine and caused by a submucous lipoma in a man aged 52 years. Such a tumor is usually not discovered until it causes symptoms or until a laparotomy is performed for some condition of which it may or may not be the cause. Search for a tumor especially in the proximal intestine should be made in all cases of intussusception occurring after infancy, and, conversely, all benign tumors of the alimentary canal should be removed as being potential causes of intussusception. In this patient the tumor projecting into the lumen of the small intestine was nodular, it was attached by a pedicle of fibrous tissue and on section was pale yellow and firm, spherical and about 2 cm in diameter. The mesentery was inflamed and there were definite signs of peritonitis. Histologically the tumor was a pure lipoma.

## British Medical Journal, London

2 99 152 (July 21) 1934

- Syphilis in Practice H MacCormac—p 99
- Rheumatism and Its Relation to Arterial Disease and Periarthritis Nodosa A V Neale and A G W Whitfield—p 104
- Inflammatory Dislocation of the Atlas D C L Fitzwilliams—p 107
- Gumma of the Brain Report of Case Treated Surgically J E Paterson and Margaret Leslie—p 109
- Cesarean Section Delivery of Two Hundred and Fifty Four Day Extra Uterine Fetus A Hosking—p 111
- Cutaneous Manifestation of Vitamin A Deficiency G P Goodwin—p 113

## East African Medical Journal, Nairobi

11 105 140 (July) 1934

- Social and Health Conditions Among the Jalu with Especial Reference to Maternal and Infant Welfare J A Carman and M A W Roberts—p 107
- Significance of Color Changes in the African Skin L J A Loewen—p 124

## Irish Journal of Medical Science, Dublin

No 102 241 288 (June) 1934

- Some Aspects of Suicide D A MacErlan—p 241
- Postoperative Pulmonary Complications E T Freeman—p 255
- Recent Advances in Blood Typing G C Dockery—p 267
- Surgical Tour in South Germany A Chance—p 278

## Journal of Anatomy, London

68 433 584 (July) 1934

- Morphology of Fore Brain Arteries with Especial Reference to Evolution of Basal Ganglions A A Abbie—p 433
- Peduncle of Flocculus and Posterior Medullary Velum Note T J Johnston—p 471
- \*Gross Anatomy of Lateral Ventricles A Torkildsen—p 480
- Some Observations on Development of Corpus Striatum of Birds with Especial Reference to Certain Stages in Common Sparrow (Passer Domesticus) A Durward—p 492
- Position of Nutrient Foramen and Direction of Nutrient Canal in Long Bones of Madder Fed Pig C G Payton—p 500
- Comparison of Joints of Arm and Leg and Significance of Structural Differences Between Them C P Martin—p 511
- Cervical Intercostal Articulation A J E Cave—p 521
- Development of External Ear F Wood Jones and W I Chuan—p 525
- Comparative Study of Anterior Cerebral Artery and Circle of Willis in Primates J W Watts—p 534
- Absence of Right Common Carotid Artery J D Boyd—p 551
- Neopallium of Ox Study of Its Development and Interpretation of Its Convolutions R Anthony and J de Grzybowski—p 558

**Gross Anatomy of Lateral Ventricles**—Realizing that the anatomy of the ventricles in a living brain is somewhat different from that seen at dissection or as a result of injection, Torkildsen correlated casts and dissections of the brain with the roentgenologic pictures of the ventricles after the cerebrospinal fluid has been exchanged for air. He used eleven brains from adults, the patients having died of diseases not connected with the central nervous system. He studied a group of 450 selected sets of ventriculograms and encephalograms and from these he selected thirteen sets, because they illustrated particularly what he considered to be a normal ventricular system. He found that the results of the examination by the two methods correspond well but show that a certain amount of collapse takes place in the preparation of the brains. The lateral ventricles vary to a certain extent in size and form. The greatest variation has been found in the posterior horns, in which the calcarine fissure at times seems to cause obliteration. The posterior horns are not constantly present, and a unilateral absence of a posterior horn can be seen in normal cases. The rest of the lateral ventricle is constantly present but varies within certain limits in size according to the size of the skull and age of the patient. Concerning the form of the lateral ventricles, it has been found that there are normally certain variations of the posterior part of the body. The investigations show that certain of the pictures and casts which previously have been supposed to represent the normal ventricles, illustrate a moderate degree of hydrocephalus.

## Lancet, London

2 117 176 (July 21) 1934

- Viruses in Relation to Etiology of Tumors C H Andrewes—p 117
- \*Value of Aerocystography N Ross—p 124
- Lead Poisoning in Children Case Record T S Rodgers J R S Peck and M H Jupe—p 129
- Fractures of the Neck of the Femur B McFarland—p 133
- Radiographic Evidence of Live Birth M Hajos—p 134
- Renal Dwarfism Associated with Calcification of Arteries and Skin R Platt and T K Owen—p 135
- Bilateral Spontaneous Pneumothorax Report of Case S R Wilson—p 136
- Lymphogranuloma Inguinale Acquired in England K V Earle—p 137
- Impedance Angle of the Human Body E R Holiday and F C Smith—p 139

**Aerocystography**—Ross confirms the value of aerocystography as an aid to diagnosis of intravesical enlargement of the prostate. The disadvantages of cystoscopy in certain cases are reiterated and the simplicity of the air-in-bladder technique is noted. The interpretation of a prostatic shadow is clarified, and the ease with which distinction between simple and malignant prostates may be made is emphasized. New growths of the bladder are also visualized by this procedure and an attempt is made to correlate the aerocystographic appearances (corresponding to the morbid anatomy) with the histologic anatomy of these neoplasms. Reference is made to "median bar" formation, and diagnosis by aerocystography in certain types (trigonal

bars) is described. Cystoscopy is a preferable means of diagnosis in the meatal bar. The existence of median bars should be more widely known.

### Medical Journal of Australia, Sydney

2 37 64 (July 14) 1934

- Migraine G. H. B. Black—p. 37  
Disorders of the Menopause J. M. Buchanan—p. 46  
\*Pathogenicity of Yeastlike Fungi J. I. Connor and Margot McKie—p. 52

2 65 104 (July 21) 1934

- Clinical Diagnosis and Postmortem Findings in Malignant Disease J. B. Cleland—p. 65  
Use of Radon at the Adelaide Hospital B. S. Hanson—p. 71  
Venoms of Some of the Small and Rare Australian Venomous Snakes C. H. Kellaway—p. 74

**Pathogenicity of Yeastlike Fungi**—While investigating the pathology of paronychia and intertrigo, Connor and McKie isolated, in addition to those strains of *Monilia albicans* reported, several strains of yeastlike organisms which differ from *Monilia albicans* in pathogenicity for rabbits and in fermentative reactions. These appear to be the cause of the inflammatory condition from which they were isolated. The strains studied fall into three groups. Group 1 includes typical *Monilia albicans* from paronychia. Group 2 includes one type culture from a laboratory and one strain, number 10, isolated from a chronic inflammatory patch on the sole of the foot. Group 3 includes two strains isolated from the web of toes: one from an interdigital lesion and one from a blood culture. Strains from groups 2 and 3 were nonpathogenic for rabbits and formed acid only in maltose and saccharose. Group 2 formed no mycelium in vitro, though delicate mycelium was present in epithelium of the lesion of origin in the case of strain 10, group 2. Group 3 formed typical mycelium in 1 per cent dextrose agar stab and slide cultures.

### Practitioner, London

133 1 128 (July) 1934

- Some Common Functional Disorders E. Bramwell—p. 1  
Prognosis and Treatment of Chronic Epidemic Encephalitis A. J. Hall—p. 26  
Epilepsy and Its Treatment J. Collier—p. 37  
Mechanism and Treatment of Migraine M. Critchley—p. 54  
Hemiplegia A. Feiling—p. 62  
Paraplegia O. H. Gotch—p. 76  
Treatment of Syphilis of the Nervous System R. Lees—p. 85  
Concussion and Its Treatment I. R. Broster—p. 93  
Significance of Wasting of the Upper Extremity in Diagnosis of Nervous Diseases J. St. C. Elkington—p. 101  
Medicolegal Problems in General Practice VII Laboratory Examination of Exhibits in Criminal Cases J. Glaister—p. 113

### Quart. Bull., Health Org., League of Nations, Geneva

3 157 324 (June) 1934

- Reclamation of Pontine Marshes A. Ilvento—p. 157  
Natural Transmission of Mediterranean Leishmaniasis L. Pirrot—p. 202  
Recent Tendencies in Development of General Hospitals in England M. D. Mackenzie—p. 220  
Participation of the Public Health Service in the Civil Works Program for Relief of Unemployment in the United States of America H. S. Cumming—p. 289  
Fly Tree Manure Heaps Edm. and Lt. Sergeant—p. 299  
Fly Control in Denmark M. Thomsen—p. 304

### Journal of Oriental Medicine, South Manchuria

20 69 78 (June) 1934

- Cow's Milk in Manchuria and Mongolia Part I Chemical Constitution M. Sugiura—p. 69  
Id. Part II Inorganic Components M. Sugiura—p. 71  
Refining Toxin of Absorption Method of Hydroxide of Aluminum II Toxin of So Called Streptococcus Hemolyticus Scarlatina M. Yato—p. 72  
Diet Nutrition of Chinese in Manchuria II Actual Food Consumption and Average Diet in Manchuria T. H. Lu—p. 73  
Biologic Studies of Rys II Influence on Body Temperature and Their Mechanical Processes T. Kodama, B. Tanaka and S. Suzuki—p. 75  
Researches on Calculus of Bladder from Chemical and Roentgenologic Point of View M. Murayama—p. 76  
Influence of Injection of Pregnancy Urine on General Growth and Development of Various Organs in New Born Rabbits Y. Matsuura—p. 77  
Standardization of Scarlet Fever Antitoxin Employing the Ears of White Rabbits and Skin Reaction of Rabbits of Special Breeds (Chinchilla and Angora) S. Nagata—p. 78

### Archives des Maladies du Cœur, Paris

27 389 452 (July) 1934

- \*Clinical Study of Gallop Rhythm D. Routier and A. Van Bogaert—p. 389  
Intermittent Nodal Rhythm in Course of Scarlet Fever Case P. Duchosal and F. Seiclonoff—p. 409  
Cardiovascular Syphilis with Hemiplegia in Child, Aged 3 V. Mikulowski—p. 417

**Gallop Rhythm**—Routier and Van Bogaert studied the heart with gallop rhythm by means of simultaneous electrocardiograms and apical cardiograms. Instead of the usual Marey button employed in cardiography, the authors preferred a pneumatic cuff. The result differed from that in which Marey's button was used in that the phase of systolic emptying tends to become negative immediately after the initial positive rise. An inverted tracing is thus not obtained. Three characteristics accompany presystolic gallop with such frequency that they serve to authenticate and determine exactly the mechanism. These three, which were studied in detail, are exaggerations of the auricular wave, lengthening of the a-c interval (the time separating the beginning of auricular systole and that of ventricular systole in the cardiogram), and shortening of ventricular systole. More than 100 cases were studied. The presystolic wave was particularly clear in 97 per cent of the cases of gallop more so than in the normal cardiogram. This enlargement is manifested sometimes by shortening of the P-r interval, sometimes by lengthening of the a-c interval. Lengthening of the a-c interval is frequent in gallop rhythm and was found in 14 per cent of the cases of lengthening of the time of auriculoventricular conduction. In 48 per cent of the cases of a-c lengthening it was independent of auriculoventricular conduction. It refers, therefore, to a retardation of ventricular contraction on the excitation received. Exceptionally, the systole is shortened in gallop rhythm. The term "brachysystole" designates auscultatory shortening of the systole and corresponds to the infrequent case in which the tracing demonstrates this shortening.

### Gynécologie et Obstétrique, Paris

29 497 604 (June) 1934

- Malignant Tumors of Ovary and Puerperium P. Trillat and A. Puthod—p. 513  
\*Morphologic and Functional Value of Intravenous Urography for Urogenital Fistulas W. Dobrzaniecki and W. Grabowski—p. 526  
Intestinal Infarct in Eighth Month of Pregnancy Case A. Gingsinger—p. 538  
Bordet Gengou Reaction in Gynecology A. S. Jarkovskaja—p. 542

**Intravenous Urography for Urogenital Fistulas**—Some cases of unexpected complications in the course of operations for urogenital fistulas and some postoperative complications led Dobrzaniecki and Grabowski to investigate more exactly and more minutely the urinary apparatus. For this purpose intravenous urography with iodine was employed. Their clinical and urographic observations did not exceed ten cases. All the fistulas were obstetric and resulted from hard labor and appeared either immediately after labor or several days later at the moment of elimination of the slough. In one of their cases, forceps caused a fistula. As a result of their studies it was clear that almost half the patients with fistula are subject to a more or less accentuated disorder of the urinary apparatus, which may be discovered with precision by means of intravenous urography.

### Lyon Chirurgica

31 389 520 (July-Aug) 1934

- \*Pathogenesis of Arterial Hypotension in Spinal Anesthesia C. Angelesco and G. Buzoianu—p. 389  
\*Treatment of Hydatid Cysts of Liver Ruptured into Biliary Tract G. Caravannopoulos—p. 415  
Intramammary Angioma E. Dahl Iversen—p. 431  
Intracranial Pneumatocele with Personal Observation E. Lucinesco and N. Falcoianu—p. 439

**Arterial Hypotension in Spinal Anesthesia**—Angelesco and Buzoianu state that the hypotensive action of spinal anesthesia depends on several factors of direct or indirect nature such as the anesthetic substance, the quantity of anesthetic introduced, the level of spinal injection, the diffusibility of the anesthetic liquid with the spinal fluid, and the preexisting condition of the arterial tension. The primary element deter-

mining the spinal anesthetic hypotensive mechanism is the neurovegetative system. The cause of vascular hypotension during and after spinal anesthesia is vegetative hypophony, predominantly sympathetic, which depends on the anesthesia of the medullated nervous elements forming consequently an integral part of the anesthesia. Spinal anesthesia not only paralyzes the motor elements controlling muscular contraction or the sensory elements of the medulla but also paralyzes in different degrees the functions of the vagosympathetic vegetative medullary centers. The variability of the hypotension, conditions of intraspinal injection being equal, depends fundamentally on the variable state of vegetative equilibrium in different patients. The important problem is to find a substance which, injected intraspinally, can have two primary effects, anesthesia and motor paralysis, but without paralytic effects on the vegetative centers of the medulla. Up to the present, neutralization of the latter effects is all that can be done. For this purpose ephedrine is satisfactory.

**Hydatid Cysts of Liver**—Carayannopoulos performed a two stage operation on some of his patients with hydatid cysts rupturing into the biliary tract. This consisted first in attacking the cyst and in a second trial attempting to free the obstruction of the biliary passage. In some patients this order was reversed. He concludes that in the majority of cases in which hydatid cysts of the liver rupture into the biliary tract a combined operation in one or two stages to open the cyst and drain the biliary tract is necessary. Simple drainage of the principal passage with simple marsupialization also effects a number of cures, but especially in cases of infection the combined method is to be preferred.

### Presse Medicale, Paris

42 1049 1064 (June 30) 1934

\*Obstruction of Bile Duct by Adenopathies M. Brule and J. David—p 1049

Traumatism of Thorax and Pulmonary Tuberculosis N. N. Stoichitz—p 1051

Treatment of Traumatic Suppurative Arthritis of Instep J. Patel and C. Adamesteanu—p 1052

Cancer Problem Juster and Caillaud—p 1054

Localized Meningitis I. David Galatz and R. David—p 1057

**Obstruction of Bile Duct by Adenopathies**—Brule and David call attention to a group of cases in which signs of obstruction of the bile duct are the only manifestation of localized adenopathy. These adenopathies are of various nature. They are frequently tuberculous, they may complicate general infections or local inflammations, or they may be primary of indeterminate nature. The rapid recession of icterus after removal of such enlarged glands proves to the authors' satisfaction that the adenopathies are the only cause of biliary obstruction and that the biliary retention is purely mechanical.

### Policlinico, Rome

41 1043 1082 (July 9) 1934 Practical Section

Modern Trends in Treatment of Nephropathies V. Serra—p 1043

\*Areas of Epigastric Pain in Diseases of Stomach G. Pieri—p 1051

Abdominal Fistula Due to Foreign Body G. Rizzo—p 1056

**Epigastric Pain in Diseases of the Stomach**—Pieri studied the sites of maximal epigastric pain on pressure in 504 gastric patients who had postoperative peptic ulcers, gastric ulcer, juxtapyloric ulcer, concomitant gastric and duodenal ulcer and epithelioma. The author maintains that these conditions present a constant topography of pain. In ulcers, circumscribed areas of pain are constantly observed on pressure according to the type of ulcer. In gastric ulcer of the small curvature the pain is localized at the gastric site, in juxtapyloric ulcer at the pyloric duodenal point. The author states that the study of the sites of epigastric pain is no means of determining the possible origin of a gastric epithelioma due to a preexisting benign ulcer of the stomach. In chronic gastritis there is usually pain on pressure limited to the upper part of the epigastrium with variable areas of maximal intensity. In 100 cases of gastric neurosis, twenty-four showed pain neurosis, fifty nine asthenic neurosis and seventeen hypersthenic neurosis. In pain of a neurosis the greatest tenderness was at the celiac point in asthenic forms of neurosis it was inconstant and occurred at various points, while in hypersthenic neurosis pain was constantly localized at the epigastric angle, frequently associated with pain at the site of duodenopyloric junction.

These points of pain (celiac, medio epigastric, gastric, duodenopyloric and gastroyejunal) have been observed by the author in individual cases of gastric disease. He concludes that the appearance of individual areas of pain may represent a valuable sign not to be overlooked in the diagnosis of some gastropathies and especially in ulcer.

41 341 392 (July 15) 1934 Surgical Section

Tumors of Tendon Sheaths M. Canavero—p 341

\*Means Taken to Impede Regeneration of Periosteum After Costal Resection in Thoracoplasty N. Di Paola—p 361

\*Relation of Scleroderma to Calcium Metabolism B. Paggi—p 371

Splenic Anemia Late Results of Splenectomy A. Zargani—p 384

**Regeneration of Periosteum After Costal Resection in Thoracoplasty**—Di Paola found that the use of the thermocautery in rabbit experimentation delays regeneration of the periosteum. Yet it always presents the danger of destroying the underlying pleura and giving pleural reactions leading to serious complications. He states that, although the thermocautery has been effective, it has no practical value. He was able to impede the regeneration of the rib bone with a silver nitrate pencil. The silver nitrate showed itself to be energetic in fact its caustic action extended up to the pleura, causing a pleural reaction which was well tolerated by the rabbits up to the time of their death 100 days after operation. Muller's fluid was totally unable to stop the regeneration of the bone in the costal periosteum. A strong solution of formaldehyde, 15 or 20 per cent applied for a few minutes responded completely to the purpose. Besides the fact that it impedes the regeneration of the bone it does not harm the pleura.

**Relation of Scleroderma to Calcium Metabolism**—Paggi studied a patient presenting diffuse scleroderma with symptoms of diffusion of the sclerotic process to the deep connective tissues. In addition the patient showed typical signs of deforming arthritis. The calcemia and hypophosphoremia were normal. The calcium metabolism showed a daily retention of calcium equal to 1401 Gm. The urine showed a marked deficiency in calcium. An operation was performed for hyperparathyroidism and a ligature was put on the lower right parathyroid. The patient showed rapid improvement and the calcemia was still normal. The author performed a second operation in which he tied off the two parathyroids on the left. Signs of slight hypoparathyroidism were observed. The calcemia and phosphoremia showed a diminution below normal. The chronaxia was also markedly diminished. The calcium metabolism did not show a significant decrease, the daily retention of calcium came to 1365 Gm. Seventeen days after the second operation the patient was given daily injections of parathyroid extract-Collip for twelve consecutive days in doses of from 20 to 40 units. The calcemia rose to 0.110 Gm per thousand after the twelve days. The calcium metabolism was decreased to 0.051 Gm and the chronaxia returned to normal. The author concludes that the therapeutic value of parathyroidectomy in scleroderma requires confirmation, that the study of calcium and phosphorus metabolism did not demonstrate changes due to hyperparathyroidism, that treatment with parathyroid extract-Collip does not show beneficial results and that during the period of slight hypoparathyroidism the chronaxia diminishes under the influence of parathyroid extract-Collip but gradually rises to normal.

### Riforma Medica, Naples

50 877 916 (June 9) 1934

Physiopathology of Suprarenal Cortex S. De Candia—p 879

Use of Sensitizing Power of Chlorophyll in Actinic Treatment of Alopecia Areata A. Versari—p 886

\*Oculopharyngeal Reflex A. P. Di Sorrentino—p 891

**Oculopharyngeal Reflex**—Di Sorrentino studied the reflex in a number of patients at the moment of instillation of a medical solution in the conjunctival sac. The reflex consists in a movement of rapid deglutition together with a spontaneous closing of the eyes. The swallowing is not associated with the contraction of the orbicularis muscle of the eyelid. The reflex was found only in a small number of patients, most of whom were children from several months to 13 years of age. The presence or absence of an ocular disease has no influence on the positivity of the sign. The author found that the chemical composition of the substances instilled in the



conjunctival sac likewise had no influence on the reflex. The sign may be produced by touching the bulbar conjunctiva with a common glass spatula. The temperature of the stimulating factor, whether liquid or spatula, is important. The stimulation is greater at lower temperatures than at average or relatively high temperatures. The sections of the stimulated conjunctiva (nasal or temporal) are not significant, only the bulbar part is more sensitive than the palpebral. The few adults demonstrating the reflex showed signs of an extremely parasympathetic condition and of marked hypothyroidism. The author interprets it as a reflex of predominantly vagotonic constitutions. Most cases show a constant hypotonia of the endocrine sympathetic system with a prevalence of the parasympathetic section. The author states in conclusion that the nervous path followed by the centripetal stimulus is the trigeminal, while the centrifugal path taken by the motor impulse is represented by the nerves of deglutition.

### Archiv für Gynäkologie, Berlin

157 139 274 (June 25) 1934

- \*Clinical Aspects of Eclampsia E Fauvet—p 139
- Cystadenoma of Wolffian Duct H Dworzak—p 162
- Virilizing Ovarian Tumor (Ovarian Arrhenoblastoma) Z von Szathmáry—p 170
- Function of Thyroid of the New Born and Congenital Goiter W Neuweiler—p 187
- \*Roentgenologic Diagnosis of Intra Uterine Death of Fetus O Brakemann—p 197
- \*Value of Flocculation Reactions for Demonstration of Syphilis During Pregnancy L Kolbe and A Szekacs—p 214
- Ovarian Function After Extirpation of Uterus H Siegmund—p 223
- Function of Autoplastically Transplanted Pieces of Uterine Wall into Anterior Chamber of Eye of Rabbits H Dworzak and K Podleschka—p 229
- Extra Uterine Twin Pregnancy K Podleschka—p 250
- Comparative Studies on Pregnancy Changes in Suprarenals E Kulka—p 259
- Hemolytic Methemoglobin Formation in Eclampsia Without Convulsions W Spitzer—p 267

**Clinical Aspects of Eclampsia**—Fauvet reviews several opinions about the nature of eclampsia and discusses eight cases. He concludes that the disorder described by Batisweiler, and designated by Fahr as diffuse exudative nephritis, is not always present in case of premature detachment of the correctly placed placenta. He thinks that this disorder develops secondarily in the course of the renal disorder of pregnancy. It may terminate fatally with the clinical signs of renal insufficiency. In two of the cases described by the author, the maximum of urinary elimination, together with pathologically increased blood pressure values, did not develop until about a week after delivery. He thinks that this manifestation is connected with the secondary inflammatory edema of the kidneys and he assumes that, as a result of the compression of the parenchyma, the secretory action of the kidney may be reduced to complete anuria. The organism overcomes the renal compression by a compensatory hypertension. If this regulatory action fails, the administration of fluid in the form of osmotherapy may be a life saving measure. However, this treatment is successful only if its prerequisites are fulfilled threatening anuria as the result of inflammatory or noninflammatory edema of the kidney and lack of compensatory hypertension. In circulatory insufficiency the treatment is not advisable. The author discusses the cause of hypertension developing during the later period of the puerperium. He thinks that it is due to hormone action of the hypophysis-interbrain system and considers the possibility of the development of late eclampsia.

**Diagnosis of Death of Fetus**—Brakemann emphasizes that the position of the mother during roentgenoscopy is of vital importance for the recognition of changes in the cranium and the vertebral column of the fetus. He shows that roentgenoscopy, while the mother is lying on her stomach, discloses the typical changes in the cranium of the dead fetus in only a certain percentage of the cases. It fails completely in a considerable number of cases, even if the fetus has been dead for some time and there is severe maceration. The characteristic sign in the vertebral column likewise is often missing if roentgenoscopy is done while the mother is in the same position. Fetuses that have died in the position of pelvic presentation frequently show neither the cranial nor the vertebral signs.

The lack of the vertebral symptom is due to the abnormal pressure conditions in the uterus, produced by the abdominal position of the mother during roentgenoscopy. This pressure produces an artificial stretching of the fetus. If roentgenoscopy is done while the mother is standing up, these purely external, mechanical influences are eliminated and the typical signs may become roentgenologically demonstrable. Control roentgen exposures of the living fetus while the mother is standing up provide the measure for the diagnostic evaluation of the changes in the dead fetus. The author admits that it is not to be expected that roentgenoscopy in the standing position will always reveal the intra-uterine death of the fetus, however, it gives certain prospects for clearing up the diagnosis in cases in which the roentgenogram made while the mother is lying on her stomach does not reveal the typical changes.

**Demonstration of Syphilis During Pregnancy**—A comparison of the results of the Wassermann reaction with those of the Kiss and Kahn reactions revealed to Kolbe and Szekacs that the two latter reactions are well suited for the examination of pregnant and puerperal women. The tests permit the detection of a latent syphilis more frequently than does the Wassermann reaction. In regard to the specificity they are somewhat inferior to the Wassermann reaction, but as far as sensitivity is concerned they surpass the Wassermann reaction greatly. The technic of these tests is simple and they can be completed in a comparatively short time. They may serve as controls for the Wassermann reaction but may also be used alone, particularly after a thorough anamnesis has been taken and following a careful observation of the symptoms after birth, and when the tests are repeated several times during the puerperium.

### Deutsche medizinische Wochenschrift, Leipzig

60 1075 1118 (July 20) 1934 Partial Index

- Palliative Treatment of Cancer P Clairmont—p 1080
- Pseudoconfigurations of Heart Disorders of Extracardiac Origin Simulating Cardiac Defects on Roentgen Screen or in Roentgenogram W Löffler—p 1083
- Significance of Roentgen Procedure for Therapy and Prognosis of Pulmonary Tuberculosis H Stöcklin—p 1086
- \*Differential Diagnosis of Silicotuberculosis E Uehlinger—p 1088
- Criticism and Roentgenkymographic Control of Mechanical Respiratory Theories H H Weber—p 1091
- Remarks on Roentgen Diagnosis in Orthopedics R Scherb—p 1095
- Clinical Aspects and Roentgenology of Inconstant Skeletal Elements of Foot M R Francillon—p 1097
- Roentgenologic Demonstration of Metal Splinters in Eye Without Interference of Skeletal Parts A Vogt—p 1100
- \*Clinical and Experimental Observations on Cataracts Caused by Ray H Schläpfer—p 1101

**Differential Diagnosis of Silicotuberculosis**—Uehlinger gives the histories and postmortem histologic reports of two patients. The lung of the first one showed, in addition to the miliary, caseous pneumonias and the scattered, centrally caseated tubercles, many typical silicotic nodules. The sections showed that the tuberculous foci usually adhere to the flame shaped or roundish silicotic nodules. In the second patient the post mortem examination revealed a combination of silicosis and tuberculosis in such a manner that the clinical manifestations (emaciation, attacks of fever, dyspnea, and so on) were primarily caused by the tuberculous pericarditis and hematogenous tuberculosis of the kidneys and the suprarenals, while the small foci appearing in the thoracic roentgenogram were primarily caused by the silicosis. The author calls attention to the difficulties encountered in the roentgenologic differentiation between silicosis, tuberculosis and silicotuberculosis. He maintains that asymmetry of the pulmonary lesions indicates tuberculosis only in case of bronchogenous and not of hematogenous forms. In mixed cases of tuberculosis and silicosis the localization rules (tuberculosis site of predilection the upper lobes, silicosis the middle lobes) are often broken. It should not be overlooked in these combined cases that the pulmonary roentgenogram may reveal silicotic changes, while the clinical manifestations are caused by extrapulmonary tuberculous foci.

**Cataracts Caused by Rays**—In discussing the pathogenesis of glassblower's cataract, Schläpfer points out that some investigators ascribe it to ultraviolet rays, while others ascribe it to ultraviolet rays. At first the experimental production of cataract by ultraviolet rays encountered certain difficulties, but now animal experiments have proved that glassblower's cataract

may be imitated to a certain extent by the application of penetrating ultrared rays. The author concludes from this that the eyes of glassblowers should be protected against the ultrared rays by special glasses. Since solutions of ferrous oxide absorb the ultrared rays, he suggests ferrous oxide glasses and states that these glasses are now in use in certain glass factories. Cobalt glasses likewise furnish protection but are undesirable because they impair the capacity for color differentiation. The author reviews clinical and experimental observations, which indicate the possibility that roentgen rays may cause cataract, and consequently he advises against roentgen treatment of disorders in the region of the eye.

### Klinische Wochenschrift, Berlin

13 1041 1072 (July 21) 1934

- Electrostructure of Liver and Bile R. Keller —p. 1041  
Studies in Glycine Electrophoresis in Progressive Muscular Dystrophy H. Rutenbeck —p. 1044  
Lipoid Chemical Studies on Xanthous Lymphogranulomatosis in Its Relation to Hand's Disease E. Letterer —p. 1046  
\*Hypophyseal Regulatory Mechanism in Carbohydrate Metabolism and Its Impairment in Diabetes Mellitus Carbohydrate Metabolism Hormone of Anterior Lobe of Hypophysis K. J. Anselmino and F. Hoffmann —p. 1048  
\*Separate Modifiability of Liver Glycogen and of Blood Ketone Bodies by Carbohydrate Metabolism Hormone and Fat Metabolism Hormone of Anterior Lobe of Hypophysis K. J. Anselmino and F. Hoffmann —p. 1052  
\*New Method for Determination of Value of Viscidity of Leukocytes A. Ebergeny —p. 1053  
Atorol Resistant Lipase in Serum Following Gastric Resection G. Jorns —p. 1054  
Autoregulation of Fat Metabolism S. Leites —p. 1056

**Hypophyseal Regulatory Mechanism in Carbohydrate Metabolism**—Anselmino and Hoffmann state that following a carbohydrate tolerance test there appears in the blood of healthy persons a substance capable of reducing, in the course of several hours, the glycogen in the liver of rats. The substance is present neither in the blood of fasting persons nor in the blood following tolerance tests with fat or protein. Since the anterior lobe of the hypophysis contains a substance that has the same action on the glycogen content of the liver of rats and which, as far as can be determined, has also the same physical and chemical properties as has the substance found in the blood, it is assumed that the two substances are identical. This assumption was corroborated on hypophysectomized dogs, for, in contradistinction to normal animals, the substance did not appear in their blood after a sugar tolerance test. From the regulatory elimination of the substance following intake of larger quantities of sugar the authors conclude that the process is a hypophyseal regulatory mechanism of the carbohydrate metabolism, resembling that of the fat metabolism, which they identified previously. They designate the active principle as the hormone of the carbohydrate metabolism, which originates in the anterior lobe of the hypophysis. Investigations revealed that it is identical with none of the other anterior hypophyseal hormones. The authors further made tests on eight patients with diabetes mellitus and found that the blood of the fasting diabetic patients contains the hypophyseal hormones of the carbohydrate and of the fat metabolisms in high concentration. This seems to prove a serious disturbance in the hypophyseal regulatory mechanism of patients with diabetes mellitus.

**Hypophyseal Hormones of Carbohydrate Metabolism and Fat Metabolism**—Anselmino and Hoffmann describe a method permitting with simple means the separation of the hypophyseal fat metabolism hormone and carbohydrate metabolism hormone. The method takes advantage of the fact that, although both hormones are ultrafiltrable in the neutral reaction, they lose their ultrafiltrability in certain  $pH$  values. It was possible to influence with the separated hormones the hepatic glycogen and the ketone bodies in the blood of rats independent of each other. The purified hypophyseal hormone of the fat metabolism increases the ketone bodies in the blood without influencing the liver glycogen. The purified hypophyseal hormone of the carbohydrate metabolism reduces the glycogen content of the liver without increasing the ketone bodies in the blood.

**Determination of Viscidity of Leukocytes**—Ebergeny suggests a new method for the determination of the viscosity of the leukocytes. He asserts that it is not only simpler but

also avoids certain errors of the original method of Philipsborn. He describes the procedure in detail and stresses as one of its advantages that it dispenses with the use of the rather expensive grating ocular and uses instead Bürker's chamber. If the drop method is used a mathematical reduction is employed but the author considers the immersion method superior. In the latter procedure, the leukocytes can be seen in a larger area and are more evenly distributed. The larger immersion surface of the glass platelet makes possible a better elimination of the unevennesses in the adhesion, which may be caused by impurities. Moreover, the irregular density in the adhesion and the sporadic accumulations, which are occasionally noticed in the immersion procedure, prove that in the viscosity of the leukocytes not only differences in numbers play a part but also that there are differences in arrangement. For the observation of this phenomenon of the leukocytes the immersion method is more suitable than the drop preparation.

### Medizinische Klinik, Berlin

30 921 952 (July 13) 1934 Partial Index

- Present Status of Treatment of Exophthalmic Goiter W. Redisch —p. 927  
\*Indications for Treatment by Jejunal Tube in Case of Gastric Ulcer B. Misske and H. G. Scholtz —p. 931  
\*Clinical Aspects of Hydatidiform Mole S. Sommer —p. 932  
Colposcopy or Autovaginoscopy? H. Rogge —p. 935  
Idem E. Bergmann —p. 937  
Disease and Death Following Bronchography F. Lickint and Hippe —p. 937  
Observations on Immunity on Basis of Studies on Malaria E. Martini —p. 939

**Treatment by Jejunal Tube in Gastric Ulcer**—Misske and Scholtz state that the treatment by means of the jejunal tube in its present form goes back to Hemming, who took up Einhorn's thought of feeding by means of the duodenal tube. Hemming recommends as the most suitable method the introduction of the tube through the nose. While the patient is lying on the right side, the tube is introduced slowly in the course of a day. The length of the tube is 130 cm. Instead of the rather thick and stiff duodenal tube, the use of a thin elastic rubber tube is recommended. At the end of the tube is an olive of new silver. One of the authors (Scholtz) employed the treatment in thirty-five cases. He found the treatment especially helpful in ulcers of the small curvature. Even deep ulcers of the small curvature yielded to the treatment, as did also rather large ulcers near the cardia. If the tube is in the right position, pain tends to disappear without the use of atropine. In patients with a labile sympathetic nervous system, the injection of the nutritive fluid may at first be accompanied by difficulties but these disorders are caused by sympathetic reflexes and do not necessitate the removal of the tube, if the fluid is at first given in small quantities and slowly. If the disorders persist in spite of this, atropine or a few drops of tincture of opium may be given. Jejunal catarrh is extremely rare in the course of this treatment. Feeding with the jejunal tube is not satisfactory in duodenal ulcers. Improvements are not so convincing and it probably does not accomplish more than the ordinary dietary treatment. The authors think that in these cases the tube may even cause an irritation. As a rule it will be easier to carry out the treatment if several patients undergo it at the same time. On the other hand, the treatment is still rather difficult and should be resorted to only if the niche of the ulcer is quite deep, when other treatments are of no avail. The authors give the history of a patient in whom an unusually large niche of the small curvature was nearly entirely obliterated in the course of thirty-five days of treatment with the jejunal tube. They are convinced that no other treatment would have accomplished this in such a short time because the ulcer had proved refractory to dietary and medicinal treatments for several years. Surgical treatment was inadvisable because of the extent and location of the ulcer. The authors do not recommend feeding by means of the jejunal tube for all gastric ulcers but think it advisable particularly for deep ulcers of the small curvature.

**Clinical Aspects of Hydatidiform Mole**—In the years 1923-1932 Sommer observed twenty-two cases of hydatidiform mole in 18,000 deliveries, an incidence of about 1.2 per thousand. Older women seem to have a greater predisposition for this disorder, as the possibilities for the development of a

hydatidiform mole seem to increase with an increasing number of births. Cystic degeneration of the ovaries was found in 50 per cent of the women who developed hydatidiform mole. Excessive elimination of the mammary secretion, a symptom considered by Winter characteristic for hydatidiform mole, was observed in two thirds of the cases. The simultaneous occurrence of myoma and hydatidiform mole was noted in 20 per cent. The incidence of malignant degeneration was 4.5 per cent, compared to 16 per cent in other statistics. The author ascribes this difference to the fact that in his material extirpation of the uterus was done in all the older women. In the cases in which a conservative treatment was employed and which had to be kept under constant observation, the Aschheim-Zondek reaction proved helpful. He thinks that an exploratory curettage should be done as soon as abnormal hemorrhages and other suggestive signs appear.

### Wiener klinische Wochenschrift, Vienna

47 897 928 (July 20) 1934 Partial Index

\*Bacterial Etiology of Enteral Disturbances During Nursing Age and in Later Childhood K Hassmann—p 904

\*Demonstration of Tubercle Bacilli in Blood B Busson—p 909

Estimation of Resistance of Patient Before Surgical Intervention W Richter—p 910

\*Vomiting of Blood in Tumors of Liver A Beer—p 911

**Etiology of Enteral Disturbances in Children**—Hassmann succeeded in demonstrating the presence of paracolon bacilli in a large number of nurslings and children who had enteral disturbances (dyspepsia, toxicosis, pyuria, icterus simplex). The paracolon bacilli were especially frequent in the children with relapsing intestinal disturbances. The author believes that they have an etiologic significance playing a part in the endogenous as well as ectogenous infections, in the latter so far as bacilli originating in a healthy subject, or bacilli that have become degenerated in the course of a nutritional disturbance become a source of infection for other healthy children. By repeated vaccination in culture mediums paracolon strains could be turned into ordinary colon bacilli, and this makes it appear probable that such a transformation takes place also in the intestine, when after a cure the paracolon bacilli disappear from the feces. On the other hand, it was possible to detect by the culture method a transformation of colon bacilli into paracolon bacilli, which again indicates the possibility of such a mutation in the intestine. Moreover, it appears not only that relations exist between the paracolon group and the colon group but that there is also a relation to the paratyphoid group. The author observed that the paracolon strains from severe enteral disturbances as a rule keep their cultural characteristics longer than do those from the milder disorders or from carriers. The toxic action of the paracolon bacilli was determined by testing the culture filtrates on rabbits, either by intracutaneous injection or by introduction into the intestine. It was found that in the intracutaneous tests the bacterial disturbances have a pronounced effect, causing not only local but also general reactions. Filtrates of the paracolon strains from normal children produced either no reactions or only slight ones. The toxicity of the filtrates seemed to increase with the duration of the incubation. Intracutaneous tests on guinea-pigs proved that on the whole the reaction was the more severe, the more severe had been the intestinal disorder. The toxicity was frequently reduced when the paracolon strain had lost its cultural characteristics, but often the same, when the original strain had kept its cultural properties. Tests on the surviving intestine of rabbits disclosed that filtrates of paracolon strains originating in bacillus carriers had no effect whatever. Filtrates from ordinary colon bacilli (some originating from toxic intestinal disturbances) likewise produced no reaction. Paracolon filtrates from severe enteral disturbances always had a toxic effect on the surviving intestine, for they produced an irritation in low concentration, while they produced paralysis in high concentration.

**Demonstration of Tubercle Bacilli in Blood**—Repeated studies on the demonstration of tubercle bacilli in the blood revealed to Busson that, in spite of identical experimental factors, the development of colonies of tubercle bacilli may differ greatly. This is at least one of the contributing causes of the great differences in the results of tests for tubercle bacilli in the blood. He concludes that either the egg culture medium

(Lowenstein) is not as suitable for the cultivation of the tubercle bacillus as has been believed, at least in certain cases, or that there are certain strains of tubercle bacilli which are extremely easily impaired, so that under certain conditions a suspension in a sodium chloride solution or a passage through the blood stream could damage them. That such differences exist between the various strains is indicated by the fact that cultures of tubercle bacilli from the sputum or from exudates are usually easily obtained by means of the egg culture medium, while cultivation from the blood frequently reveals considerable differences in the growth of certain strains on the several tubes. The author is unable to say whether this is due to the presence in the blood of substances that have a damaging effect on the bacilli or to other causes. At any rate this possibility has induced him to employ the hemolysis by means of saponin, a method that is the least damaging to the bacilli.

**Vomiting of Blood in Tumors of Liver**—Beer describes two cases of hematemesis which he considers worthy of note because they had a pathogenesis that has so far been given little attention. The cases show that hematemesis may result from a compression of the portal vein by a tumor. The hematemesis was caused in both patients by varicose veins on the esophagus, which in turn had resulted from stasis in the portal vein. The first case proves that, with the exception of the ascites, all other symptoms of stasis of the portal vein may be absent. The author ascribes to the incompleteness of the closure of the portal vein or to the short duration of the closure the fact that neither of the patients had a tumor of the spleen. He points out that this seems to be characteristic of the cases in which the stasis is produced by cancer, but he admits that further observations will be necessary to corroborate it. The hematemesis in the terminal stage of the disorder in the first patient may have been caused also by the peptic digestive changes in the esophagus, which result from cachexia and atony.

### Hospitalstidende, Copenhagen

77 749 792 (June 26) 1934

\*Radiculomeningomyelitis Two Clinical Lectures V Christiansen—p 749

Fracture of Styloid Process of Radius Unsuccessfully Treated. Healing by Means of Prolonged Immobilization O Kapel—p 786

**Radiculomeningomyelitis**—Christiansen states that this disease manifests itself in a spinal type, a cerebral type and a third form representing a combination of successions of the other two, and he describes nine cases. The disturbance is characterized by its acute onset, the rapidity with which the symptoms develop its grave acme and its rapid recovery. In the spinal type, after a short but not constant preliminary stage, with capriciously scattered paresthesias, paralyzes occur of varying extent and varying intensity and kind, usually as paraplegias or quadriplegias, sometimes with hemiplegic or monoplegic distribution, they may be atonic or spastic. Sensory deficiency symptoms are noted and often difficulty in urination. In all cases there are changes in the spinal index. In the cerebral type the basal nerves together with vestibular and cerebellar symptoms dominate the picture. Only three disorders may present differential diagnostic difficulties, namely, cerebrospinal syphilis, in which the biologic examination of serum and spinal fluid are decisive, the milder form of polyneuritis and compression of the spinal cord or of the nervous organs at the base of the brain.

### Norsk Magasin for Lagevidenskapen, Oslo

95 785 904 (July) 1934

Tumors Originating from Cranio-pharyngeal Canal and Related Tumors (Chordomas) F Harbitz—p 785

\*Hematoporphyria Brief Review in Connection with Clinical Contribution R Opsahl—p 813

Lactic Acid Production in Dynamic and Static Muscular Activity O Jervell—p 835

Subcutaneous Lesions of Hepatoduodenal Ligament and Biliary Ducts P Treider—p 842

**Hematoporphyria**—Opsahl demonstrated a disturbance of the liver in a case of acute hematoporphyria which otherwise completely corresponded to the form known as idiopathic. Anatomopathologic examination showed microscopically the typical picture of chronic hepatitis with beginning cirrhosis of the liver. The case thus supports the conception that the liver plays an important part in the pathogenesis of hematoporphyria.

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## THE PRACTITIONER OF THE FUTURE

FRANK BILLINGS LECTURE

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Whenever problems of medicine are considered there emerge from the discussion two common factors, the patient and the doctor. This is true whether the problem is that of general practice, state medicine, cost of medical care, contract practice, specialism, health insurance or what not. May it not be assumed that for years to come, perhaps always, there will be disease, and therefore patients and physicians, the duty of the latter to ward off disease when possible to recognize and treat it if it comes, and to ameliorate the evil it causes if a cure cannot be wrought?

He would be rash indeed who would venture to predict what will be the exact status of medicine or the relation between physician and patient a century from now, yes, even a decade ahead. Toppling thrones, scrapped constitutions, unsettled economic conditions, hostile industrial and social groups, angry nations brandishing loaded weapons, all these things not alone upset the world of the present but threaten the tranquillity and stability of the future. Disturbing influences have penetrated into every, even the humblest, walk of life, so that we have a new disorderly literature, a new painting, a new music, a new religion. It need excite no wonder then that medicine has been profoundly affected. In fact, medicine today is in a parlous state of storm and stress.

This applies with special pertinence to the general practitioner. In the last few decades he has had a hard time of it, the family doctor has nearly, or quite, disappeared. Everything seemed to conspire against him. A huge volume of knowledge—bacteriology, x-rays, biochemistry, instruments of precision—suddenly poured in on him and all but overwhelmed him. He was unable to keep up with and to apply this knowledge. Research after the German model became the fashionable fetish, our practitioner developed an inferiority complex perhaps as a reaction to the superiority complex of the all-time research and laboratory worker. He was mortified to learn that the medical school whose cherished diploma graced his office wall had been declared unfit and had disappeared. Specialism rapidly increased, again the doctor felt degraded, for he was but an ordinary, all-round man. Keen economic competition had to be faced from specialists, groups, hospitals, with the cards stacked against him for his erstwhile patients

could, without his help, get prompt and satisfactory service and at moderate fees through telephone, automobile, good roads, and financial aid from the public, or from philanthropic organizations that underwrote hospital and clinic deficits. To cap the climax, the world depression and the pinch of poverty! Well may the practitioner exclaim with the pamphleteer of the American Revolution "These are the times that try men's souls."

Is it to be wondered at that the doctor is discouraged, that his inferiority complex has become more fixed, that he shows signs of a delusion of persecution, that he is in revolt against the old traditions and the threatened formulas of the new practice, that he is resentful and inclined to lay the blame for his debacle on others? He does not realize that his misfortune is in great measure due to uncontrollable forces of the times, that it is partly owing to the inability or failure of his profession early to recognize and adapt itself to the rapid and inevitable changes in social, industrial, economic and medical conditions. Also he does not see that he is clinging to an obsolete ideal, that of the family doctor of fifty or sixty years ago, for whose restoration he clamors. He is incensed at all who seem to be robbing him of any ancient rights and privileges of the doctor of the good old times. And, worst of all, he is blind to the fact that a partial explanation for his present unsatisfactory status lies in himself.

The fault, dear Brutus, is not in our stars,  
But in ourselves, that we are underlings

What are some of his shortcomings? What can be done about it all? This is the main theme of my address, from which I consciously omit a consideration of many important features that are live topics today, e g, economics and social trends. If what I say seems simple, if I utter much that has been said before and speak freely in platitudes, my apologia is that familiarity with truth even though it may not breed contempt may yet breed forgetfulness. Some of these truths need repeating, lest we forget. And as to platitudes, is not John Morley right when he says "Commonplace, after all, is exactly what contains the truth that is indispensable?"

### QUALIFICATIONS FOR SUCCESS

It must be admitted at the outset that we are not able, nor should we try, to restore the old type family doctor. We cannot do this either by resolution of advisory organizations or by edicts of legislative bodies. A new type is evolving. Time will be the active agent in his incarnation. He will not be, he cannot be, the know-all and do-all doctor of the past. This has been well expressed by another "To the brilliant mind of half a century ago a working knowledge of all the departments of medicine was attainable. The general prac-

tioner, competent, efficient was a possibility. "Today such a prodigy is impossible." The term general practitioner in its strict sense implies that the doctor practices at will in all fields. Not only will this not be possible as in the past; it will surely not be permitted. Much of modern surgery, obstetrics and applied medicine demands not only unusual knowledge but expert skill and judgment in the handling of instruments and remedial agents and in the interpretation of laboratory observations. These tasks will not be entrusted to the general practitioner unless he is specially qualified.

What are the qualifications for the success of an average practitioner of medicine, one who is neither the superpractitioner of unusual ability nor the one who is hopelessly of inferior grade? Can the doctor of the future meet these requirements? It is to be understood that in this discussion I am concerned only with the so-called general practitioner, not with the specialist, the research worker, the teacher, the medical author.

Whether a physician is to be successful depends in a measure on his native endowment and to some extent on chance. Some men are by nature or inheritance better equipped than others; they have an advantage in physique, mentality, personality, ability to get along with and manage people. While chance and opportunity usually play a relatively unimportant part, we know how illness in the doctor's family or financial loss may destroy hopes and lead to failure. In the long run, however, the factors that determine success are character, a capacity for hard work, knowledge of medical science and the ability properly to apply this knowledge in the recognition and treatment of disease.

What we call character—integrity, sincerity, affability, knowledge of human nature, forcefulness—has a weighty influence in determining one's success.

It seems almost puerile to speak of hard work as an essential; every one admits its value. Yet over and over again we hear doctors bemoaning their fate while all they are doing is to sit around, Micawber-like, waiting for something to turn up. The successful rival is getting ahead, not through luck or influence but through work. He is hunting for something to do and finding it, in the library, laboratory, ward or patient's home. In the medical society he is not concerned so much with pulling wires or trying to unearth some ethical flaw in the conduct of his colleagues as in listening to the scientific program or, better still, taking part in it. I myself have never known a successful doctor who was not a hard worker. When I once asked Dr. Billings what was the important essential for success in practice he replied promptly "hard work." The same idea is set forth by Osler in his charming essay on *The Master Word in Medicine*.

A medical man must have knowledge of his subject. He acquires this knowledge through his teachers, the library, the medical journal, the medical society, the laboratory, the bedside, the morgue. He must look for the new in monographs and original articles. One case well studied at the bedside, with search of the literature, with critical examination of intra vitam or postmortem specimens, with experimental investigation of some of the points involved with carefully written report will do much to clarify the doctor's knowledge; may help clarify for some one else. It does more; it will lead to further study along cognate lines, will make him especially proficient in some particular phase of medicine. He learns the meaning of thoroughness. He is working according to the principle of majoring, as the

expression is used in the literary and arts courses in the undergraduate school, a principle that should be more in vogue in medical schools and that should be sedulously followed by every practitioner throughout his whole career. An acute observer in another field—that of librarianship—has well expressed this thought: "The very fact of intensive study of a small topic keeps you in touch with methods and men, and is an admirable corrective to the scattering tendencies of our calling."<sup>1</sup> To spread oneself thin over all fields conduces to mediocrity. A mediocre doctor is a dangerous man in that he does not know his own limitations or the risks and limitations of operative procedures, of drug therapy, of special methods of laboratory and instrumental diagnosis. Mastery of a few subjects by concentrated study means greater efficiency in every respect. *Non multa sed multum* is as true today as when uttered by Pliny or repeated by Roger Ascham. He must get away from the standard textbook style of study, learn how to dig out knowledge for himself, how to evaluate what has been written or spoken. He must lose what has been called the deep and rather pathetic respect for the printed word. He must learn how to think and how to decide for himself.

But the possessor of knowledge, even though it is accurate and encyclopedic, is not necessarily a good practitioner. Such a one must be able properly to use this knowledge, must know the art of medicine. This is a truism, stressed again and again by writers. Yet many a physician wonders why after years of study he is a failure as a practitioner. The reason may go back to the man's choice of a vocation. Some men are not medically minded. They are not fitted and cannot be made fitted for practice, just as some individuals cannot be made into good artists or good cabinet makers. Parents, school advisers and medical school examiners are at times to blame for encouraging or permitting a young man to go into or continue in the study of medicine when his bent and qualifications manifestly point in other directions—toward business, journalism, botany, engineering.

#### RESEARCH VERSUS PRACTICE

There are those who think that success as a practitioner will come only if much time is devoted in undergraduate and later years to research. There is a strange fascination about research. As Zinsser<sup>2</sup> has said, "there has developed a curious halo about research which has exalted it above other and, in the absence of talent, more useful and less expensive methods of occupying time." There should be no quarrel with research per se. There is no higher type of work. It is the activating, catalyzing agent in the science of medicine. Without laboratory experimental research medical science will stagnate and the art of medicine will revert to its old status of empiricism. Yet many research men or, should I say, many men who are working in research laboratories or wards, become poor practitioners. Is this in spite of research or because of it? Some of these men when they start to practice are unable to get down to the level of the everyday problems of the sickroom. They are visionary, with the eyes accommodated for distance; they fail to recognize a clinical fact when they meet it face to face or even when they stumble over it. They detour around the fact, get off the track. And the pathos of it all is

<sup>1</sup> Bishop W. W. *The Backs of Books* Baltimore: Williams & Wilkins Company 1926, p. 11.  
<sup>2</sup> Zinsser H. *Science* 74: 397 (Oct. 23) 1931.

that they don't know they have lost their way. Some of them have a mania for experimentation, they toy with tentative diagnoses, they try new remedial agents that are a priori unsuitable or even dangerous. They are not only inefficient as practical physicians, they are at times a menace to the patient, who after all should not be regarded solely as an experimental animal. Surely research is not the *sine qua non* in the making of a clinician. The spirit and the methods of research? The ability to reason logically? The necessity for control? Emphatically yes. Compulsory research for all? No!

Conversely, the man whose bent and training are in clinical fields does not suddenly become a real investigator because he publishes an article, based on the observations in the hospital ward of himself, his assistants or technicians, even though the article is profusely illustrated with elaborate graphs and tables. Nor does he suddenly become a research man because he spends a few hours a week in a laboratory with test tubes and guinea-pigs. To go through the mechanical and technical procedures according to the directions of the professor, the real investigator whose originality lays out the problem and whose genius guides the investigation, is not a waste of time perhaps, for it may teach something of method, but it does not make a research man out of a practitioner who is lacking in the talent to which Zinsser refers. Good investigators have been spoiled by trying to make practitioners of them. Not a few practitioners have had their heads turned by fancying themselves research workers.

Medical research and practice are two different things. They differ in qualifications of workers, in objectives and in methods. The aim of research, the term being used in its stricter sense, is to advance knowledge by discovery of the new. Practice is the application of knowledge already known. Pure research has often had as by-products results that have been immediately utilizable in the art as contrasted with the science of medicine. Not all the results of observation and investigation by clinicians have been of the so-called practical character. Not a few have had as by-products facts that have had a direct bearing on a better understanding of principles that underlie medicine and cognate sciences. Clinical research, what Sir Thomas Lewis<sup>3</sup> calls progressive medicine, in appropriate institutions or hospitals—such as the Rockefeller Institute—by specially gifted and trained men, who have abundant leisure and suitable equipment, will continue to bring to light basic truths. Research is here a man's life work, his avocation. Investigation by practitioners—curative medicine of Sir Thomas—is in a sense avocational. I believe it will continue to be productive in the future, in spite of the view of Sir Thomas Lewis, expressed in his stimulating and analytical article, that the soil in this field of investigation is practically sterile, its fertility exhausted. There should surely be no heated antagonism between these two groups. There is no reason why, each retaining its autonomy, they should not be companions and allies.

To make it clear that, while not regarding research as essential to the preparation of a man for practice, I yet consider the spirit of research of paramount importance, may I quote with approval from John Livingston Lowes,<sup>4</sup> taking the liberty of substituting

the words "practice" and "practitioner" for "teaching" and "teacher?" He says "The thing is that the spirit of one's expeditions, minor exploits though they may be, into the territory of the unexplored will permeate one's whole attitude toward the body of knowledge handed down from the explorers and the builders of the past. And it will pervade and vitalize one's practice. It is quite on the cards that the results of our personal excursions may never directly enter that practice at all. It is the attitude of mind which they stimulate that is the vital thing. What you know and don't practice permeates and fecundates what you practice." It seems to me that he has aptly expressed an important principle in medicine. Every question of diagnosis is for the clinician a research problem. Unless the physician is inspired by the activating curiosity to know, to find out by close observation, by comparison with his own experience and that of others, by use of laboratory aids or by experiment, he is an inefficient practitioner, non-progressive, and doomed to failure.

#### INDIVIDUALISM IN PRACTICE

I wish to speak of the value of individualism as it applies to the practicing physician, using the term not in a technical sense as referring to a school of philosophy opposed to collectivism but to indicate that which makes one man differ from another, his inherent peculiarity, his individuality, with also an element of independence.

There is today much overstandardization in education as well as in business, politics, social customs. From our schools there is turned out as product a mass of units almost uniformly alike, with the individual ruggedness and earmarks of personal identification worn off. One might think that when a physician escapes from the rigid curriculum of his professional school and enters on his vocation he would be himself. Yet often this is not true. He slips into his place in society and acts as though his job were to keep in line following the rules of the well beaten road, not even stopping to read the signs at the crossroads—simply following as one of the hurrying crowd. Such a course means repression of individuality, the dwarfing of self, the stifling of independent thinking, the loss of initiative and opportunity for constructive leadership, and of that which goes to make life "individual, elastic, thrilling."

The danger, of course, is that in giving free rein to individuality he may go so far as to become not only a radical but a crank. If he so acts as to harm his neighbor, the laws established by society will penalize him. If he violates the rules of right conduct that his colleagues have declared are based on principles of fairness to one another and to those who are ill, he is ostracized by his brother practitioners and perhaps by the community. In other words, as an active member of a learned profession and of society, he must play the game according to certain rules. And that game, the practice of medicine, is not *solitaire*. We must assume therefore that our doctor is not an extremist.

Take a few examples—perhaps trivial—of what is meant by individualism in practice. Timid young physicians often try to model themselves after some successful physician of outstanding ability. The chances are that, instead of acquiring the solid fundamentals and lofty ideals of their doctor hero, they imitate only externals, acquiring merely mannerisms. Henry Adams recognized this fact when he once wrote to his brother Charles "For God's sake let us go our ways and not

<sup>3</sup> J. Lewis, Sir Thomas, *Observations on Research in Medicine Its Position and Its Needs*, Brit. M. J. 1, 479-483 (March 15) 1930.  
<sup>4</sup> Lowes, J. L., *Teaching and the Spirit of Research*, American Scholar, January, 1933.



try to be like each other." Why should an experienced doctor always have to follow the routine path in arriving at a diagnosis—family history, past history, present complaint? Why not occasionally take a short cut to diagnosis? Not always safe but allowable if, in the vernacular, one can get away with it. Once as an intern I marveled at the accuracy and rapidity of Dr. Christian Fenger's diagnosis of a particular case. He was in a hurry. Ignoring my carefully written history, he pulled down the bed clothes, gave two or three prods in the right iliac region and curtly announced "osteosarcoma of the ilium, inoperable" and walked away. Much learning, wide experience, quick observation, enabled him in sixty seconds to declare a correct diagnosis, prognosis, treatment. This dramatic quick-on-the-trigger work is often effective but is dangerous. Finer and essential diagnostic differences may be brought out only by painstaking examination. Yet the latter method is not without its element of risk. The overcareful man by methods that might be called finicky may permit his first opinion based on plain outstanding facts to be shaken. Some minor point in diagnosis does not fit, its importance is magnified, he hesitates, repeats tests, his conclusions become hazy, perhaps valuable time is lost with serious consequences. In diagnosis judgment, experience, wisdom are at a premium. The physician must individualize and not robot-like follow some ironclad rule.

Why always the stereotyped manner of making a professional visit, which often involves an air of artificiality and unnatural behavior that may well breed lack of confidence on the part of the patient? Why should there be such a binding custom as to the way a doctor tells the patient of the nature of his illness, such stilted formalities as are still occasionally seen at consultations between physicians, or such arbitrary rules as to fees and manner of presenting bills for services? It is well to be reminded once in a while that what is referred to as our Code of Ethics is properly called *The Principles of Ethics*. It is not a code of laws or rules.

There should be more of individuality and less routine in the examination of patients. Some patients need a most thorough examination, perhaps with a prolonged hospital study. Extensive laboratory examinations may be necessary. But, to use extreme illustrations, the patient who goes to the general practitioner or the specialist with a cinder in the eye or an acute diarrhea need not be subjected to an expensive and time-consuming complete examination. Mackenzie cleverly said that if a man goes to a garage because of a punctured tire he resents being asked to pay for having his car thoroughly overhauled and put in repair. The individual physician must be qualified, and therefore permitted, to exercise judgment as to how much is to be done. Even in making periodic examinations, roentgenograms and electrocardiograms may not be necessary every time. The doctor may by these omissions occasionally overlook some hidden disease. On the other hand, the complete examination with its disclosure of numerous inconsequential deviations from the perfectly normal may upset the morale of the patient and start him on a hopeless career of self-centered health introspection, a type with which we are all too familiar. Routine periodic examinations, unless most judiciously made by one who not only knows medicine but knows a good deal of human nature as well, may easily lead, as Allbutt said, to an epidemic of fidgets.

A few months ago a patient said to me as I started to make my examination "I hope you'll not be like the others, I want somebody who will examine me more and the x-ray films less." Not a bad text for a sermon. "Examine the patient more, the films less." The eye, ear, hand of the physician will often reveal more as to the nature of an illness than will the chemistry of the blood, the x-ray film or the electrocardiogram. One frequently learns as much from the way the patient tells his story as from what he tells. One may learn even from what he does not tell, i. e., from what he is evidently concealing. The physician is to recognize that no one of these methods is infallible. Just as the history may be unreliable, the physical examination faulty, so the x-ray technic may be poor, the laboratory test may be only approximately accurate. The eye looking at a film or a terminal laboratory color reaction or at a cell in a high power field may err as may the eye, ear or hand of the clinician. In other words, instruments and methods of precision are not infallibly precise.

Some of us who are older underestimate the importance, or the necessity, even the finality at times, of new instrumental and laboratory tests. But we may still claim a place for the old fashioned history, still a place for the stethoscope. A lesion found by the use of the x-rays may not be the one, as the history would show, that is causing symptoms. The man with a gallstone plainly visible in the film may be suffering from angina pectoris, which the instrument is powerless to disclose. The stone may be quiet, the coronary disease active. The x-rays cannot show a pericardial or pleural friction or a few apical rales that may point suspiciously toward tuberculosis.

I feel, further, that too implicit reliance on laboratory examinations may cause sound clinical judgment to shrivel up from disuse. Besides, unless there is extreme watchfulness the laboratory, as Peabody said of the hospital, may develop the impersonal in the doctor at the expense of the personal. The true physician must possess a dual personality, the scientific toward disease, the human and humane toward the patient. Fortunate is he who has these two ingredients in proper proportions. We may recall that Gibbon was glad he gave up the rigid demonstrations of mathematics before his mind had been hardened. And Jebb<sup>5</sup> recognized the danger that specialism—the overscientific attitude of mind—may destroy such things as humanism and morality.

How are physicians to be so trained that they may become skilled in reaching logical conclusions and wise in judgment as to what to do? The physician learns by study, he becomes proficient by experience. He profits by his own mistakes and those of others. The patient, be he alive or dead, is the most valuable textbook for the undergraduate student and the graduate doctor. "Practitioners are made at the bedside," said Allbutt. "Outpatient departments and the wards are the best clinical laboratories for the future practitioner" says Dean C. F. Martin of McGill. "Pathology is the mistress of us all," wrote Neusser. "To study the phenomena of disease without books," said Osler, "is to sail an uncharted sea, while to study books without patients is not to go to sea at all."

So I make a plea that the physician retain his individuality, believing that thus his life will be fuller, happier and more fruitful.

## NEED OF PERSONAL EFFORT

Are we to judge from the shortcomings of many of our practitioners of today that the outlook is discouraging? Not at all. There are signs of a reawakening on the part of the profession and of society at large to the important part to be played by the family doctor. There are many difficulties, but as Dr Thayer told us two years ago, these will settle themselves in time, for at heart all agencies are working toward the same end, the public good. Our lower schools, universities and professional schools are seriously concerned with what is the best preparatory course for the doctor. How may fewer but better doctors be trained? What nonessentials may with advantage be omitted? They are considering whether it is always wise to bunch prospective investigators, specialists and practitioners and to teach all in the same standardized manner. How may the necessary knowledge be learned, how may it be systematized so as to make it available for use? Some physicians are beginning to question whether some of the time spent in giving to the public a pseudo-education in medicine by popular lectures, radio talks, magazine articles may not be more profitably spent in educating themselves. Will not the physician who is competent gain the confidence of the public and serve the public more by what he does than by what he says? If good and efficient service is rendered by the ordinary practitioner as an individual or as a member of a group there will be fewer quacks, fewer cults, fewer semi-charitable organizations supported, or even run, by philanthropically minded laymen or recalcitrant physicians.

George Vincent several years ago stated that three-fourths of the population of this country were treated by general practitioners who have limited appliances, little or no specialization of skill and slight relation to medical services organized in hospitals, dispensaries and clinics. This condition, granting the correctness of Dr Vincent's figures, has already materially improved. There is less inadequate knowledge and less faulty application than there was. The graduate of today, while he may know relatively less than the doctor of fifty years ago is, absolutely, far better informed than his predecessor. The practitioner realizes that he must know still more. He is eager to learn. To use the slang expression, doctors eat up medical meetings. They flock to the section meetings of the American Medical Association, they crowd its marvelous scientific exhibits. They swarm to national and district meetings whether of general or special character. All over the country, clinical weeks and postgraduate courses are arranged with lectures and demonstrations, and the doctors are there. These facts are significant. Doctors go because they feel the need and because they get something out of these meetings of various kinds. If one were to criticize, it would be that the doctor is often in too much of a hurry to get ahead. He is too much concerned with learning facts and technique that may be immediately applied in practice. Krehl<sup>6</sup> laments that the German practitioner of today is too much in a hurry, too concerned with questions of economics, too neglectful of the fundamental sciences that widen his horizon and increase his usefulness. The American doctor is too willing to be taught by others. He cannot learn in this way alone any more than he could in his undergraduate days learn by the didactic

lecture without laboratory and ward training. Our doctors should do more themselves. They must learn to walk alone. The hard work in the local society in order to be most effective should be done more by members and not so much by invited guests. The status of the practitioner will be determined largely by what he himself does rather than by what is done for him by others. What he gets out of practice will be in proportion to what he puts in.

A result of this personal effort on the part of the doctor will be that he will become more self-confident, will lose some of his inferiority complex. His patients will sense this and go to him as of old for advice or for treatment. He will dare of himself to test a knee jerk, to assess at its real value a heart murmur, even to tell whether tonsils should come out or stay. He may possibly be so thorough as to make a rectal examination and courageous enough to pass judgment on the results, thus depriving the consultant of one of his cherished prerogatives and most fruitful sources of income. In fact, he may reach a state where he will begin to wonder what and why is a specialist, what are his qualifications? He may wonder why there should be antagonism between specialists and practitioners, between research and practice. Why not cooperation? For specialism and research are necessities and have come to stay. And so has the practitioner, but only when, as, and if, he is qualified. Nay, the doctor may go further. He may wonder why he should not be a specialist of a new type, a practitioner-specialist whose functions Dr C. G. Jennings<sup>7</sup> prophetically declares will be "(1) personal and household preventive medicine, (2) periodic medical examinations, (3) emergency first aid medicine—the diagnosis and treatment of acute and chronic disease in its incipency." He thus becomes a sort of "visiting internist," perhaps the outpatient visiting doctor of a group, the liaison officer between the home and the hospital, between the home and the consulting room of the specialist. And this function will be his whether he is practicing as an individual or as a member of a clinic or is fitted somewhere into the complicated mechanism of what seems to be impending—over-socialized, or even state, medicine.

Has the doctor the qualifications of character and willingness to work? I am ready to match the medical profession as a whole against any other profession or trade as to character of its members, their industry, their lofty ideals, their fruitful self-forgetful service to humanity.

Yes, there will surely develop in the future—he is already well on his way—and largely through his own efforts a competent practitioner, who with integrity of character, with ideals of medicine as a profession and not a trade, with mind well stored with knowledge, with skill to apply this knowledge in a large proportion of cases of disease, with consciousness of his limitations, with readiness and ability to advise when and where expert help may be obtained, with good judgment and keen powers of observation sharpened by experience at the bedside and at the autopsy table, is worthy to be the family doctor or adviser, with all the traditional privileges and rewards that came from the personal relation of the old time doctor with the family—esteem and high standing in the community, the confidence and affection of his patients.

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<sup>6</sup> von Krehl, Ludolf. *Deutsche med. Wchnschr.* 60:1 (Jan 5) 1934.

<sup>7</sup> Jennings, C. G. *Ann. Clin. Med.* 4:773 (April) 1926.

## FACTORS THAT INFLUENCE RHEUMATIC DISEASE IN CHILDREN

BASED ON A STUDY OF 1200 RHEUMATIC CHILDREN

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It is rather infrequent for rheumatism to attack a child with well defined uniform symptoms that completely disappear after a definite period of illness. The clinical condition termed rheumatism is more likely to be insidious in its onset and to produce symptoms that may be mild or severe, of short or long duration, which make it difficult and impossible for the physician to prophesy accurately what the future has in store for a child once stigmatized with rheumatism.

Recurrences of the same type or different manifestations of rheumatism frequently occur. They may not be serious but are likely to cause some disability. If the heart is involved, the initial or the recurrent attacks assume a real menace to the child.

Until the specific cause of rheumatism is known and the constitutional susceptibility of the human host is understood, one can profitably study the factors that may be associated with the primary and recurrent manifestations of this disease in children. An analysis of these factors may show that they bear some relationship to the so-called rheumatic state.

No longer can one limit a discussion of rheumatism to such children who present the well defined symptoms of rheumatic fever, chorea and heart disease. The rheumatic child may show numerous other symptoms of great significance that cannot be grouped in this triad of well recognized symptoms. Pallor, fatigue, anorexia, epistaxis, vague pains and the like frequently are the only evidences of a rheumatic infection in a child. It cannot be stated positively that children presenting one or more of these complaints at a single period are stigmatized with rheumatism. Similar complaints may be associated with some other disease in some instances. The progress of their development may determine their significance. In this study the symptoms assumed to be associated with the rheumatic child have been listed and an effort has been made to detect the exciting factors that may or may not have influenced the return or the prolongation of the rheumatic complaints. Especial stress has been placed on the infections preceding the rheumatic symptoms.

A statistical analysis of the various manifestations noted in more than 1,200 rheumatic children reveals a variety of clinical symptoms. Some children have six or more rheumatic symptoms, while others show only a few definite complaints. Such rheumatic manifestations as pancarditis and rheumatic nodules denote a serious form of rheumatic infection, while the complaints of tonsillitis, pallor and anorexia may be an indication of less serious rheumatic infection.

For convenience, the rheumatic manifestations noted in these children have been grouped as major or as minor manifestations. Both mild and severe manifestations may exist in the same child.

In chart 1 it is noted that pancarditis, a term used to cover the various anatomic lesions of the heart that might be found in rheumatic children, is the most

common major complaint in children stigmatized with rheumatic disease. In the course of the rheumatic infection the heart became involved in 64 per cent of the 1,240 children studied. Not all these children showed evidence of cardiac involvement during the initial attack of rheumatic disease. In a small number the signs of cardiac disease were not noted until after the first or second recurrence of the disease. The high incidence of pancarditis stresses the seriousness of rheumatic disease in children. This rate is no higher than the incidence noted in other clinics, notably those in England.

Acute arthritis or rheumatic fever was the second most common rheumatic manifestation. Rheumatic fever in children is usually accompanied by a fever and painful joints. This type of arthritis, which is termed severe arthritis, occurred in 39 per cent of the rheumatic group. The mild form of acute arthritis not associated with swelling and visible inflammation is termed joint pains. About 32 per cent of the children had complained of joint pains. Combining the mild and the severe forms of acute arthritis in these 1,240 children, it developed that in 71 per cent of the rheumatic children the joints were involved. This is in accord with the accepted view, namely, that arthritis is the manifestation of rheumatism which is looked on as the most characteristic.

Assuming that chorea is in the vast majority of cases due to a rheumatic infection, it was found to occur in 29 per cent of the group. The age and the seasonal incidence were practically identical with that noted in arthritis. In this series, as in other reported series, the disease was found more frequently in girls. Among the 344 children who had chorea, 56 per cent occurred in girls and 44 per cent in boys. Chorea and arthritis

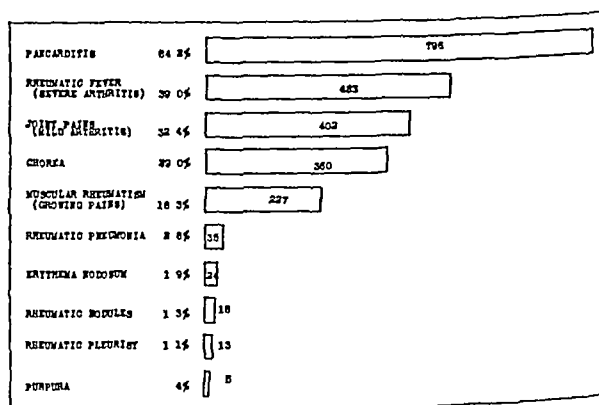


Chart 1—Incidence of the major rheumatic manifestations in 1240 rheumatic children

occurred in the same individual at the same time in only a few instances. Chorea is not so frequently accompanied by disease of the heart as is arthritis.

Muscular rheumatism, or "growing pains," is a rheumatic manifestation subjected to much criticism. That such symptoms do occur in rheumatic individuals is now quite generally recognized. Recently Seham<sup>1</sup> has strengthened the contention that so-called growing pains are usually evidence of inflammatory reaction in the muscles. He feels, however, that "growing pains" is a misnomer and recommends the term muscular rheumatism. In this group 18 per cent of the children

Read before the Section on Pediatrics at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

<sup>1</sup> Seham, Max and Hilbert, Edith. Muscular Rheumatism in Childhood. *Am J Dis Child* 46:826 (Oct.) 1933.

gave evidence of chronic pains in the muscles. These children generally have a less severe type of rheumatic involvement and show a lower incidence of cardiac involvement.

The other major rheumatic manifestations occurred infrequently in this series. Rheumatic pneumonia and rheumatic pleurisy are perhaps not always recognized

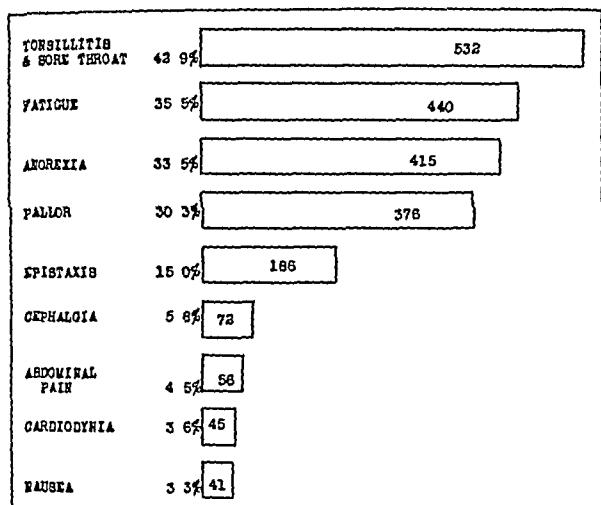


Chart 2—Incidence of the minor rheumatic manifestations in 1240 rheumatic children

and for that reason the incidence is low. Erythema nodosum was diagnosed in twenty-four cases, but it is quite likely that at least one half of this number may have been of tuberculous origin. Rheumatic nodules and purpura were found only a few times. Findlay<sup>2</sup> describes the subcutaneous nodule as the least frequent manifestation of the infection. In spite of that statement it was found in 10 per cent of his 701 cases, while in Rochester it was found in only 1.3 per cent of 1,240 rheumatic children. It is generally believed that this manifestation varies in different regions and this may account for the low incidence in this group.

There can be very little doubt of the relationship of these major manifestations to the disease termed rheumatism. When one attempts to enumerate the milder manifestations noted in chart 2 as symptoms recognized in these definitely diagnosed rheumatic children, it became evident that no one of these manifestations justifies a diagnosis of rheumatism. When, however, they occur in conjunction with some of the major manifestations or a number of the mild ones occur in the same child without the classic rheumatic manifestations, their presence has considerable significance.

Tonsillitis or sore throat, depending on whether the tonsils were in or out at the onset of the rheumatic infection, existed immediately preceding an attack of arthritis, chorea or endocarditis in 43 per cent of the cases. It might be said that the throat infection was the first evidence of rheumatic disease, though it was not termed rheumatic in nature until other manifestations were evident. The acute throat infection noted in these rheumatic children did not differ from throat infections in children in whom rheumatic disease does not develop. It does, however, show the potential danger of tonsillitis.

About one third of all the rheumatic children showed early evidence of fatigue, anorexia and pallor. Similar complaints are noted in other infections, notably in tuberculosis, but if no evidence of tuberculosis is found either by physical examination, by the tuberculin test or by roentgen examination of the chest, one is justified in suspecting an early rheumatic infection when these complaints exist.

Various observers have mentioned the frequency of epistaxis in rheumatic disease. In this series it occurred in 15 per cent of the 1,240 children. Other complaints, such as cephalgia, abdominal pain, cardiodynia and nausea, were noted in a relatively small percentage of the children.

As long as the diagnosis of rheumatic infection in childhood is made only on the presence of one or more of the major manifestations, the real significance of these minor manifestations must remain uncertain. It seems more than probable, however, that any one or any group of these minor complaints may be evidence of a rheumatic infection, even in the absence of the well known serious manifestations.

Rheumatic disease, though most common in later childhood, does occur in early childhood. In a series of 1,126 rheumatic children, definite evidence of rheumatic disease was found in 33 children under 2 years of age. Various authors report only rare cases under 3 years of age. The age incidence may vary in different parts of the world. After 3 years of age the disease becomes more common, as noted in chart 3, and gradually increases in frequency until the tenth year,

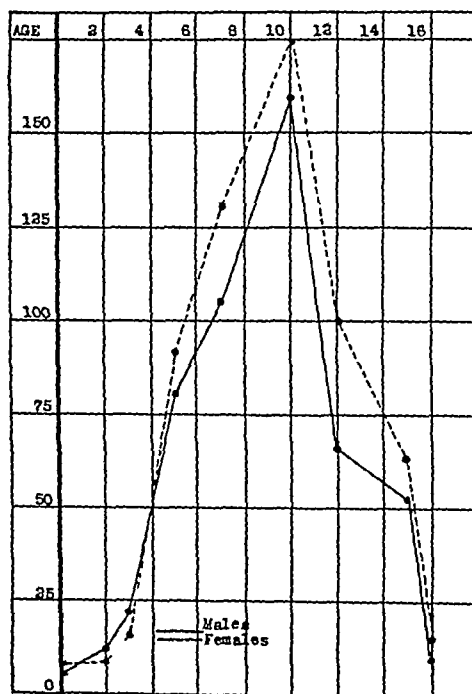


Chart 3—Age incidence of first evidence of rheumatic disease in 1126 children

which represented the optimal age in this series for the first evidence of rheumatic disease. The incidence declines rapidly after the tenth year and at the fifteenth year is as infrequent as in the early years of childhood.

Findlay,<sup>2</sup> in a study of 321 children with arthritis, found that 7 years represented the most common age

<sup>2</sup> Findlay, Leonard. Rheumatic Infections in Childhood, New York: William Wood & Co. 1932.

for boys and 10 years for girls. A comparison of the British figures with the Rochester group showed that in England 52 per cent occurred during the seventh to the tenth year, while in this series 50 per cent occurred between the sixth and the tenth year.

Rheumatic manifestations are more frequent in girls than in boys. Out of 1,126 children under observation, 612, or 54 per cent, were girls and 46 per cent were boys. A similar distribution was reported in England.<sup>2</sup> A preponderance of girls was reported by Wilson, Lingg and Croxford<sup>3</sup> in a total of 500 children with rheumatic heart disease (60 per cent girls and 40 per cent boys). There is no known reason why the disease is more common in girls, unless it is due to the preponderance of chorea in girls.

It has been generally assumed that rheumatic infection is more prevalent in the winter months. It undoubtedly is influenced by season, though it occurs at any time of the year. As noted in chart 4 the disease in Rochester is more prevalent in the late winter and spring months, which has been the experience of other observers in the United States. In England it is most prevalent during the autumn and winter months. Everywhere it is least common during the summer. This seasonal behavior suggests the possibility of a predilection for certain geographic areas, and such is known to be the case.

Numerous investigations have been made on the social distribution of the disease. Great stress has been placed on the fact that it is primarily a disease of the

this series of more than 1,200 rheumatic children, the Italians contributed the largest number. Poor housing, notably dampness, was noted in many of these homes, but no definite conclusion could be arrived at as to the housing situation as a contributing factor to the etiology of rheumatism.

The initial rheumatic manifestation has considerable to do with the immediate outcome as well as with the course of this disease. Various combinations of rheu

TABLE 1—Frequency of the Initial Rheumatic Manifestations in 1181 Children

Acute arthritis		723 or 61%
Incidence of carditis	61%	
Acute arthritis alone	195	
Arthritis and chorea	44	
Arthritis and carditis	422	
Arthritis chorea and carditis	62	
Chorea		3% or 2%
Incidence of carditis	58%	
Chorea alone	94	
Chorea and carditis	125	
Chorea and arthritis	44	
Chorea arthritis and carditis	67	
Muscular rheumatism (growing pains)		95 or 8%
Incidence of carditis	41%	
Muscular rheumatism alone	56	
Muscular rheumatism and carditis	49	
Rheumatic carditis (primary)		140 or 1%
Incidence of carditis	100%	

matic manifestations are listed. It will be noted in table 1 that the well defined clinical cases can be grouped under the four major headings into which most of the children with rheumatic disease can be placed. They are acute arthritis, including the children with rheumatic fever and joint pains, chorea, muscular rheumatism or growing pains, and primary rheumatic carditis that develops without any of the other recognized manifestations. Arthritis is the most common of the rheumatic manifestations, occurring in 61 per cent of the 1,181 children. Arthritis may occur alone as it did in 28 per cent of the children who had arthritis. In a small number of cases it occurred in conjunction with chorea. It is well known that acute arthritis is frequently associated with carditis. In 67 per cent of this Rochester group of children, some form of carditis developed with the initial attack of arthritis. The high incidence of carditis in this rheumatic group emphasizes the seriousness of acute arthritis in children.

Chorea either alone or in combination with arthritis occurred in 28 per cent of the 1,181 children. The incidence of carditis in children who had chorea was somewhat lower than in those who had arthritis. However, associated with or following the initial attack of chorea, evidence of cardiac involvement developed in 58 per cent. The mortality rate among the children with chorea and with carditis was considerably lower than among the children who had arthritis and carditis. Muscular rheumatism, because of its vagueness and often mildness, is not easily classified. In this series only undoubted cases of muscular rheumatism or "growing pains" have been included. Only 8 per cent of the entire group were complaining of chronic muscular pains alone, but even in this group carditis was evident in 43 per cent of the children. Undoubtedly, if more cases of this less definite rheumatic manifestation were included, the incidence of cardiac involvement would not be so great. It emphasizes the fact, however, that even mild rheumatic complaints may be the exciting cause of a rheumatic carditis. The mortality in the children with rheumatic carditis following muscular

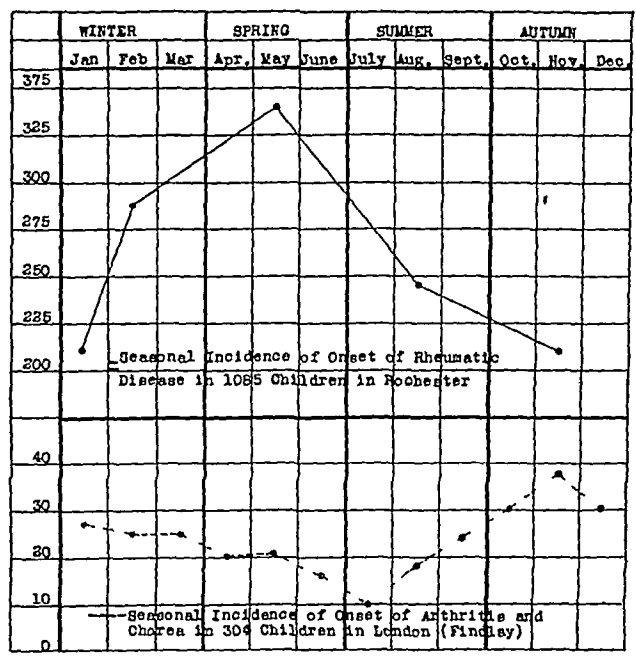


Chart 4—Seasonal incidence of rheumatic disease in Rochester and of arthritis and chorea in London

better class poor families and that it is rarely seen in children among really well-to-do families. Contrary to these statements, many cases listed in this group occurred in well-to-do families and the great majority occurred in the well-to-do laboring classes. The factor of social standing is probably of less importance than the hygienic conditions surrounding these children. In

3 Wilson May G Lingg Claire and Croxford Geneva Tonsillectomy in Its Relation to the Prevention of Rheumatic Heart Disease Am Heart J 4 197 (Dec) 1928

rheumatism was low as compared with those who had rheumatic carditis and arthritis

The term carditis includes all the cases presenting myocarditis, endocarditis and pericarditis. It is used for convenience in discussing the cardiac complications in rheumatic disease. Though rheumatic carditis, as a rule, accompanies or follows an attack of arthritis or chorea, it may, and especially under the guise of endocarditis or pericarditis, be the first manifestation of the rheumatic carditis. Undoubtedly tonsillitis or some other infection may have preceded the cardiac involvement, but no clear history could be obtained in these children. The mortality in this group was about the same as in the group of carditis associated with arthritis.

Though the seriousness of the initial attack of a rheumatic manifestation depends on whether or not the heart is involved, the ultimate outcome is influenced by the factor of whether recurrences of the disease with the same or other manifestations are likely to occur.

In table 2, an analysis is reported of 564 children on whom follow up reports have been available. All these children have been followed for three years, a somewhat smaller number for five years and nearly 200 children for ten years or more.

The first three years after the initial attack was the period of greatest hazard for these rheumatic children. Though the fatality rate of 5 per cent is not high, it is responsible for more than one half of the children who die of their rheumatic infection during the ten year period following the initial manifestation. During the three years, 49 per cent of the children had one or more recurrences of their symptoms. During the first three years the chances of a recurrence are somewhat greater when chorea exists than with arthritis.

TABLE 2—Outcome of Rheumatic Disease Based on a Follow-Up Study of 564 Children\*

Type of Complaint (Initial Attack)	End of 3 Years 564 Children			End of 5 Years 341 Children			End of 10 Years 180 Children		
	Died	Recurrence	No Recurrence	Died	Recurrence	No Recurrence	Died	Recurrence	No Recurrence
Acute arthritis (rheumatic fever)	0	52	50	1	20	32	0	0	13
Arthritis and chorea	0	4	11	0	2	8	0	0	1
Arthritis and carditis	13	135	105	4	65	71	10	20	22
Chorea	1	23	16	0	11	11	0	6	1
Chorea and carditis	0	41	25	0	21	13	0	7	1
Muscular rheumatism (growing pains)	0	10	9	0	6	9	0	2	4
Muscular rheumatism and carditis	1	3	9	0	2	7	0	1	4
Primary rheumatic carditis	6	8	32	0	4	14	0	0	1
Totals	5%	49%	46%	1%	40%	48%	6%	29%	26%

\* Died and recurrence mean death or recurrence since the preceding period.

During the period from three to five years after the initial attack the mortality rate was considerably lower and the number of recurrences somewhat less than during the first three years. However, 40 per cent of the group were still having one or more recurrences.

From five to ten years following the initial attack, something over 5 per cent of the children who survived the five year period died. These fatalities were all in children who had a recurrent attack of arthritis with carditis. The number of children in whom recurrences developed dropped off perceptibly during this period, for

only 25 per cent of the children had any recurrence from the fifth to the tenth year after the initial attack.

A review of these 564 rheumatic children reveals a mortality of 8.2 per cent during the ten years subsequent to the initial attack. Recurrent attacks developed in 49 per cent of the survivors during the first three years and again in 40 per cent during the next two years, while in the next five years only 25 per cent had evidence of any recurrence. It would appear that after five years has passed the prognosis for ultimate

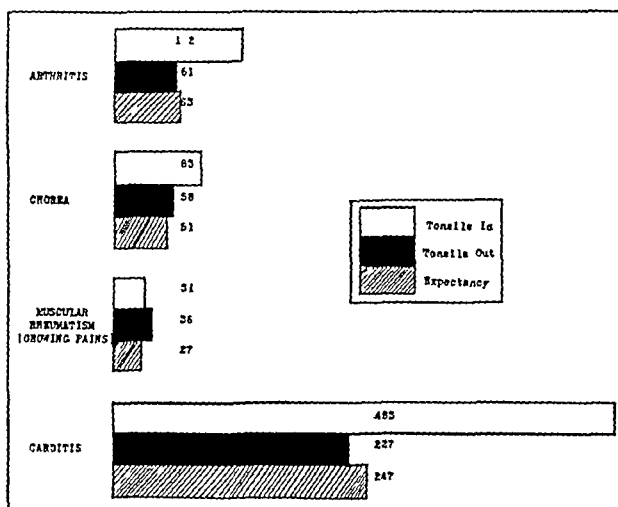


Chart 5—The factor of tonsils present or absent at the initial attack of rheumatic infection in 1101 children

recovery and freedom from recurrences is definitely improved.

The tonsils hold a prominent place among the factors that may influence rheumatic infection in childhood. Some years ago it was assumed that infection in the tonsils was largely responsible for the subsequent manifestations of rheumatism. More recently several observers have shown that the removal of the tonsils following the initial attack of rheumatic fever or chorea did not safeguard the child against recurrences any more than when the tonsils were not removed. These divergent views have left considerable uncertainty in the minds of the physicians as to what course to take in the treatment of the tonsils in a rheumatic child. It is quite generally accepted that there is a relationship between an initial infection in the tonsils and a subsequent rheumatic manifestation. If this is true, there should be a lessened incidence of rheumatic disease in children whose tonsils have been removed. If the first evidence of rheumatic infection develops in children whose tonsils have been removed with the same frequency as in children whose tonsils are still present, no close relationship can be claimed between the tonsils and rheumatism in children. On the other hand, fewer instances of primary rheumatic infections in children whose tonsils have been removed suggests a relationship that may be important. The questions relating to the tonsils that should be answered are: Does the presence or absence of the tonsils influence the severity of the disease as reflected in the mortality rate? Does the presence or absence of the tonsils influence the likelihood of recurrences? An attempt has been made to answer these questions from a study of this group of rheumatic children. In a previous study I<sup>4</sup> have shown

<sup>4</sup> Kaiser, A. D. Children's Tonsils In or Out. Philadelphia: J. B. Lippincott Company, 1932.



that about one third more children, figured on a percentage basis, had their first attack of rheumatism when the tonsils were in than those who had been tonsillectomized. Familiar with the number of children in Rochester whose tonsils have been removed at various age levels, I was able to compute the expected incidence of rheumatic disease among tonsillectomized children in the community. In chart 5 the main mani-

TABLE 3—*The Factor of Tonsils Present or Absent at the Initial Attack of Rheumatic Infection at Various Ages in 101 Children*

Rheumatic Manifestation	Cases	Tonsils In			Tonsils Out			Expected Number with Tonsils Out		
		2-5 Years	5-10 Years	10-15 Years	2-5 Years	5-10 Years	10-15 Years	2-5 Years	5-10 Years	10-15 Years
Arthritis	183	34	62	20	22	39	3	26	34	
Chorea	141	7	56	20	1	29	28	1	26	24
Muscular rheumatism	67	5	13	13	16	20	1	9	17	
Carditis	710	100	207	126	7	101	119	6	111	130
Totals	1 101	146	388	183	8	168	206	11	172	203

festations of rheumatic disease are noted in the children whose tonsils were in at the time of the initial attack and in those in whom the tonsils had been removed prior to the initial attack. The expected incidence among the tonsillectomized children is also stated. The incidence of acute arthritis or rheumatic fever in the tonsillectomized children was nearly the same as the expected rate. Chorea was slightly more prevalent in the tonsillectomized children than was expected. The same situation was true with the manifestation termed muscular rheumatism or "growing pains." Rheumatic carditis, on the other hand, developed somewhat less frequently in tonsillectomized children than one could reasonably expect. Considering the entire group of 1,093 children, the presence or absence of tonsils made only a slight difference on the frequency of an attack of rheumatism. There was less than 10 per cent advantage for the tonsillectomized group.

When, however, the various age groups were considered it was noted that in children under 10 years of age whose tonsils had been removed a rheumatic manifestation was somewhat less likely to develop, while

TABLE 4—*The Effect of the Tonsils on the Outcome of Rheumatic Infection in 597 Children*

Tonsils	Number	Died	One or More Recurrences	No Recurrence
Remained in	156	18%	46%	41%
Out at initial attack	187	7%	48%	45%
Out after initial attack	254	4%	44%	52%

after 10 years of age there was no appreciable difference in the incidence regardless of the absence or presence of tonsils.

The influence of the presence or absence of the tonsils on the mortality rate as well as the relationship to recurrences was recorded in 597 children. In almost comparable groups the mortality rate was 13 per cent among the children whose tonsils were in and 7 per cent among those whose tonsils were out at the time of the initial attack. This result suggests that the most serious type of rheumatic infection is more likely to occur in children whose tonsils are still present.

As to the effect of the presence or the absence of the tonsils on recurrences, the results in this study agree with the reports made by other observers. Recurrent attacks of rheumatism occurred as frequently in tonsillectomized children as in the untreated ones, at all ages. When the tonsils were removed after the initial attack, the percentage of recurrences was only slightly less than when the tonsils were not removed.

A more careful analysis of the relationship of the presence or absence of tonsils to the various rheumatic manifestations shows that rheumatic fever and rheumatic carditis are somewhat less likely to occur in the tonsillectomized children, while chorea and muscular rheumatism are slightly more prevalent in the tonsillectomized children. Since the mortality rate is greatest in the first group, there seems to be some advantage to the child to have the tonsils out in combating this disease.

In spite of the numerous efforts to associate a streptococcal infection with rheumatic disease, no conclusive evidence is yet available to make this relationship certain. The fact that tonsillitis, which is frequently of streptococcal origin, and scarlet fever frequently precede some rheumatic manifestations suggests that the individual has become sensitized to the streptococcus. Considerable support is given to this contention by skin testing rheumatic children with the hemolytic streptococcus nucleoprotein. Two hundred of these rheumatic

TABLE 5—*Cutaneous Reaction to Hemolytic Streptococcus Nucleoprotein in 200 Children with Definite Rheumatic Infection*

Age Groups	Number Tested	Number Positive	Number Negative	Per Cent Positive
1-3 years	4	3	1	75
3-5 years	5	4	1	80
5-7 years	26	15	11	57.7
7-10 years	69	50	19	72.5
10-13 years	58	49	9	84.5
13-16 years	38	28	10	73.7
Totals	200	149	51	74.5

children were tested with this nucleoprotein and as noted in table 5, showed a high percentage of positive reactions. It was found that for the whole group 75 per cent gave a positive reaction, while in a similar test on a like group who did not show evidence of a rheumatic infection only 32 per cent gave a positive reaction. It was also observed that the degree of reaction was more marked in the rheumatic children.

The seasonal incidence of rheumatic disease following closely the epidemics of sore throat and scarlet fever make it seem more than likely that the presence of streptococci in the individual is a factor in the causation of the initial or a recurrent attack of rheumatic disease.

It is a well known fact that a rheumatic infection is frequently preceded by some infection of the upper respiratory tract. In all the surveys made by careful observers there is agreement that frequent attacks of sore throat or tonsillitis are more common in rheumatic children than in so-called control or nonrheumatic children. The frequency of sore throat attacks prior to rheumatic symptoms varies from 28 per cent determined in Bertram's<sup>6</sup> studies to 77 per cent reported by Ingberman and Wilson.<sup>7</sup> An attempt was made in this study to determine the type of the preceding infec-

6. Bertram, Mary. Some Features of the Rheumatic Infection. Brit M J 1: 496 (March 14) 1925.

7. Ingberman, Eugenia, and Wilson, May G. Rheumatism. Its Manifestations in Childhood. Today J A M A 82: 759 (March 8) 1924.

tion and to note the course of the rheumatic disease. Infections of some type prior to the rheumatic manifestations were noted in 810 of the rheumatic children, and of this number 59 per cent gave a history of an attack of tonsillitis or sore throat. All types of rheumatic infection followed tonsillitis, but the more severe manifestations such as arthritis and endocarditis were more likely to follow than were chorea and muscular

TABLE 6—Incidence of the Preceding Infection in the Initial Attack of 810 Rheumatic Children

Preceding Infection	Arthritis (Rheu- matic Fever)		Muscular Rheu- matism (Growing Pains)		Carditis	Totals
	Chorea					
Tonsillitis or sore throat	66%	38%	39%	61%	59%	
Common cold	4%	12%	10%	8%	8%	
Dental infection	15%	24%	32%	10%	13%	
Scarlet fever	2%	3%	3%	9%	7%	
Measles	1%	1%		1%	1%	
Influenza	3%	1%		1%	2%	
Sinusitis	6%	5%	8%	3%	4%	
Otitis media		7%	6%	3%	2%	
Cervical adenitis	1%	1%		1%	1%	
Other	2%	8%	3%	3%	3%	
Total cases	137	75	38	560	810	

rheumatism. Tonsillitis was a preceding infection in 66 per cent of the cases of arthritis and in 37 per cent of the cases of chorea. Among the 560 children with carditis in whom a preceding infection was noted, 61 per cent gave a history of tonsillitis immediately preceding the initial attack of rheumatic disease. It is this group in which the highest mortality exists. When one notes the high mortality rate and the high percentage of recurrences in the rheumatic children whose initial infection was a sore throat, it becomes evident that tonsillitis may usher in the most serious type of rheumatic infection.

It has been impossible to tabulate the preceding infections in the recurrent attacks of rheumatic infections, but in a small number the same infections,

TABLE 7—Outcome of the Rheumatic Infection in 406 Children at the End of Five Years as Related to the Type of Infection Preceding the Initial Attack

Preceding Infection	Arthritis			Chorea			Muscular Rheumatism			Carditis		
	Recurrence			Recurrence			Recurrence			Recurrence		
	Died		No Recurrence	Died		No Recurrence	Died		No Recurrence	Died		No Recurrence
Tonsillitis or sore throat	0	22	31	0	12	3	0	3	5	17	79	88
Common cold	0	4	1	0	2	3	0	1	0	4	7	13
Dental infection	0	6	6	0	4	1	0	3	3	4	13	16
Scarlet fever	0	0	12	0	1	0	0	0	0	2	14	16
Measles	0	4	0	0	1	12	0	0	0	0	2	4
Otitis media	0	0	0	0	0	0	0	0	1	0	4	2

namely, tonsillitis, dental infections, common colds and scarlet fever, were noted in about the same frequency. McCulloch and Irvine-Jones<sup>8</sup> have carefully studied this relationship and have shown that an infection of the upper respiratory tract is quite likely to precede a recrudescence of the rheumatic process.

It appears that infections of the upper respiratory tract, notably pharyngitis and tonsillitis, are a very important factor in the development of rheumatic phenomena. In spite of attempts to give rheumatic children

all the advantages of a good environment with a high standard of living, fresh attacks of rheumatism would develop. In most instances recrudescences occurred after an outbreak of some infection of the upper respiratory tract. Coburn<sup>9</sup> has shown in a study of the rheumatic children at the Pelham Home the significance of respiratory infections on the recrudescence of rheumatic manifestations.

The factors thus far discussed have an influence on the frequency and severity of a rheumatic infection. Undoubtedly there are other factors less clearly understood that may have even a greater influence on the development of this disease. Climatic conditions are thought to have an important bearing on the incidence of this disease. Statistical reports show the rarity of the disease in the tropics and the comparative freedom from symptoms of rheumatic children who are transported to the tropics. The reason for the clinical improvement while in the tropics is not clearly understood.

Another factor that is obviously of importance in determining who will have a rheumatic infection is known as a constitutional susceptibility.

Until the factor of susceptibility is better understood and more definite information is at hand on the etiology of this disease, the control of rheumatic disease will not be mastered.

#### SUMMARY

1 Rheumatic infection is a common complaint in certain sections of the country.

2 It occurs at all ages of childhood but most frequently between the ages of 8 and 10.

3 It occurs most frequently in Rochester during the late winter and spring months.

4 Rheumatic disease in children may manifest itself with mild manifestations such as sore throat, fatigue, anorexia and pallor.

5 No social or economic factors play any significant part in the control of this disease.

6 Rheumatic infection is essentially a chronic disease and tends to recur in more than 50 per cent of the cases.

7 Recurrences of the disease are much less likely to develop five years or more after the initial infection.

8 Rheumatic infection occurs slightly more often in children whose tonsils have not been removed at the time of the initial attack.

9 The mortality rate is nearly 50 per cent less in children whose tonsils had been removed at the time of the initial attack.

10 Recurrent attacks were not lessened in tonsillectomized children or in those who were tonsillectomized after the initial attack.

11 Hemolytic streptococcus nucleoprotein skin tests were positive in 75 per cent of the rheumatic children as compared to 32 per cent of nonrheumatic children.

12 Tonsillitis or sore throat was the preceding infection in 59 per cent of the rheumatic children.

13 The most severe cases of rheumatic infection followed attacks of tonsillitis and dental infections.

14 Respiratory infections are an important factor in causing recrudescences of the rheumatic phenomena.

15 One may assume the existence of some constitutional susceptibility to rheumatism, but no proof of it is available.

16 North Goodman Street

<sup>8</sup> McCulloch, Hugh and Irvine-Jones, Edith. The Role of Infection in Rheumatic Children. *Am J Dis Child* 37: 252 (Feb.) 1929.

<sup>9</sup> Coburn, A. F. The Factor of Infection in the Rheumatic State. Baltimore: Williams & Wilkins Company, 1931.

## ABSTRACT OF DISCUSSION

DR ALBERT J BELL, Cincinnati In this paper, rheumatism is referred to as the rheumatic state, which is the modern and broader conception of the disease. The author includes in this syndrome the minor manifestations, such as anorexia, epistaxis and muscular pains, together with the more classic symptoms of arthritis, heart disease and chorea. I myself have always objected to the term rheumatic fever, as it implies definitely a specific disease, which I am aware some believe but which has not been proved. The fever cannot always be demonstrated. Dr. Kaiser's observations have been similar to those previously made by others, notably the very prominent role which tonsillitis and infections of the upper respiratory tract play in the causation of rheumatic manifestations. He had likewise emphasized the disappointing results of tonsillectomy. I will limit my discussion to the removal of tonsils, to sore throat, to tonsillitis and to the operation in question. I have not seen satisfactory proof that the tonsils have been removed sufficiently early, that is, before the infection has spread to other tissues of the pharynx, nor have I seen statistics that give the ages of the children whose tonsils have been removed. Records of cases in which tonsillectomy has been performed around five years and their subsequent careers followed over a period of years would be desirable. All physicians are in agreement that tonsillitis and infections of the upper respiratory tract are the most frequent causes of rheumatic manifestations. While the operation of tonsillectomy has been very much abused and the results are unsatisfactory, I believe that it is still a very important measure of treatment, but it must be used intelligently and not performed merely because enlarged tonsils are present. The question of allergy and its relation to throat infections must be studied, as well as the relation of other lymphoid tissues in the throat, to infections in the upper respiratory tract. I cannot but feel that a clean throat will predispose less to infections of the upper respiratory tract, which all agree are the principal causes of rheumatic manifestations.

DR JESSE R GERSTLEY, Chicago During the last seven years in studying rheumatism I have concentrated upon one of its supposed manifestations, chorea. At the end of seven years, 150 cases were summarized and forty-five taken as a cross section. Five of six patients with chorea, who had a true history of arthritis and had tonsils, developed endocarditis. There were no cases with a history of rheumatism and no tonsils. In nine questionable cases of rheumatism there were one questionable and four definite cases of endocarditis among those with tonsils. In those patients with a questionable history of rheumatism and no tonsils, only one developed endocarditis, and here the diagnosis was tentative—out of five. Eleven patients with no history of rheumatic infection are those whose tonsils were present. There were two with definite endocarditis and two with questionable endocarditis. In the largest number of patients with chorea, those with no history of rheumatism and no tonsils present, only one out of the fourteen developed endocarditis. Of course, observations of this sort must be repeated with a much larger series. I don't now whether this holds true for most cases. At any rate judging from this series, I would conclude that tonsillectomy is a very important factor in preventing endocarditis in chorea. It also raises the question as to whether chorea is really a manifestation of rheumatic infection.

**Laboratory Data and the Unaided Senses**—Too many practitioners accept the dicta of the laboratories as though they represented some magical contribution to the solution of a given case, whereas laboratory data are frequently of no more importance, and often of less significance, than are facts in the history or observations made on the patient with the unaided senses. It is essential that we should inculcate this view-point into our students and impress upon them the importance of treating laboratory data like any other form of information and of basing their conclusions regarding a given case of disease on a careful analysis of all the pertinent facts and on logical meditation of these facts.—Blumer, George. Some Discursive Remarks on Bedside Diagnosis *Yale J Biol & Med* 6: 571 (July) 1934.

## DIABETIC CATARACT

INCIDENCE AND MORPHOLOGY IN 126 YOUNG  
DIABETIC PATIENTS

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Cataract is a well recognized complication of severe diabetes mellitus in young persons but is considered to be comparatively rare. It is believed by some to occur only in those with associated vascular disease. In its typical form diabetic cataract is described as developing in both eyes with great rapidity, that is, within a few hours or days. There is no evidence of a characteristic morphology; different observers describe subcapsular vacuoles, water slits, and various types of grayish white and iridescent subcapsular and cortical opacities, for example, reticulate, asbestos-like, punctate and flocculent. Also a saucer-like gray and opalescent posterior subcapsular opacity is described.

This study of the crystalline lenses in young diabetic subjects was undertaken in order to determine the incidence and morphology of cataracts in such patients. The report is founded on repeated detailed examinations, with the slit lamp microscope, of the lenses in 126 diabetic patients up to and including the age of 33 years. Most of the patients, when first seen, had been on treatment for some time. Practically every lens in the entire series showed occasional small punctate congenital opacities and there were a few in which coronary cataract was present; the diagnosis in such cases was usually not difficult, but in those lenses in which doubt existed the changes were classified as congenital.

## REPORT OF CASES

CASE 1—M. B., a boy, aged 12 years, seen in January 1931, had had uncontrolled severe diabetes over a period of three years and failing vision for three months. The blood sugar was 310 mg per hundred cubic centimeters, and glycosuria was present. Uncorrected vision was 6/60 in the right eye and 6/9+ in the left, with the ophthalmoscope posterior subcapsular opacities were noted in each lens.

In September, countless fine snowflake opacities were discovered in the cortex of the right lens; they were more numerous posteriorly and in one or two areas were grouped into radial striae. A few fine flakes were seen in the nucleus. In the left eye the changes were similar but less advanced. Following linear extraction of the right lens the corrected vision was 6/5.

In April 1932 the cataract in the left eye was more advanced, the snow storm appearance was present throughout the cortex and there were smaller flakes in the nuclear region.

CASE 2—C. G., a girl, aged 12 years, seen in June 1931, had had uncontrolled severe diabetes over a period of one year. The blood sugar was 350 mg per hundred cubic centimeters and there was glycosuria. The corrected vision in each eye was 6/6, a hyaloid artery remnant was present on the posterior capsule of each lens and there was an occasional punctate congenital opacity.

In December each lens showed a snowstorm appearance, with innumerable grayish and bluish white flaky opacities in the anterior cortex and an even greater number in the posterior cortex. Under the posterior capsule was a thin granular gray saucer-like opacity and here and there in the lens iridescent crystals were noted. The lens sutures and fibers were unusually distinct.

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CASE 3—A G, a girl, aged 12 years, seen in February 1931, had had poorly controlled severe diabetes over a period of two years. The blood sugar was 300 mg per hundred cubic centimeters despite daily administration of 156 units of insulin, and glycosuria was present. The vision was 6/6 in each eye. The right lens showed a few snowflake cortical opacities and many delicate iridescent crystals in the anterior and posterior subcapsular regions. The left lens was of similar appearance.

needlings, the corrected vision in the right eye was 6/9 and in the left 6/5.

CASE 5—L La T, a youth, aged 16, seen in June 1931, had had poorly controlled diabetes over a period of three years. The blood sugar was 318 mg per hundred cubic centimeters and there was glycosuria. The corrected vision was 6/6 in each eye. In the anterior and posterior cortical areas of each lens were many punctate opacities, the exact nature of which

TABLE 1—Data on One Hundred and Twenty-Six Cases of Diabetes

	Total Number of Cases	Age Group (in Years Inclusive)	Number of Cases	Sex		Duration of Diabetes (From History)		Blood Sugar Extremes	Average Mg per 100 Cc
				Male	Female	Extremes	Average Years		
All cases	126	2 to 10	31	14	17	6 wks to 7 yrs	1.7	91 to 422	268
		11 to 20	58	30	28	6 wks to 10 yrs	3.3	112 to 540	277
		21 to 30	31	17	14	2 days to 8 yrs	3.6	200 to 700	358
		31 to 33	6	5	1	1 to 9 yrs	4.6	250 to 665	398
Cases without cataract	106	2 to 10	31	14	17	6 wks to 7 yrs	1.7	91 to 422	268
		11 to 20	50	25	25	6 wks to 10 yrs	3.5	112 to 540	283
		21 to 30	22	12	10	2 days to 8 yrs	3.3	200 to 510	362
		31 to 33	3	2	1	3.5 to 7 yrs	5.2	250 to 282	281
Cases with cataract	20	11 to 20	8	5	3	1 to 5 yrs	3.1	170 to 350	303
		21 to 30	9	5	4	2 to 13 yrs	5.5	179 to 700	385
		31 to 33	3	3	0	3 to 9 yrs	5.3	380 to 665	487

TABLE 2—Data on Twenty Cases of Diabetic Cataract

Case	Age Years	Sex	Duration of Diabetes (Years)	Blood Sugar (Mg per 100 Cc (On Admision))	Glycosuria (On Admision)	Acetone (On Admision)	Diabetic Acid (On Admision)	Coma (History)	Other Diseases	Visual Failure	Type of Cataract*	Vision (Post operative)
1	12	♂	3	310	+		+		Sinusitis	3 mo	SS	OD 6/5
2	12	♀	1	350	+		+		Tonsillitis abscess of arm	None	SS, PSC IC	
3	12	♀	2	300	+	+			Sinusitis scabies	None	SS (atypical) ASC PSC IC	OD 6/9 OS 6/5
4	14	♂	5	170	—	+	+		Sinusitis Vincent's angina furuncles	No history	SS PSC	
5	16	♂	3	318	+		+		Sinusitis	None	ASC	
6	17	♂	5	337	+		+		Otitis media mastoiditis	None	PSC (striae)	
7	18	♀	2	316	+		+			3 mo	SS ASC PSC IC	
8	19	♂	3	337	+	+				None	PSC	
9	22	♂	4	231	+	+			Scarlet fever, mastoiditis multiple neuritis retinitis	Due to retinitis	SS IC	
10	22	♂	2	400	+		+		Sinusitis	Less than 6 mo	SS, ASC IC	OD 6/6 — OS 6/6 ++
11	22	♀	10	243	+	+	+	+		18 mo	SS ASC PSC	OS 6/6 ++
12	23	♂	4	289	+	+			Malignant lymphoma of cecum	20 mo	SS (atypical) PSC IC	OD 6/6 OS 6/5
13	24	♀	5	700	+	+	+	+	Mucous colitis	3 mo	No record of morphology	
14	26	♀	4	557	+	+		+	Pyorrhea pregnancy	3 yrs	SS PSC	OD 6/6 ++ OS 6/9
15	27	♀	8	362	+		+		Myocarditis pregnancy	No history	ASC PSC	
16	28	♂	6	478	+	+	+		Influenza oral sepsis retinitis	None	ASC, PSC, IC	
17	30	♂	13	179	—		+		Arteriosclerosis	10 yrs	ASC PSC	
18	31	♂	3	417	+	—				None	SS PSC	
19	33	♂	4	380	+	—				2 yrs	SS PSC IC	
20	33	♂	9	665	+	+			Endocarditis old iritis furuncles septicemia	No history	PSC	

SS indicates snowflake or snowstorm ASC anterior subcapsular PSC posterior subcapsular (saucer like) IC iridescent crystals

CASE 4—L B, a boy, aged 14 years, seen in July 1928 had had poorly managed diabetes over a period of five years. There was no glycosuria but despite insulin the blood sugar was 170 mg per hundred cubic centimeters. Uncorrected vision was 6/15 in the right eye and 6/30 in the left, early bilateral posterior subcapsular cataracts were noted but were studied only with the ophthalmoscope.

In January 1930 the vision was approximately the same. Snowflake opacities were noted throughout the anterior and posterior cortical areas in each lens and in the posterior subcapsular regions there were confluent opacities. Both lenses were removed by linear extraction and, following subsequent

was indeterminate they may have been congenital or a complication of the diabetes. In the anterior subcapsular areas there were a few finely granular radial striate opacities, which were undoubtedly pathologic.

CASE 6—O P, a youth aged 17, seen in April 1931, had had moderately well controlled diabetes over a period of five years. The blood sugar was 337 mg per hundred cubic centimeters and there was glycosuria. The vision was 6/5 in the right eye and 6/6 in the left. In the right lens were a few fine punctate cortical opacities, while in the posterior subcapsular area fine granular radiating striae were seen. The left lens contained similar but fewer opacities.

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CASE 7—F F, a girl, aged 18 years, seen in February 1934, had had diabetes over a period of two years. The disease had been under excellent control for six months, but vision had gradually failed over a period of three months. The blood sugar had been 316 mg per hundred cubic centimeters at one time but was within normal limits at the time of ocular examination. Uncorrected vision was 6/60 in each eye. In each lens the entire cortex was filled with myriads of snowflake opacities and there were fine granular opacities and vacuoles in the anterior and posterior subcapsular areas. The posterior subcapsular changes were rather dense and a number of iridescent crystals were present. When seen in March and again in April the cataracts were apparently the same.

CASE 8—W L, a youth aged 19 seen in March 1931 had had poorly controlled severe diabetes over a period of almost three years. The blood sugar was 337 mg per hundred cubic centimeters, and glycosuria was present. The vision was 6/6 in each eye. A few small punctate congenital opacities were found in the anterior cortex of each lens, in the posterior subcapsular region of the right lens were gray granular subcapsular spicules extending into a central granular saucer-like opacity.

CASE 9—W N, a man aged 22 seen in November 1931, had had uncontrolled diabetes over a period of four years. There were a hyperglycemia of 231 mg per hundred cubic centimeters and glycosuria. The corrected vision was 6/12 in the right eye and 6/15 in the left, a reduction principally due to bilateral retinitis. In the anterior and posterior subcapsular areas of each lens were innumerable snowflake opacities which in places were confluent and arranged in radial spicules. A few iridescent opacities were found in the posterior subcapsular region (fig 1). In February and July 1932 no further changes were seen in either lens.

CASE 10—G S, a man aged 22 seen in August 1931 had had symptoms of severe diabetes over a period of four months. The blood sugar was 400 mg per hundred cubic centimeters and there was sugar in the urine. As a result of high compound hyperopic astigmatism and rapid reduction of blood sugar, the uncorrected vision in each eye was 6/21. A few punctate congenital opacities were found in the anterior and posterior cortical regions of each lens. In November 1932 no additional lenticular changes were seen. Uncorrected vision in the right eye was 6/15 and in the left 6/9.

In May 1933 despite a restricted diet and insulin, bilateral cataracts had formed and the vision in each eye was reduced to 1/120. The right lens was swollen, veil-like opacities water slits and opalescent crystals were found under the anterior capsule, while the anterior cortex was filled with large, coarse shimmering opacities, the posterior cortex was invisible. Study of the left lens revealed earlier changes of a similar nature, in the clearer anterior cortical areas were snowflake opacities, which may have been present throughout the entire cortex in the earlier stages. Two months after linear extraction the corrected vision in the right eye was 6/6-1.

In August 1933 the left lens was diffusely gray and swollen. Myriads of confluent gray granules and one large sector opacity were found in the anterior cortex. The lens was similar in appearance to that of a rapidly advancing senile cataract. The corrected vision after linear extraction was 6/6+.

CASE 11—D G, a woman aged 22, seen in August 1931, had had severe uncontrolled diabetes over a period of approximately ten years. Vision had failed gradually for approximately months. Despite a restricted diet and insulin the blood sugar was 273 mg per hundred cubic centimeters and there was glycosuria. The vision in the right eye was 6/12+ and in the left 2/60. In the anterior subcapsular region of the right lens was a thin veil-like disciform clouding, fine opaque radial striae were present in the anterior and posterior cortical areas and between these striae were many snowflake opacities. A diffuse, confluent, granular, saucer-like posterior subcapsular opacity was noted. The left lens was similar but the opacities were more numerous. A linear extraction of the left lens was made and a few months later the corrected vision was 6/6+.

In September 1932 the vision in the right eye was 6/12 and the lens opacities were somewhat more advanced.

CASE 12—J C, a man, aged 23, seen in February 1931, had had poorly controlled severe diabetes over a period of four years, with gradual loss of vision for twenty months. The blood sugar was 289 mg per hundred cubic centimeters, glycosuria was present. Uncorrected vision was 3/60 in each eye. In the right lens were several large, flaky gray opacities immediately beneath the anterior capsule, throughout the anterior cortex were many soft punctate and granular opacities which in places were aggregated to form radiating striae. The lens fibers were unusually distinct and in some areas there were intervening fine linear opacities. In the central posterior subcapsular area was a typical saucer-like opacity composed of confluent gray granules and iridescent crystals, subcapsular spicules extended from the periphery into this central mass. Gray granular opacities were present in the posterior cortex. The left lens was similar in appearance (figs 2 and 3). In March the right lens was extracted, the corrected vision was 6/6. The left lens was extracted in April and the vision with correction was 6/5.

CASE 13—B M, a woman, aged 24 seen in September 1929, had had poorly controlled severe diabetes over a period of five years and failing vision for three months. The blood sugar was 700 mg per hundred cubic centimeters and there was glycosuria. The vision was 3/60 in each eye. Both lenses showed anterior and posterior cortical opacities but unfortunately no detailed description was recorded. The lenses were extracted and the corrected vision in the right eye was 6/5 and in the left 6/6.

CASE 14—L G, a woman, aged 26 seen in October 1930, had had poorly controlled severe diabetes over a period of four years and gradual loss of vision for three years. Blood sugar was 557 mg per hundred cubic centimeters and sugar was found in the urine. The vision was 1/60 in each eye, there were subcapsular opacities in both lenses, but no record of the details was made.

In February 1931 the vision in the right eye was 1/60 and in the left 1/120. In the anterior subcapsular and cortical areas of the right lens were many fine snowflake opacities which were more numerous in the periphery of the lens (fig 4). Similar opacities were present in the posterior cortex and many fine radial spicules composed of confluent flakes extended inward from the periphery. The posterior subcapsular region showed an iridescent irregular saucer-like opacity. The left lens was similar but the changes were more advanced. The right lens was extracted in the capsule and the corrected vision was 6/6+.

In April an extracapsular extraction of the left lens was made, the corrected vision was 6/9.

CASE 15—I S, a woman, aged 27, seen in March 1933, had had moderately well controlled diabetes over a period of eight years. The blood sugar was 362 mg per hundred cubic centimeters and sugar was found in the urine. The vision was 6/6 in the right eye and 6/9 in the left, in the anterior and posterior subcapsular regions of each lens were radial striae composed of fine granular grayish white opacities.

CASE 16—L H, a man, aged 28 seen in September 1927, had had poorly controlled severe diabetes over a period of two years. The blood sugar was 478 mg per hundred cubic centimeters and glycosuria was present. Uncorrected vision was 6/10 in each eye and both lenses appeared normal. In March 1931 corrected vision in each eye was 6/6. There were many punctate opacities and opalescent crystals in the anterior subcapsular region of the right lens, similar but more advanced changes and many small vacuoles were present in the posterior subcapsular area. The left lens had a similar appearance.

CASE 17—S G, a man aged 30 seen in August 1933, had had uncontrolled mild diabetes over a period of thirteen years. Vision had gradually failed for eleven years and a cataract had been removed from the left eye at another hospital in 1932. He had been on insulin. The blood sugar was only 179 mg per hundred cubic centimeters and the urine was normal. The right lens showed many fine punctate opacities in the anterior subcapsular area and radial striate opacities in the anterior cortex. Bluish gray punctate dots were pres-

ent in the perinuclear region In the posterior subcapsular area was a dense granular saucer-like opacity

CASE 18—A E, a man, aged 31, seen in June 1931, had had uncontrolled severe diabetes over a period of three years The blood sugar was 417 mg per hundred cubic centimeters, and the urine contained sugar The vision was 6/6 in each eye There were many small grayish white snowflake and punctate opacities in the anterior and posterior cortex of the right lens The left lens was similar but the flakes and punctate dots were irregular in size and more numerous, especially in the posterior cortex

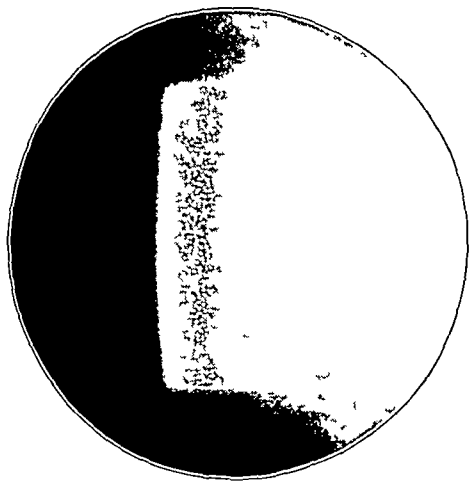


Fig 1 (case 9)—Snowflake or snowstorm cataract in lens cortex of right eye high power slit lamp

CASE 19—G B, a man, aged 33, seen in January 1932, had had poorly controlled severe diabetes over a period of four years The vision had failed gradually over a period of two years and rapidly for one month The blood sugar was 380 mg per hundred cubic centimeters, and glycosuria was present Uncorrected vision was 6/12 in each eye Snowflake opacities were seen in the anterior and posterior cortical areas of the right lens, in the anterior subcapsular region were many fine iridescent crystals, and delicate radiating wedge-shaped spicules lay in the cortex The left lens was similar but the snowflake opacities were more numerous and there was a gray opalescent granular saucer-like opacity in the posterior subcapsular area

CASE 20—P E, a man, aged 33, seen in March 1931, had had poorly controlled severe diabetes over a period of nine years The blood sugar was 665 mg per hundred cubic centimeters, and sugar was found in the urine The uncorrected vision in the right eye was 6/9 and in the left 6/15 There was evidence of an old iritis in the left eye In the posterior subcapsular region of the right lens were many radial spicules extending centrally into an irregular gray granular saucer-like subcapsular opacity There were similar changes in the left lens

COMMENT

Severe, prolonged, poorly controlled diabetes was present in many of the 126 cases and, with but two exceptions, in twenty cases presenting complicating cataracts According to the histories, the duration of the general disease, at the time lens opacities were detected varied from one to thirteen years, the average being approximately five years The severity of the diabetes in patients with cataracts was indicated by the high concentrations of the blood sugars and glycosuria in eighteen of the twenty cases, and the invariable evidences at one time or another of ketonemia and ketonuria The blood sugars on admission to the hospital, varied from 170 to 700 mg per hundred cubic centimeters the average concentration being 373 mg

dences of ketone bodies in the urine were found in every patient, in three cases there was a history of coma These conditions were present despite attempts to restrict the diet and advice as to the use of insulin, they go to show the difficulties in the home control of diabetes In many of the patients other pathologic conditions of more or less severity were known to have been present or were discovered at the time of examination, but in no case were they of a type known to cause cataract Arteriosclerosis was found in only one patient

A diagnosis of diabetic cataract was made in 20 of the 126 cases, an incidence of 16 per cent There were thirteen males and seven females affected The lenses were normal in thirty-one patients under 11 years of age, opacities were present in eight of fifty-eight patients aged from 11 to 20 years inclusive, in nine of thirty-one patients aged from 21 to 30 years inclusive, and in three of six patients aged from 31 to 33 years inclusive These changes were bilateral, with one exception, in one patient, opacities were just forming in one eye and evidently had not yet begun in the other It is recognized that diabetic cataract may form and mature within a few days, but the development of lens opacities in the cases herein reported was not extremely rapid, in most instances it was a matter of weeks or months

Only a small number of lenses had been studied when it was realized that there were two common types of cataract The more unusual and striking of the two was that designated as snowflake or snowstorm cataract, it appeared first in the anterior and posterior cortical areas, near to but not immediately under the capsule, as innumerable scattered grayish to bluish white flaky opacities In later stages the opacities occupied the entire cortex The appearance with the biomicroscope was that of a heavy snowfall against a leaden sky This snowstorm cataract was seen in twelve cases, an incidence of 60 per cent It was well developed and typical in ten cases and appeared in slightly atypical form in two cases There is reason to

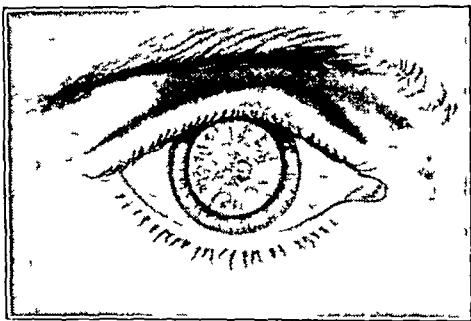


Fig 2 (case 12)—Right eye ophthalmoscope

believe that such opacities may have been present in other lenses during early stages of development of the cataract

The other common type of cataract was a saucer-like posterior subcapsular opacity composed of confluent gray granules and oftentimes containing iridescent crystals Frequently finely granular, radial, posterior subcapsular striae extended from the equatorial zone toward or into the central opacity This is not an unusual type of opacity, since it appears following injury in association with certain ocular diseases and occasionally as a senile lens change It was present in



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its typical form in twelve cases and in an atypical form in two cases, an incidence of 70 per cent. Anterior subcapsular opacities were found in eight cases, an incidence of 40 per cent, they were punctate, finely granular or veil-like and occasionally showed iridescent crystals. In some lenses delicate radial striae were present. Iridescent crystals were noted in eight cases, an incidence of 40 per cent. They were usually located in the

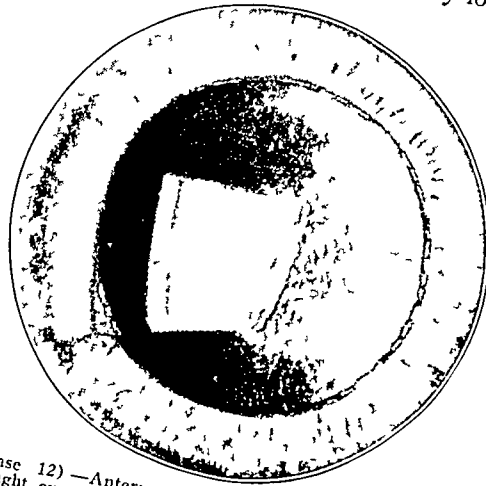


Fig. 3 (case 12)—Anterior subcapsular and posterior subcapsular opacities in right eye low power slit lamp

subcapsular areas but in a few lenses were found in the cortex. It is to be understood that more than one type of opacity was present in many lenses and that vacuoles, water splits and lamellar separation were common changes.

## SUMMARY

In a study of the crystalline lenses in 126 young diabetic patients, aged from 2 to 33 years inclusive, the incidence of cataract was 16 per cent. The morphology of these cataracts differed but two common types of lens changes were encountered.

- 1 Snowflake or snowstorm cataract. This type was found in 60 per cent of cases and appeared as innumerable small grayish white flaky opacities in the anterior and posterior cortical areas. In a routine study of several hundred cataracts it was seen, with one exception, only in persons with diabetes.
- 2 Posterior subcapsular cataract. This type was found in 70 per cent of cases as a saucer-like posterior subcapsular opacity composed of confluent gray granules and oftentimes iridescent crystals. It is not peculiar to diabetic cataract, since similar changes may follow ocular injury or disease, and it has been noted in senile cataract.

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## ABSTRACT OF DISCUSSION

DR ARNOLD KNAPP New York. Most ophthalmologists who are connected with eye clinics do not see many of these diabetic cases. The one I recall best is the most recent case that I have seen. A young child presents this posterior cortical opacity and some equatorial cortical changes but none of the anterior subcapsular changes that the authors have described. I wish to emphasize the rarity of the condition and secondly the impossibility of changing the course of these cases by treatment. I should like to ask Dr O'Brien where in the lens in these snowflake-storm cataracts the process

apparently begins. Has he observed with the slit lamp any of these cases, changes in the posterior layer of the lens in his opinion that by treatment the progress of these cases can in any way be retarded?

DR SANFORD GIFFORD, Chicago. We are fortunate to hear such a series of cases. The reason we consider this condition so rare is that most ophthalmologists see only the ones that go rapidly on to maturity. In the last two or three years I have seen only two cases that I can remember, of which went on rapidly to maturity. Operations were formed with very good results. I think that is the rule in these cases, that they are not complicated cataract in ordinary sense, they behave like other types of soft cataract. I have never seen this snowstorm type of cataract in I have not seen them until later when the whole lens was opaque and one could not tell how they started. From what I understand about the way opacities develop in the lens I think these opacities were once subcapsular. I believe that when they develop they were subcapsular and then later the condition would stop and the opacities became deeper as new lens fibers were formed as in the case of parathyroid tetany. Goldschmidt was able to produce attacks of parathyroid tetany in dogs and a layer of opacities would develop. Then there would be clear lens fibers laid down on top of them, and following another attack of tetany another layer of opacities would develop. In this condition, diabetes, this is going on all time, so as new lens fibers are formed, opacities are developed in these new layers. This posterior subcapsular type of cataract is a mixed up question. For instance, this type is usually referred to as cataracta complicata but the posterior, saucer-shape cortical cataract resembles it which is a very common form of senile cataract. The cataracta complicata comes forward in the lens and, starting under the anterior capsule, goes back into the lens. This looks like a picture of ordinary posterior saucer-shape cortical cataract which is seen as a form of senile cataract but I know it does occur in young people because I have seen it in one family in which every member developed this type of cataract at a very early age.

DR EDWARD BLAUW Buffalo. The giving of a new name for this form of cataract does not have my sympathy. As I understand the speaker it is a form of cataracta punctiformis corticalis. Such forms can be congenital and acquired. The

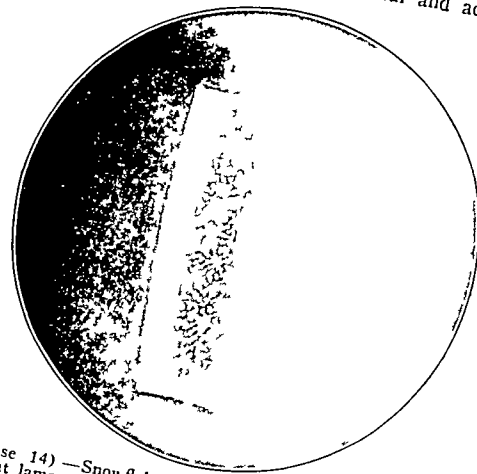


Fig. 4 (case 14)—Snowflake or snowstorm cataract in lens cortex high power slit lamp

origin of such opacities does not need to be directly under the capsule. The small bubbles found in posterior saucer-like cataract are not exudates. Some form of posterior saucer-shape cataract seems to be congenital if not acquired in early youth. Its progress is then apparently very slow.

DR C S O'BRIEN Iowa City. Dr Knapp asks where the opacities begin. Apparently they are not typically subcapsular but appear first in the areas of the cortex that underlie the anterior and posterior subcapsular areas, i.e., in the anterior portion of the anterior cortex and in the posterior portion of

the posterior cortex. I may say that I have followed the entire development of opacities in several lenses. I have seen these normal lenses become completely opaque. That is, to me, of course, an argument against any congenital factor, since I believe that congenital lens opacities do not progress, except perhaps the coronary cataract of Vogt. As regards the iris, I have looked for indications of pathologic changes, but the only changes that might indicate disturbances such as those seen in the pigment epithelium under the microscope are deposits on the posterior surface of the cornea and in some instances on the anterior surface of the lens. So far as I have been able to determine, effective treatment of the diabetes slows down the process but eventually progression of the cataract has been noted in every lens. In answer to Dr Gifford, I must disagree with the idea that the snowflake opacities appear directly under the capsule in the subcapsular area, and then owing to the formation of new lens fibers, are forced toward the nuclear area; these opacities are seen first not in the subcapsular area but deeper in the cortex, and I see them progress over a period of weeks and in some instances over a period of months. New lens fibers are not formed with such rapidity. As to Dr Blaauw's feeling that perhaps these lens opacities are congenital I have only to reply that I have watched them develop with a rapidity that is not possible in congenital cataract. I have seen some of them develop in five or six weeks, and congenital opacities do not form in such a manner.

## SUBDURAL HEMORRHAGES

TIMOTHY LEARY, M.D.

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Mystery has always shrouded the supposedly rare condition to which Virchow gave the name of pachymeningitis hemorrhagica interna chronica. Neither the title nor Virchow's study of the subject tended to abate the mystery. It is my purpose in this paper (1) to endeavor to dispel this mystery, (2) to demonstrate that the condition is not rare, (3) to call attention to its operative curability in many cases and (4) to indicate its possible medicolegal relations.

The Massachusetts medical examiner law gives the medical examiner exclusive opportunity to investigate deaths by violence. This exclusive opportunity entails a stewardship with a responsibility for the proper use of the material that comes into his hands. One of the implied obligations of the medical examiner is to aid or if possible to stimulate medical progress in dealing with the results of traumatism. The appalling death rate from automobile and other traumatic hazards approximates wartime mortality records and has made a deep impression on American vital statistics. Head injuries are responsible in my experience for about 45 per cent of the deaths from automobile injuries. In a study during the past four years of several hundred fatal traumatic cases, arising from many hazards in which intracranial lesions were found significant subdural hemorrhages were present in 10 per cent and were accountable either directly for the fatal outcome or for disability and mental deterioration.

An investigation from the standpoint of the possible salvage of cases of cranial traumatism suggested that subdural hemorrhages offered a promising field as a beginning. When it was brought to their attention that this lesion was relatively common, and that sur-

gical intervention offered the only practical solution, cooperation of the departments of neurology and of neurosurgery of the Boston City Hospital developed a diagnostic and operative technic that has led to the saving of lives, and, what is more important, of mentalities.

A primary part of this work has been a restudy of the subdural space.<sup>1</sup>

### THE SUBDURAL SPACE

It has been taught that the subdural space is a serous space, analogous to the great serous spaces of the body proper. The difference in the reactions of the two apposed surfaces lining the space is totally unlike the reactions that are manifest in the other serous spaces. The pia-arachnoid has the function of carrying the large vessels over the surface of the brain in such a manner that no large arteries actually penetrate beneath the surface of the brain. It distributes and absorbs the cerebrospinal fluid and serves as a water bed for the brain. It is impervious to most substances, alcohol and a few drugs alone being capable of penetrating the membrane. In this way it serves as a barrier between the blood and the central nervous system. It is the only membrane in the body that can hold back an infection whose products bathe its surface, as in pachymeningitis. Unlike the serous membranes, infections beneath the surface of which tend to spread rapidly into the serous cavities, leptomeningitis tends to be limited within the arachnoid, extension to the subdural space occurring rarely. Another evidence of the imperviousness of this membrane is its ability to hold large quantities of fluid in the presence of edema, while the subdural space contains a minimal amount. The membrane resists the invasion of meningiomas and plays no part in the removal of blood from the subdural space. Though capillaries have been seen in the membrane, it has no capillary bed.

To the contrary, the dura offers little resistance to the invasion of the subdural space by infections that have succeeded in getting into its tissues, it is invaded by meningiomas, it has a capillary bed and it assumes the burden of organizing and removing subdural hemorrhages.

By a simple technic we were able to demonstrate that though sheets of clean cut flattened cells (endothelium, or possibly mesothelium?) could be readily scraped from the surfaces of the serous spaces—pericardium, pleura and peritoneum—scrapings from the dura disclosed elongated fibroblastic cells with a small mixture of flattened cells of the mesothelial type. The arachnoid, on the other hand, is covered by an irregular often multilayered integument of flattened cells.

The manifest differences in the two membranes lining the subdural space have suggested to me the concept that the skull, like other bones, enters into articulation. In this case the articulation is not with bone but with a compound organ, the brain with its covering pia-arachnoid. The relations of the two structures, skull lining and brain covering, are largely those of contiguity, the only continuity arising from nervous and vascular connections and minor supports for the falx. From this point of view the dura is the lining of an articulation and has the character of a simple fibroblastic tissue, which Maximow has shown to be the standard lining

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The complete article appears in the author's reprints.  
Read before the Section on Miscellaneous Topics, Session on Forensic Medicine at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.

1 Leary Timothy and Edwards E. A. The Subdural Space and Its Linings Arch Neurol & Psychiat 29 691 (April) 1933

of the synovial spaces. This concept simplifies the approach to the study of subdural hemorrhages.

#### SUBDURAL HEMORRHAGES

Fifty cases of subdural hemorrhage in this series have been divided into the following five groups for convenience of study.

1 In eleven cases the hemorrhage was fresh, in the form of fluid blood or soft clots, which could not be preserved (fig 1).



Fig 1—Stage 1, characterized by fresh blood. Compression and molding of brain on left and flattening of brain on right are shown.

2 In six cases the blood was in the form of firmer clots, which tended to adhere to the dura (fig 2).

3 In fourteen cases the hematoma appeared in the form of chocolate clotted blood and yellow fluid adherent to the dura with beginning organization and a neomembrane from the dural side but no inner limiting membrane (fig 3).

4 In fourteen cases the hematoma showed a completed double membrane

were addicted to alcohol. Falls on the street in two cases, in one case on the stairs and in one case on the floor preceded the death. In two alcoholic patients there was no record of injury. In three cases there were ecchymoses of the scalp. The skull was fractured in one case following a fall down stairs. The hemorrhages were on the left side in four patients and on the right side in two.

Stage 3 The ages ranged from 28 to 67 years. There were seven women and seven men. Seven patients were alcoholic and seven were not. In four cases there was no history of trauma. In the others there was a history of injury occurring from a few days to fifteen days before death. In five cases falls on the floor, in two cases falls on the ice, in one case a fall on the stairs, in one a fall from a cot and in one striking of the head by a falling wrench had been the cause of the injury. In seven cases a visible contusion of the scalp was disclosed at postmortem examination. No skull fractures were found in this group. The hemorrhages were on the right side in nine cases and on the left side in five.

Stage 4 The ages ranged from 42 to 78 years. All fourteen patients were men. Seven were alcoholic and seven were not. The completed membrane in this stage indicates a process that has taken at least a month, usually months and possibly years to develop. The shortest dependable history was that of a man, aged 78, a carpenter, who fell a distance of 3 feet from a ladder thirty-nine days before his death. In a second case in a man who twenty-one days before death fell from a table 3 feet high, landing on his buttocks, without striking his head, the character of the membrane indicated that the lesion was of much earlier development. A third patient fell down stairs three months before death. A fourth had a fall on the floor three months before death. A fifth was struck by an automobile four months before death. A sixth was struck by a falling coal chute six months before death. A seventh fell striking his head six months before death. An eighth

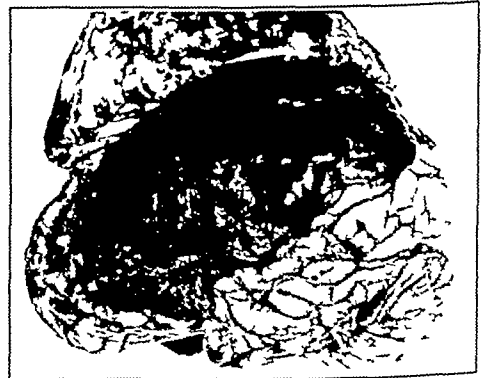


Fig 2—Stage 2, characterized by a nonadherent clot.

with an internal layer enclosing the chocolate clot and brownish fluid (fig 4).

5 In five cases a fused neomembrane without hematoma and almost complete healing marked the terminal stages of the lesion (fig 5).

These divisions serve as a rough measure of the age of the hemorrhage, death having followed too rapidly in the first two groups to permit of any organization, the third group showing early organization, i. e., on one side only of the clot, the fourth group showing more advanced organization and a neomembrane enveloping the clot, the fifth group showing an almost healed process.

#### STATISTICAL DATA

Stage 1 In the eleven cases in this series the ages varied from 14 to 63 years. Six were men, five were women. Six were not addicted to alcohol, five were alcoholic. Death occurred in periods of from one-half to eighteen hours after symptoms appeared or following falls, with one exception. In three cases blows on the head had preceded the death. In three cases falls on stairs, in one a fall from a couch, in one a fall on the ice, were apparently the means of provoking hemorrhage. In one case the rupture of the pedicle of a meningioma, in a second case the rupture of the dura in advance of a parotid malignant sarcoma led to the hemorrhage. In one alcoholic individual there was no history of injury. Ecchymoses of the scalp were found in three cases. In no case was there a fracture of the skull. In seven cases the hemorrhage was on the right side in four cases it was on the left.

Stage 2—The ages ranged from 36 to 56 years. There were three women and three men. There was a history of trauma occurring from seventeen hours to three days before death. Five out of the six patients

had a fractured skull one year before death. In the other cases there was no history of an old injury. Two individuals in this series had been struck by automobiles, one fell backward down stairs, four fell on the street or on the floor a few days before death. In two of these, minor recent fractures of the orbital plates without brain injury were found at postmortem examination. In one case a fall down stairs resulted in a temporal fracture with epidural hemorrhage seventeen days before death. In one patient, a man found uncon-

scious on the street, a fracture of the base of the skull with contusion and laceration of the basilar surfaces of the frontal lobes was present. The hemorrhages were on the left side in eight cases, on the right side in three and bilateral in three. Massive recurrent hemorrhages had occurred in five cases, in three of which the inner neomembrane was ruptured and much of the clot lay free in contact with the arachnoid.

**Stage 5** This group consisted of five men ranging in age from 47 to 84 years. Three were alcoholic. The histories are unsatisfactory, two of the patients suffering from post-traumatic psychosis and a third being epileptic. In one case a fracture of the skull due to an automobile accident had occurred one year and four days before death. In a second case an old fracture had been followed by epilepsy. In two cases recent fractures of the skull, due to a fall in one case and to an automobile accident in the other, had preceded the death. In both cases there was contusion of the scalp. The membrane was bilateral in four of the five cases and unilateral on the right side in one.

**Combined Data**—In the fifty cases studied the ages ranged from 14 to 84 years. Thirty-four were men,

to alcohol. In a larger clinical series, alcoholic addiction was reported in 40 per cent. The higher mortality rate in alcoholic individuals is probably responsible for the difference in this respect.

#### PATHOGENESIS OF SUBDURAL HEMORRHAGE

This series of cases permits a visualization of all stages in the evolution of the process from fresh hemorrhages responsible for rapid death through the various degrees in the formation of the clot and the neomem-



Fig. 4—Stage 4 showing double neomembrane with clot between layers. Molding of the brain is shown.

brane, the hemolysis and liquefaction of the hematoma to the late picture of a fused thin velvety pigmented membrane.

**Etiology**—The Source of the Hemorrhage. It is evident that hemorrhage into the subdural space can arise from the rupture of vessels anywhere in the structures abutting on or lining the cavity. In the new-born the dura is considered to be the site of most of the lesions through birth injury usually to the tentorium. In skull fractures, laceration and contusion of the brain



Fig. 3—Stage 3 showing outer neomembrane with chocolate clot adherent to the dura.

sixteen were women. The women were limited to the first three stages. They appeared to suffer more serious hemorrhages or succumbed more readily than men. Twenty-seven were addicted to alcohol, twenty-three were not. Hemorrhages were unilateral in forty-three cases and bilateral in seven. Of the forty-three unilateral hemorrhages, twenty-two were on the right side and twenty-one on the left. In five cases recent fractures of the skull were found in cases with old neomembranes. In two of the older cases with membranes, recent minor fractures of the orbital plates were found. In four cases, evidences of old cerebral traumatism were found.

#### COMMENT

In many of the cases the minor character of the traumatism that leads to a subdural hemorrhage is striking. Relatively trivial blows or falls on the head, which are suffered daily without harmful results by many individuals and which have been experienced previously by victims of subdural hemorrhage without harmful effects may be responsible for a hemorrhage at a critical moment. Indeed, falls without injury to the head have been apparently efficient in producing the lesion.

The relation of alcoholism to the condition is close. In this series, 54 per cent of the victims were addicted

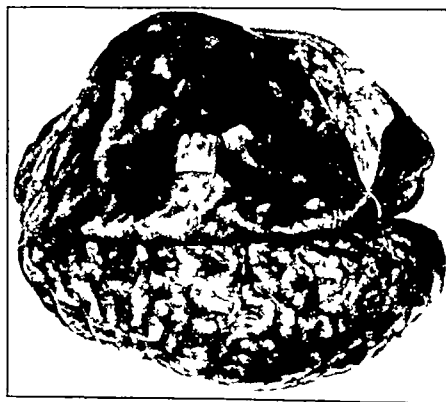


Fig. 5—Stage 5 showing fused double neomembrane. Window showing dura beneath.

is the usual source. In the cases included in this series, unassociated with fracture, the dura was responsible for two cases. In one case rupture of the pedicle of a meningioma led to rapid death from arterial and venous bleeding. In the second case a myxochondrosarcoma of parotid origin, which had penetrated the skull, led to stretching and rupture of the dura with associated hemorrhage. In the cases unassociated with fracture of the skull or evident brain damage it is impossible to determine the source of the hemorrhage if time enough

## SUBDURAL HEMORRHAGES—LEARY

JOUR. A. N. A.  
SEPT. 22 1934

has elapsed to obscure or heal the bleeding vessel. In the cases accompanied by rapid death, in which the blood is found still fluid at autopsy, search for the source is more fruitful. In eight cases I have been able to find the bleeder, which in five cases was a torn bridging vein and in three cases a vein at the surface of the arachnoid. The slowness with which blood frequently collects in the hemorrhages unassociated with marked trauma-

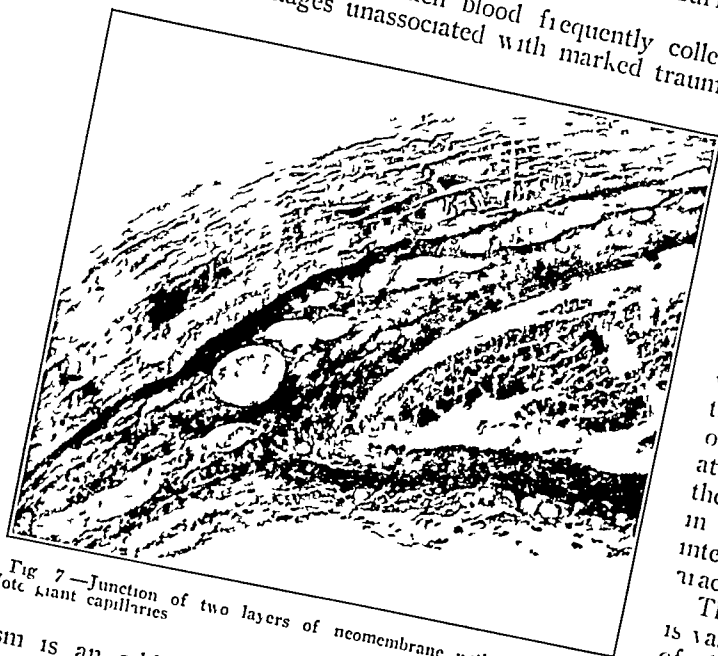


Fig 7—Junction of two layers of neomembrane with clot enclosed. Note giant capillaries.

tism is an added indication that the hemorrhage is usually venous and perhaps intermittent as the intracranial pressure increases and is modified when the brain accommodates itself to the increasing pressure. Though the subdural space is a cavity, hours at least are often necessary before urgent symptoms appear.

Death in the rapidly fatal cases is due to the sudden rise in intracranial pressure. In cases of more slowly developing hemorrhages, headache, semicomat, transient hemiplegia, hyperactive reflexes and spastic quadriplegia may be present. In the cases of the more chronic type, mental deterioration and psychoses mark the course of the disease. It is amazing how much compression the brain will stand if the compressing force is slowly applied. Some of the brains in this series present a degree of deformity that would seem to be inconsistent with even vegetative functioning.

**Alcoholism**—The relation of alcohol addiction to the production of subdural hemorrhages is significant. It is possible that the associated edema of the arachnoid may serve mechanically to favor rupture of bridging veins. More reasonable is the belief that alcoholism leads to more frequent traumas that are responsible for the result.

**Hemorrhagic Diathesis**—No evidence of a tendency to hemorrhage could be ascertained in the cases reported in this series. A fatal subarachnoid and subdural hemorrhage, largely subdural, occurred in a case of Streptococcus hemolyticus septicemia following abortion in one of my earlier series.

**Pathology**—The subdural space is a closed space. When blood or exudate escapes into it the only means of removal are absorption, organization, or operative removal through an opening in the skull. There is no

evidence that the impervious surface of the arachnoid or the relatively avascular dura can bring about any measurable degree of absorption as such. Unlike the repair processes seen in the serous cavities in which all surfaces in contact with foreign material, either blood or exudate, take part in the organization, the effort to remove the material in the subdural space is the function of the dura. The impermeable, highly vascularized arachnoid, lacking a capillary bed, plays no part in the procedure.

As the dura is a dense fibrous membrane which is poorly vascularized, though it is a support for large blood vessels, the beginnings of organization are delayed. Evidence of the adhesion of the clot to the dura and the beginning of granulation is usually manifest only during the second week or later. There is first formed a thin layer of young tissue along the whole of the dura in contact with the blood, and small flying buttresses of vessels and fibroblasts are thrown out into that layer of the clot nearest the dura. As the proximal layer of granulation tissue develops there is slowly formed at the edges of the clot a layer, which spreads over the internal surface of the clot (fig 7). Ultimately, in a period which requires weeks in most cases, the internal layer envelops the clot, separating it from the arachnoid.

The outer membrane may be relatively thick and it is vascular. There is a moderate degree of vascularity of the portions of the inner layer that are nearest the dura. The midportion of the internal enveloping membrane is always paper thin and made up of a few

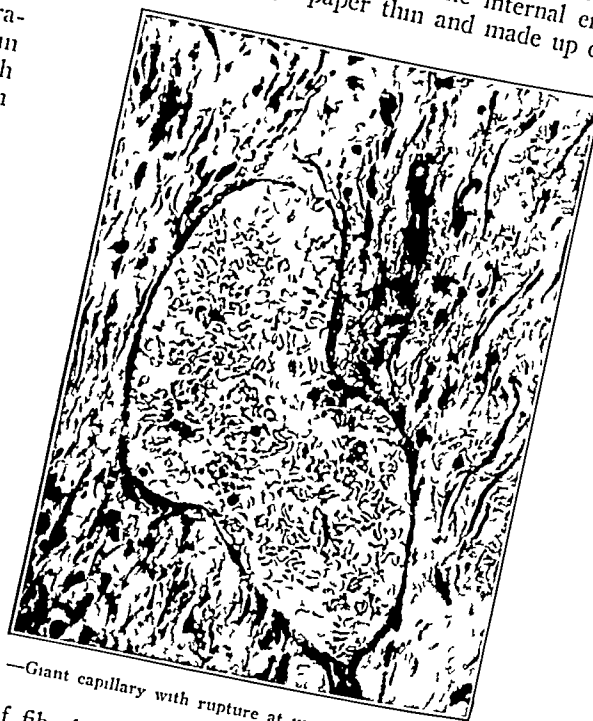


Fig 11—Giant capillary with rupture at upper end and hemorrhage.

layers of fibroblastic cells without vessels (fig 8). In the meantime, changes in the blood pigment result in a brownish discoloration leading to formation of a chocolate clot.

Hemolysis is relatively late, but after a period, usually of weeks to months, liquefaction of the midportions of the clot may give rise to a central cavity containing brownish fluid. Histiocytes invade the clot and are

found in numbers in the young tissue, loaded with blood pigment. They also invade the arachnoid barrier and give up their pigment in the arachnoid spaces to the cerebrospinal fluid, producing xanthochromia. This color reaction may be very marked in some cases and may be almost absent in others. It has diagnostic significance when it is found.

When the repair process has progressed to a certain degree, the handicap under which it is working comes

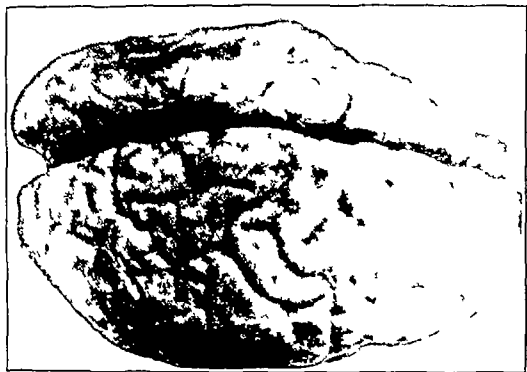


Fig 12—Stage 4. Recurrent hemorrhage. Fall of 3 feet with headache thirty nine days. Hemiplegia seventeen days. Two planes of compression of the brain are shown.

into evidence. Both the density and the relative avascularity of the dura play a part. The principal difficulty arises from the inefficiency of the venous drainage. The possibilities of venous outflow through the venous channels in the dense tissue are limited at best, and new channels are apparently not produced. A passive hyperemia of the granulating layer is an early phenomenon.

The capillary vessels become overdistended with blood, and so called giant capillaries result (fig 9). These vessels with thin walls of the capillary type may become so distended that they may reach a diameter equal to eighteen times that of a normal capillary. The back pressure may even dilate vessels on the arterial side, which, few in number, are readily identified by their relatively thicker walls. Active repair under these conditions tends to come to a standstill. Remarkable is the failure in most cases to form a layer of dense scar tissue such as arises in granulating processes elsewhere when healing is long delayed. Though a layer of what might be called scar tissue may arise directly along the dura, the tissue in general tends to be relatively edematous and not too rich in collagen.

The breaking up of the complex albuminous molecules of the blood detritus into simpler molecules tends to increase osmotic pressure with the absorption of fluid. Even with this dilution the fluid within cystic hematomas may be under such pressure that it spurts forth for a distance when the membrane is incised during operation in some cases.

Because of the imperfection of the healing, a subdural hematoma once established may persist for years. Dr Myrtelle Canavan presented before the Massachusetts Medicolegal Society an underdeveloped brain with its membranes, compressed by a bilateral subdural hematoma which from the history had been present in a boy for twelve years. There was no more evidence of complete healing in this case than is apparent in cases in which the lesion is only months old.

Another factor of importance in delaying healing is the occurrence of secondary hemorrhages (fig 10). As would be expected, the thin-walled giant capillaries, poorly supported in the flimsy granulation tissue, are prone to rupture (fig 11). Secondary hemorrhages occur usually within the completed membrane of the fourth stage. In three of the cases in the series under consideration the new hemorrhage had burst through the thin inner layer of the neomembrane and much of the clot was found lying free on the inner surface of the membrane. Repeated hemorrhages of lesser degree serve to prolong the healing of the lesion. Massive secondary hemorrhages are not infrequently responsible for the fatal issue (fig 12).

**Inflammatory Cellular Infiltration** Inflammatory reactions are commonly associated with the process of repair. Lymphoid cell infiltration in minor degree of the neomembrane is frequently encountered. Larger focal accumulations of lymphoid cells may be seen, notably in older processes, and focal infection with a polymorphonuclear infiltration is a possibility. It was undoubtedly the study of the later stages of the condition, in which the inflammatory cellular reaction was marked, that led Virchow to refer to it as a pachymeningitis. Pathologists who have approached the problem from the study of advanced lesions have seen the subdural hematoma as a complicated picture difficult to explain. Oozing hemorrhagic processes from the inflamed arachnoid in syphilitic meningo-encephalitis may lead to minor degrees of subdural neomembrane formation and have tended to confuse the issue. In the standard form of subdural hemorrhage the basic process is that of a poorly supported attempt to organ-

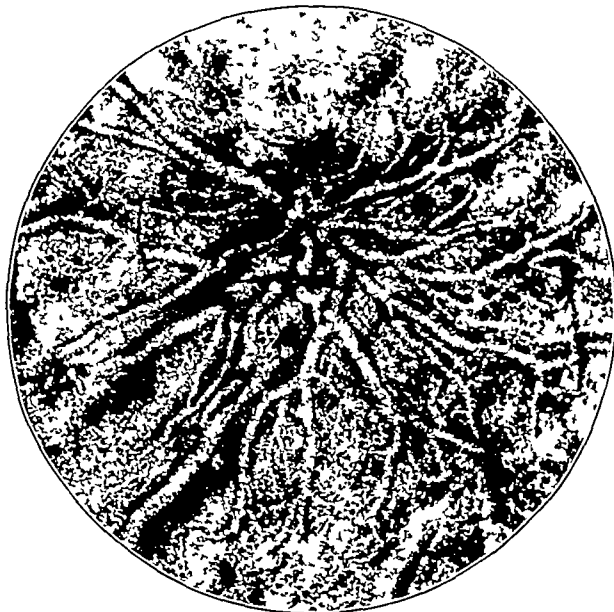


Fig 13—The crux of the situation. Branches of a single vein from a peeling of the neomembrane. The vessels are outlined by pigmented histiocytes. The area shown would present many vessels in normal granulation tissue.

ize, hemolyze and remove a blood clot. The inflammatory cellular infiltration is incidental or accidental.

**Location of the Clot and the Membrane** Remarkable is the tendency of subdural hemorrhages to be unilateral. In forty-two cases in this series in which there was no fracture of the skull, the process was



unilateral in thirty-eight. It is difficult to believe that the tentorium and the falx can serve as water tight or blood tight partitions. The accumulation of the blood on one side, however, tends to crowd the brain toward the other side and the molding together by pressure of brain, falx and tentorium serves as an efficient barrier to the escape of blood onto the side opposite the source of the hemorrhage, or beneath the tentorium. This mechanism is so constant in its effects that one is led to wonder in the cases showing bilateral hematoma whether two separate hemorrhages did not occur.

In the eight cases associated with fracture the lesions were bilateral in four old cases, two with psychosis, one with epilepsy. The presumption in the others was that there had been some bilateral accumulation of blood, but the collection was much larger on one side than on the other with resulting early removal of blood on the side less affected.

The mass of the clot in fresh cases and the hematoma with membrane in late cases occupies a position over the cerebral convexity, almost without exception. In our series the distribution was usually over the frontoparietal area, with inclusion of the temporal and occipital areas in part when the lesion was extensive. In general the location tended to be more toward the frontal than toward the occipital regions when the area covered was less extensive. Gravity may be a factor in leading to this localization but it is difficult to account completely for it on this basis in individuals who were found lying on the back, in the early deaths with fluid hemorrhages, and remained so. It is not uncommon in fresh fractures to find the occipital lobes covered with a considerable layer of blood, but hematomas are rare in this region.

In one exceptional case the thickest layer of clot lay between the falx and the mesial surface of the brain, largely over the posterior half of the cerebrum. Subtentorial lesions are almost entirely limited to fracture cases with traumatism to the cerebellum and are of little practical importance. The real problem is the hematoma over the convexity with its compression of the brain. The usual location of the clot over the anterior convexity in most cases has favored its discovery by temporal exploratory burrhole operation.

#### FREQUENCY

In my opinion this series does not measure accurately the frequency of subdural hemorrhages. The diagnosis outside the hospital was successfully made in but one of the cases of spontaneous hemorrhage, the erroneous diagnoses being largely divided between alcoholism and cerebral hemorrhage, though in one case a diagnosis of thrombosis of the middle cerebral artery was arrived at after careful neurologic study. The large additional group of cases diagnosed and successfully treated at the Boston City Hospital supports the belief that the condition is not rare.

Operative removal of the subdural membrane is easily possible, since the anchorage of the neomembrane to the dura is poor. The density of the dura apparently prevents the almost continuous formation of new vessels as seen in granulation tissue elsewhere. The paucity of new vessels is well illustrated in figure 13. The blown up dilated so-called giant capillary is really a sinusoidal vessel, as seen in figure 14. Recurrence of the hemorrhage after removal of the membrane is unusual if the brain expands.

#### MILDCOLEGAL RELATIONS

Several of the cases in this series arose in individuals at work and appeared to be related to occupation. It is not my purpose here, however, to deal with the industrial or accident insurance aspects of the subject. The criminal relations are of greater importance. Two cases illustrating possibilities which may arise out of subdural hemorrhages are submitted.

**CASE 1**—C. F., a man, aged 57, was drinking with an old friend in his own bedroom. An argument arose, during which the friend pushed the victim, who fell and struck his head against an iron bed. He immediately complained of headache and in a short time became unconscious. On admission to a hospital he was in coma with stertorous respiration. The pupils were pin point and did not react. The reflexes were hyperactive. Bilateral positive Babinski reflexes were obtained. He remained in coma and died ten hours after admission. Postmortem examination disclosed hemorrhagic infiltration of the deep layers of the scalp in the left temporoparietal region with a small hematoma. The skull was thicker than average, measuring 1 cm in thickness in the frontal region, 0.4 cm in the temporal region and 0.9 cm in the occiput. The left subdural space contained a layer of clotted blood measuring up to 1.2 cm in thickness over the left cerebral hemisphere. The clot thinned out over the posterior convexity and the dura at the base was painted with a thin layer of blood. The left hemisphere was compressed and molded by the clot, the right was flattened against the skull. There was no fracture of the skull or contusion of the brain. Apart from moderate tortuosity of the vessels at the base of the brain the autopsy was otherwise not remarkable. There were no external marks of violence on the body other than the left temporoparietal hematoma.

Evidence was produced in court that the assailant had been an intimate friend of the decedent for many years and that they had never seriously quarreled. The court was informed that the postmortem observations were consistent with the claimed accidental misadventure. The court ruled that the death was due to accidental homicide.

**CASE 2**—V. C., a Syrian girl, aged 14 years, was found dead, lying on a pile of rubble alongside an alley that separated a gasoline station from a shallow cellar from which a house had been removed. Both lips were swollen and lacerated. A contused laceration 4 cm in length, extending up through the subcutaneous tissues to the mandible, ran to the left from a point 1 cm to the left of the midline and 2.5 cm below the point of the chin. There was a red ecchymosis over the right cheek bone. The hands were abraded over the knuckles bilaterally as though the body had been dragged to the position where found with the hands scraping the ground. The body was fully dressed except for drawers. The stocking on the right leg was torn with a series of holes on its outer aspect, and the skin underneath was reddened with superficial abrasion. The vaginal introitus showed swollen and hemorrhagic carunculae myrtiformes almost encircling it. There was hemorrhagic infiltration of the left labium over a region 1.4 cm by 0.3 cm. There was a laceration of the perineal skin 1 cm in length, gaping 0.3 cm.

Postmortem examination revealed hemorrhage in the left frontal area and a region of deep hemorrhagic infiltration over the left parieto-occipital region near the midline. The subdural space on the left side contained a mass of fresh clot measuring up to 1 cm in thickness. The left subdural space was smeared with a thin layer of blood. The brain was molded by the clot on the left and flattened on the right. Subarachnoid hemorrhage was present over the anterior frontal convolution, and a bridging vein about 1.5 cm from the mesial junction was torn. There was no fracture of the skull and no contusion of the brain.

On the following day the assailant, a young sailor, was arrested. He confessed that he had taken the girl into the shallow cellar, on her agreement to permit intercourse. It was evident that perhaps because of dyspareunia, the experience was unpleasant. The girl screamed and tried to fight him off.

The boy admitted that he then had punched her, driving her head against the brick wall behind her. She again screamed and he ran away. Examination of the boy by alienists brought out evidence of mental inferiority and moral abnormality. He pleaded guilty to murder in the second degree and was given life imprisonment.

From a medicolegal standpoint, subdural hemorrhages present many problems. The minor character of the traumatism that may invoke a fatal hemorrhage and the possible implication of alcoholism in the etiology furnish weapons to the defenders in cases under trial, which tend to influence jurv action. The occurrence of psychoses in chronic cases in this series leads one to wonder whether the fused neomembranes so frequently found in postmortem examinations in psychopathic hospitals do not indicate in some cases that a subdural hemorrhage had preceded and caused the psychosis. The failure to include examination of the head as a routine part of a complete postmortem examination has resulted in overlooking many cases of subdural hemorrhage.

#### CONCLUSIONS

Subdural hemorrhages are not rare but have been largely overlooked.

The source of the hemorrhage in cases unaccompanied by fracture of the skull is usually a ruptured bridging vein or an arachnoidal vein.

Alcoholism is a favoring factor.

The hemorrhage tends to be unilateral.

The inability of the relatively avascular dura to organize the subdural clot efficiently and resulting repeated secondary hemorrhages are responsible for the chronicity of many cases.

Inflammatory reactions in connection with repairing lesions are incidental or accidental.

The only practical method of cure of the condition is by operative intervention.

818 Harrison Avenue

#### ABSTRACT OF DISCUSSION

DR MILTON HELPER, New York. I should like to ask Dr Leary whether he considers the etiology to have been traumatic in those cases of bilateral pachymeningitis hemorrhagica interna which are seen very late, without any history and without any obvious signs of recent trauma.

DR TIMOTHY LEARY, Boston. In the series reported, forty two, or 84 per cent, were unilateral. Two were bilateral. These were all due to minor venous ruptures, in which the bleeding vessel could be demonstrated. The remaining six were late results of fracture of the skull. The presumption is that with venous hemorrhage the blood as it accumulates forces the hemisphere on the affected side against the falx and the tentorium and thus produces blood-tight joints with these membranes. Rarely this mechanism fails to work and a bilateral lesion results. It is also possible to have bilateral ruptures of vessels. I have been able to obtain a history of traumatism, not necessarily though usually to the head in practically all cases. The traumatism is sometimes minimal, a fall of two or three feet.

**Hobbies**—Holidays and hobbies the two alliterative allies for health and happiness of which no profession than ours stands in greater need are often neglected by the hard-working medical fraternity. The vast majority of practitioners cannot, as business men do take the week end off and thus secure perhaps a quarter of the year for recreation or like clerics concentrate their activities on the first day in the week. Further medical practitioners whatever sound directions on the subject of holidays they may dispense to patients do not, it is to be feared always set a good example in this respect—Rolleston Sir Humphry. General Medical Aspects of Holidays *Practitioner* 133 129 (Aug) 1935

## NECROTIZING ULCERS COMPLICATING ERYSIPELAS

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During the past two years we have observed five instances of necrotizing ulcers complicating severe erysipelas. These ulcers were confined to the edematous, loose areolar tissue about the eyes. The distinguishing characteristics of the ulcers were their rapid development, phagedenic properties, punched out appearance, edematous base and profuse, creamy, yellow discharge. Two of the five cases resulted fatally. Three cases were observed in the Isolation Hospital, one in consultation with Dr A E Eubank and one in consultation with Drs H B Davis and Donald R Black. The three cases observed in the Isolation Hospital were available for a bacteriologic study, which is the basis of this paper.

#### REPORT OF CASES

**CASE 1**—A white woman, aged 28, entered the hospital, Feb 22, 1933, with typical severe erysipelas of the face. The loose areolar tissue about the eyes was markedly edematous. Three days later a necrotizing process developed in the edematous tissue. It extended rapidly and developed a punched out appearance with very little inflammatory reaction in the periphery. The process was limited to the edematous, loose areolar tissue of both eye regions. A profuse, creamy, yellow pus exuded from the necrotic areas. Direct examination of a smear of the pus showed staphylococci. The same staphylococci were isolated in pure culture.

**CASE 2**—A white man, aged 40, entered the hospital, Feb 25, 1934, with severe erysipelas of the face. A necrotizing process developed in the markedly edematous areolar tissue of the left upper eyelid two days later. The necrotic ulcer was characterized by rapid development, phagedenic appearance and sharply defined edges with little inflammatory change in the periphery. Staphylococci were observed in the direct examination of a smear of the pus and were isolated in pure culture.

**CASE 3**—A patient of Dr A B Jones, a white man, aged 74, entered the hospital, April 1, 1934, with typical severe erysipelas of the face. A necrotic ulcer with punched out appearance was noted in the edematous, loose areolar tissue of the left upper eyelid at the time of admission. Staphylococci were seen in the direct examination of a smear of the purulent discharge from the ulcer and were isolated in pure culture. Subsequently the patient developed suppurative cervical adenitis in which the same causative organism was demonstrated. The patient made an uneventful recovery.

The occurrence of ulcerative lesions in the course of erysipelas was to us an extremely unusual clinical phenomenon. The rapidly necrotizing character of these ulcers and the persistent finding of staphylococci both by culture and by smear suggested a superimposed infection from a skin contaminant developing on a suitable nidus. The offending organism was suspected to have dermonecrotic properties from the rapidly destructive character of the lesions. The organism was recognized to be a staphylococcus by its morphologic and cultural characteristics.

Billroth Koch Ogston Rosenbach and Pasteur<sup>1</sup> were early workers with the pyogenic cocci during the

From the Contagious Service of the Kansas City General Hospital. We are indebted to Dr Ralph Emerson Duncan for the cooperation of the laboratory and the use of its facilities and to Dr Frank J Hall for the interpretation of the pathologic and histologic specimens.  
<sup>1</sup> Pasteur Louis. *Bull Acad de med Paris* 9 433 1880

seventies of the last century. The etiologic role of the streptococcus in erysipelas was established by Fehleisen.<sup>2</sup>

The fact that staphylococci grow luxuriantly on all ordinary mediums made for the rapid advance of the knowledge concerning the organism. Staphylococci

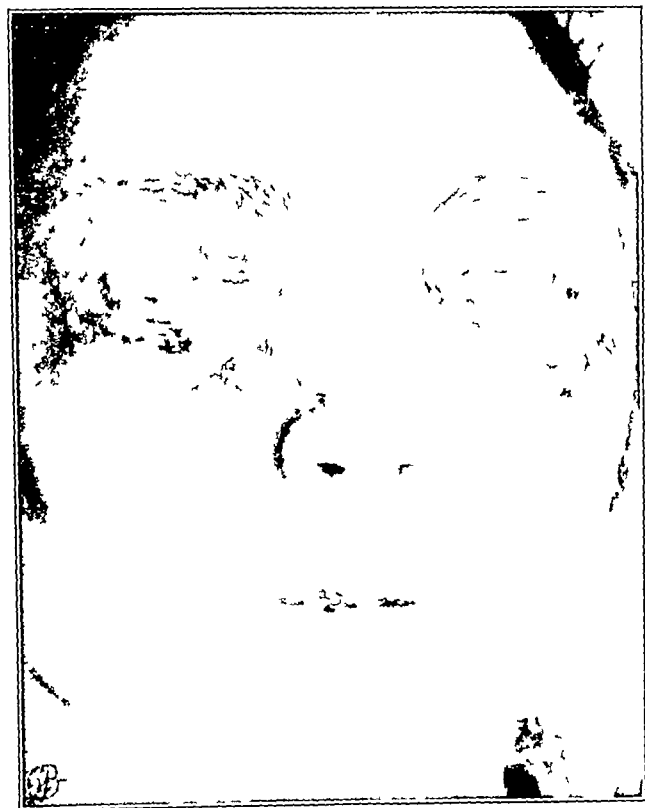


Fig. 1 (case 1)—Pustular lesions around the eyes which developed eight days subsequent to the onset of the erysipelas and two days subsequent to admission to the hospital.

were originally classified by the color of the colonies into aureus, citreus and albus types. Of late the classification by their action on various sugars has received much attention. The staphylococci are distributed widely in man and the higher animals. The various strains vary enormously in virulence. The yellow pigment producing strains are usually more virulent than the white strains, but there are many comparatively avirulent yellow strains and many virulent white ones. Most cultures of staphylococci are hemolytic and many nonpathogenic strains are markedly hemolytic. This fact excludes the possibility of associating the presence of hemolysis with pathogenicity.<sup>3</sup> Certain strains of staphylococci produce free toxin, or exotoxin. In our strains of staphylococci, now under study, the exotoxin, with lethal and dermonecrotic properties, was the outstanding feature observed. That leukocidin was present in the filtrate of certain strains of staphylococci was established by Van de Velde<sup>4</sup> in 1894. He also noted the production of this toxin, which was thermolabile and independent of pigment production or hemolytic properties. It is evident that a filtrate of bacteria may contain split products that are toxic but are not true exotoxins. The filtrates from staphylococci have not received the

study recorded the classic toxin elaborated by the Klebs-Loeffler organism. However, the behavior of the staphylococcus filtrate, its toxoid forming properties, and its specific antigenic properties, leave little room for questioning the fact that this substance is a free toxin perhaps of complex nature, containing a hemolysin, a cell poison, leukocidin, and other dermonecrotic toxins. Antiserum has the property of binding this toxic filtrate.<sup>5</sup> According to our experience the staphylococcus shows no tendency to pass the filter and the filtrates are sterile to culture.

From the case of necrotizing ulcers occurring as a complication of erysipelas, a staphylococcus was obtained in pure culture. The clinical appearance of the pus presented all the characteristic features of a staphylococcal infection. This culture was transferred to a dextrose broth medium. A second culture was transferred to a broth medium free from sugar. These are called filtrates A and B. Filtrate C made from case 3 was obtained from sugar-free medium. The literature contains many observations on the inhibiting property of the sugars on toxin formation.<sup>6</sup> Filtrates were obtained following Burnet's technique.<sup>5</sup> The hemolytic properties of these filtrates were determined by the following method:

To a rack of tubes containing 1 cc of physiologic solution of sodium chloride, toxin was added in vary-

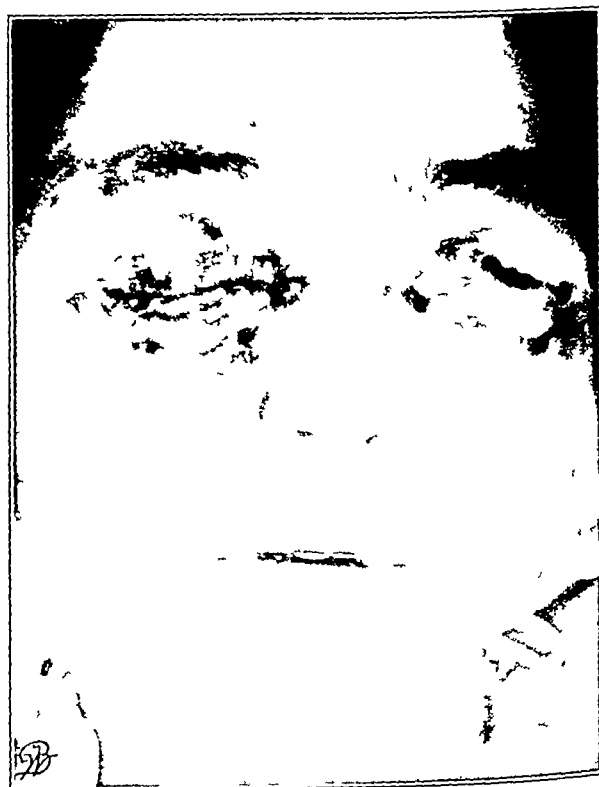


Fig. 2 (case 1)—Appearance five days subsequent to figure 1 showing phagedenic character of the ulcerations.

ing dilutions. To this mixture was added a 0.5 per cent suspension of washed rabbit red blood cells. The tubes were placed in a water bath at 36 C for one-half hour. The results are shown in table 1. Red cells from the rabbit were used because they are considered more resistant to this toxin and the results are said

<sup>2</sup> Fehleisen F. Deutsche med. Wchnschr. 8 555, 1882. Die Aetiologie des Erysipels. Berlin T. Fischer 1883.  
<sup>3</sup> Weld J. T. P. and Gunther A. J. Exper. Med. 54 315 (Sept) 1931.  
<sup>4</sup> Van de Velde H. Cellule 10, 1894 part 2.

<sup>5</sup> Burnet F. M. J. Path. & Bact. 32 717 (Oct) 1929.  
<sup>6</sup> Parker J. T. J. Exper. Med. 40 761 (Dec) 1924.

to be more consistent when rabbit cells are used. Filtrate A from a dextrose culture did not possess as marked hemolytic properties as did the filtrates prepared from sugar-free mediums.

The rapidly destructive character of the staphylococcal ulcer that developed as a complication of ery-

sipelas in the rabbit's skin. Filtrates from a culture of staphylococci obtained from a furuncle showed no necrotizing properties.

TABLE 1—Hemolytic Titer of Staphylococcus Filtrates

Dilution	Filtrate A	Filtrate B	Filtrate C
1:10	+++	++++	++++
1:20	++	+++	++++
1:40	+	++	++++
1:80	+	++	++++
1:160	—	++	++
1:320	—	++	0
1:640	0	++	0
1:1280	0	0	0
1:2560	0	0	0
Control	0	0	0

sipelas suggested the presence of a dermonecrotic agent of intense activity. With this idea in mind the necrotizing properties of this filtrate were tested on the back of shaved rabbits. The results are summarized in table 2.



Fig 3 (case 2)—Destructive ulceration of the upper eyelid occurring during the course of the erysipelas.

If the filtrate is of intense toxicity as manifested by its necrotizing properties, the amount injected into the back of the rabbit should be less than 0.5 cc per kilogram of body weight or death may occur from the

TABLE 2—Dermonecrotic Titer of Staphylococcus Filtrates

Amount Injected	Filtrate A	Filtrate B	Filtrate C	Filtrate Streptococcus Erysipelatis	Staphylococcus Filtrates from Furuncle	Filtrate from Broth
0.1 cc	++	+++	++++	No necrosis	No necrosis	No necrosis
0.2 cc	+++	++++	++++	No necrosis	No necrosis	No necrosis
0.3 cc	++++	++++	++++	X	X	X
0.4 cc	X	X	++++	X	X	X
0.5 cc	X	X	++++*	X	X	X

\* Died on April 26, 1934 (tenth day); marked emaciation.

resulting toxemia. This occurred in the rabbit inoculated with filtrate C.

Control rabbits receiving cutaneous injections of filtrates from a streptococcus cultured from the blebs occurring in a case of erysipelas showed no necrosis. The culture medium passed through the filter produced



Fig 4 (case 3)—Destructive ulceration of the upper eyelid developing in the course of the erysipelas.

The lesions resulting from the injection of 0.2 cc of filtrates A and B were excised for histologic study. Dr. Frank Hall of the pathologic department of the



Fig 5—Areas 2, 4, and 6 received respectively 0.1, 0.2, and 0.3 cc of filtrate A obtained from case 2 grown in broth containing dextrose. Areas 1, 3, and 5 received respectively 0.1, 0.2, and 0.3 cc of filtrate B obtained also from case 2 but grown in dextrose free broth. Note the inhibiting properties of dextrose on the dermonecrotic properties of the toxin filtrate. Photographed seventy-two hours subsequent to injection.

Kansas City General Hospital furnished the following histopathologic report:

The section marked "infiltrate A" shows subdermal inflammatory reaction of a necrotic character. The entire area involved is necrotic; the cells have undergone marked degen-

erative necrosis. No blood vessels can be made out in this section, so the blood vascular reaction cannot be described. The derma very close to the necrotic area is perfectly normal and shows no peripheral infiltration. The most marked change aside from the necrosis is found in the musculature. The

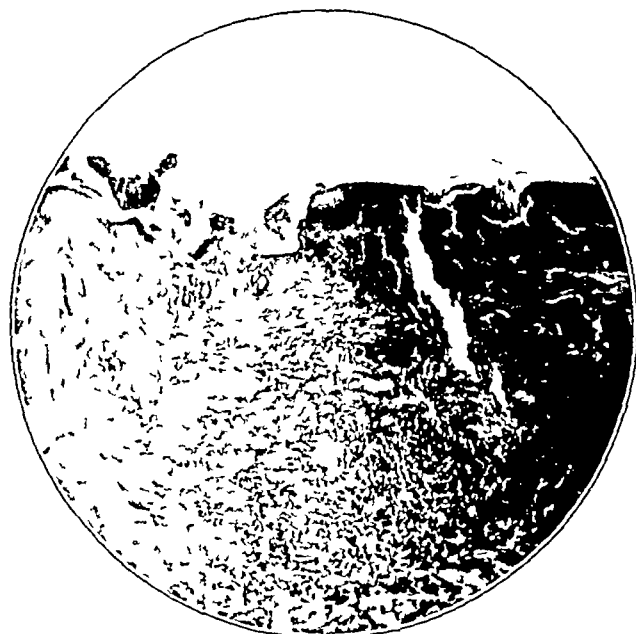


Fig. 6—Section of rabbit's skin receiving filtrate B intracutaneously. Biopsy done on fourth day following injection. Note the area of necrosis on right without inflammatory reaction.



Fig. 7—Areas 1, 2, 3, 4, 5 and 6 received respectively 0.1, 0.2, 0.2, 0.3, 0.4 and 0.5 cc of filtrate C obtained from case 3, grown in dextrose free broth and administered intracutaneously. Death occurred on the tenth day. Note spreading of area 6. This is the most potent staphylococcus filtrate we have obtained. Photographed seventy-two hours after injection.

muscle fibers have undergone complete necrosis and take a deep stain. The fibers have become granular and in some places it looks as though crystalline material has been deposited in the centers of the fibers.

The section marked "infiltrate B" shows changes identical with those found in the "infiltrate A."

Following the injection of this sterile staphylococcus filtrate into the vein of the ear of the rabbit, death occurs in from a few hours to several days, depending on the amount of toxin injected and its potency. Rabbit 2, weighing 2.5 Kg, injected in the ear with 0.4 cc per kilogram of body weight filtrate A, died five days later. Rabbit 3, receiving 0.45 cc per kilogram of body weight of filtrate B, lived for eleven days before death occurred. Rabbit 1, receiving 0.9 cc per kilogram of body weight of filtrate A, died thirteen hours later. Rabbit 6, receiving 2.3 cc per kilogram of body weight of filtrate A, died fourteen hours later. Control rabbits injected with the filtrates from the broth culture medium showed no unfavorable reaction. Filtrates from a streptococcus cultured from the blebs occurring in a case of erysipelas were nontoxic in intravenous doses of 3 cc per kilogram of body weight.



Fig. 8—In the back of a shaved rabbit area 1 received 0.1 cc of staphylococcus filtrate obtained from a furuncle, no ulceration was observed. Area 2 received 0.2 cc of the same filtrate, no ulceration developed. Area 3 received 0.1 cc of streptococcus filtrate obtained from the blebs occurring in a case of erysipelas. Area 4 received 0.2 cc of the same streptococcus filtrate. Areas 5 and 6 were injected with the broth culture medium. The filtrates and culture medium showed no dermonecrotic properties. Photograph made seventy-two hours subsequent to injection.

The postmortem changes subsequent to death from the intravenous administration of staphylococcus filtrate were not striking. On the instance in which death occurred within twenty-four hours subsequent to injection, macroscopic examination showed nothing of note aside from marked pigmentation of the liver. In the instances in which death occurred from three to five days subsequent to intravenous injection, marked emaciation and diarrhea occurred. The fur became rough and food was refused. Dr. Hall furnished the following report of the microscopic examination of the organs of rabbit 6, dying fourteen hours subsequent to injection.

The heart muscle shows alternate dark staining and light staining muscle fibers. The light staining fibers show con-

siderable longitudinal fibrillations. The darker muscle fibers show peculiar obliteration of the striations. There is no perivascular infiltration about the blood vessels.

The spleen shows marked acute splenitis. Examination with the high power lens shows the splenic sinuses filled with large histiocytes, many containing granules of blood pigment. The splenic follicles are almost obliterated.

The kidneys show marked passive congestion. There is some swelling of the proximal convoluted tubular epithelium. No casts are found. Many of the glomeruli are quite large and injected with blood corpuscles. There is a considerable amount of congestion of the blood vessels between the collecting tubules.

The liver shows narrowing of the cell columns with considerable blood in the liver sinuses between the cell columns. There is no increase of cells in the liver. The central veins are distended. No change is noted in the portal canal. No round cell infiltration is seen.

#### COMMENT

Necrotizing ulcers developing as a complication in the course of erysipelas are due to a staphylococcus having dermonecrotic properties. The necrotizing fac-

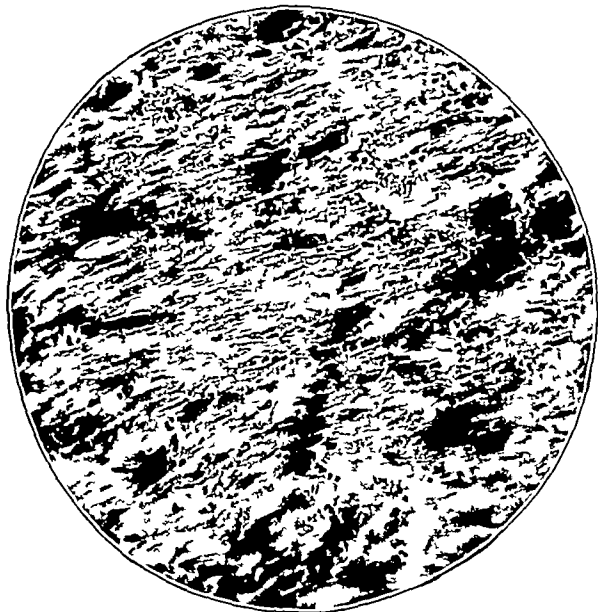


Fig 9—Section of heart muscle of rabbit 6 receiving 2.3 cc of filtrate A per kilogram intravenously showing degenerative changes in heart muscles. Death occurred fourteen hours after injection.

tor is contained in a bacteria-free filtrate and is presumably an exotoxin. Administered intravenously, it is lethal to rabbits. The lethal dose varies over a wide range. It depends on the ability of the staphylococcus in question to manufacture toxin. In our experiments the most potent toxin produced death in five days subsequent to the intravenous administration of 0.4 cc per kilogram of body weight. Larger doses of toxin produced death in as short a period of time as eleven hours. The postmortem examination did not show striking changes if death occurred after a few hours. If the dose of toxin was small, emaciation was marked whether the toxin was administered intravenously or cutaneously. Diarrhea was usually present. In rabbits dying several days later, microscopic evidence of toxic damage to the heart, liver and spleen was noted. Hemolysis *in vitro* of human blood on blood agar plates is not necessarily a measure of the ability of the staphylococcus to produce free toxin. The intracutaneous injection of 0.1 cc of this toxin will produce necrosis of a rabbit's skin in thirty-six hours. A cul-

ture medium containing dextrose inhibits toxin formation. Filtrates of *Streptococcus erysipelas* showed no dermonecrotic properties in the rabbit's skin and were inert when injected intravenously in doses of 3 cc per kilogram of body weight. Filtrates from a non-hemolytic staphylococcus obtained from a furuncle showed no necrotizing properties although the organism produced yellow pigment. It is interesting to note that the staphylococcus is one of the group of organisms which Wright<sup>8</sup> named serophytes because of their ability to grow freely in unaltered human serum.

#### CONCLUSIONS

1 Necrotizing ulcers are occasionally encountered as a complication of erysipelas.

2 The presence of such ulcers enhances the gravity of the prognosis.

3 The ulcers occur in the loose, areolar tissue about the eyes.

4 Necrotizing ulcers complicating erysipelas result from a secondary superimposed infection produced by a staphylococcus possessing the ability to manufacture an exotoxin which is dermonecrotic and hemolytic.

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## RESPONSE OF PERITONEAL TISSUE TO DUSTS INTRODUCED AS FOREIGN BODIES

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The response of the body tissues to various kinds of dust has been a subject of much interest in recent years. Mavrogordato, Gardner, Gye and others have conducted experiments on the action of inhaled dusts. Kettle<sup>1</sup> has studied the response to dusts injected into the subcutaneous tissues and intratracheally, and Policard<sup>2</sup> has used the cornea and conjunctiva in his recent studies. In 1924 experiments were begun at the Pittsburgh Station of the United States Bureau of Mines to determine the action and fate of various dusts when injected into the peritoneal cavity of guinea-pigs.<sup>3</sup> The conclusions reached at that time were that live animal tissue in all parts of the body tends to react in essentially the same manner to foreign bodies and that fibrous tissue is formed in the peritoneal cavity by quartz and is not formed by limestone and coal. This paper is a continuation of these earlier studies.

<sup>8</sup> Wright A. E. Brit. M. J. 2: 629, 1915.

From the Office of Industrial Hygiene and Sanitation, United States Public Health Service, and the Pittsburgh Experimental Station of the United States Bureau of Mines.

Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

Part of the expenses incurred in this study were defrayed by the Metropolitan Life Insurance Company. Mr. W. A. Selvig and Mr. A. H. Emery of the United States Bureau of Mines made the chemical and petrographic examinations of the dusts used in these experiments.

<sup>1</sup> Kettle E. H. The Interstitial Reactions Caused by Various Dusts and Their Influence on Tuberculous Infection. J. Path. & Bact. 35: 395-403 (May) 1932. Kettle E. H. and Hilton R. Technique of Experimental Pneumoconiosis. Lancet 1: 1190-1192 (June 4) 1932.

<sup>2</sup> Policard A. and Rollet J. Reactions du tissu cornéen vis-à-vis des particules minérales siliceuses. Bull. d'histol. appl. à la physiol. 5: 53-58 (Feb.) 1931. Policard A. and Mouriquand V. Sur les réactions provoquées dans le tissu conjonctif par l'introduction de particules microscopiques d'amiant. ibid. 7: 193-199 (June) 1930.

<sup>3</sup> Sayers R. R. Health Hazards in the Mining Industry. U. S. Bureau of Mines. Report of Investigation 2660, December 1924.



Owing to the length of time required to obtain a reaction by inhalation methods and the desirability of determining the harmfulness of a dust in a relatively short time, other methods of introducing the dusts to be studied were considered. Injections into the peritoneal cavity seemed to give the most promise, because of the relatively circumscribed area of the cavity, the ease in controlling the amount of the dose, and the preservation of the sterility of the material introduced—a factor to be considered in inhalation and intratracheal methods. The mortality from peritonitis or peritoneal damage following intraperitoneal injection was found to be negligible. Identical reactions were found in each animal injected with the same dust under the same conditions and examined at the same time interval after injection. Therefore the fact that the reaction to the dust involves both epithelial and connective tissue is of no disadvantage.

The reaction is essentially the same microscopically as that produced in the lungs, and the gross appearance

In a later series, a Roller type air separator<sup>4</sup> was used. This method of elutriation did not separate all the dusts in the series into fractions of the same size, yet it did produce, with one exception, samples less than 5 microns in maximum measurement. The exception, soapstone, measured 8 microns as a maximum particle size. The median size of the dusts used in this series varied from 0.75 to 1.7 microns, with soapstone measuring 3.5 microns. Such small variations in particle size appeared to be of no importance in comparing the physiologic responses produced by the dusts. It can be readily seen that the air separated particles more closely approximate those inhaled under industrial conditions.<sup>5</sup> While smaller particles were preferable because of their greater assimilation by the cells, the particles that had been passed through a 325 mesh sieve gave the same gross reactions and, in the case of all dusts mentioned in this study, can be used in place of the smaller particles obtained with greater difficulty. Water separation was not attempted, because of the possibility of removing soluble portions of the dusts and thus altering their chemical composition.

#### TECHNIC OF INTRAPERITONEAL INJECTIONS

A weighed portion of the dust and a few glass beads to facilitate suspension were placed in a small wide mouthed bottle and sterilized in a hot air oven for one hour at 150 C. After cooling, sufficient sterile physiologic solution of sodium chloride to make a 10 per cent suspension was added, the bottle was closed with a sterile rubber stopper, and the whole was thoroughly shaken. Owing to the fact that a suspension of fine dust causes a locking of the plunger of a hypodermic syringe, air-bulb syringes of 3 cc capacity were used. Needles of 21 or 24 gage were found most suitable for the injections. The needles and syringes were sterilized in boiling water before use.

The hair on the right side of the animals' abdominal wall was clipped and tincture of iodine was applied. For injection, 2 cc of the 10 per cent suspension, equivalent to 0.2 Gm of dust, was introduced intraperitoneally into each pig. As the needle was withdrawn, a very small quantity was injected into the subcutaneous tissue to serve as a marker of the site of injection. This marker made it possible to observe whether any trauma was produced by the introduction of the needle into the peritoneal cavity and its effect on the reaction instituted by the dust.

Certain groups of animals were injected with air separated material and other groups with 325 mesh material. The former were killed and examined 7, 14, 30, 56, 90, 180 and 360 days after injection and the latter at intervals of 7, 14, 30, 56 and 112 days after injection.

#### DISTRIBUTION OF THE DUST IN THE PERITONEAL CAVITY

With the exception of bituminous coal the greater part of each of the dusts in this series was found in the peritoneum of the anterior abdominal wall, the most dependent portion of the peritoneal cavity. The site of the next largest collection was the omentum. Small nodules and dispersed collections of particles were also found in the inguinal canals, on the mesentery, liver, intestine testes or uterus and diaphragm. A very little

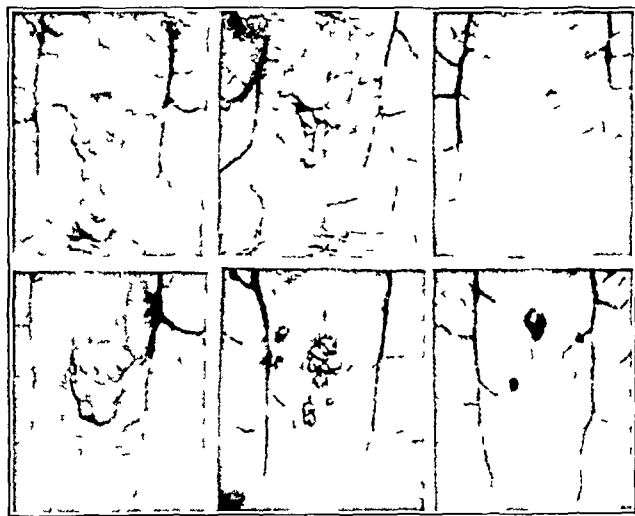


Fig 1—Above calcite below, limestone. Appearance of nodules on anterior abdominal wall seven thirty and ninety days after injection.

of the dust nodules is sufficiently differentiated to afford a means of classifying the physiologic response to the dusts. In the series studied here, there were three types of reaction, namely, an absorption or dissolution of the dust, a proliferative reaction, and an inert reaction. In the inert reaction the dust neither caused an increase in the size of the nodules nor disappeared from the tissues, instead there was more or less change in its distribution in the peritoneum. These reactions will be discussed more fully under the different groups of dusts.

#### PREPARATION OF THE DUSTS FOR INJECTION

It was desirable for the particle size of each dust in the series to conform as closely as possible to that of the other dusts used, and also to be as small as possible without a change in the physical or chemical composition. Particles passed through 100, 200 and 325 mesh standard sieves were used in one series of tests with several dusts.

The 325 mesh size was found to be the most suitable, because of the greater facility with which a reaction is produced. The particles obtained by passing a dust through a 325 mesh sieve were less than 43 microns in size.

<sup>4</sup> Roller, P. S. Construction of Accurate Air Separator. *Indust. & Engin. Chem.* 4: 341-343, (July 15), 1932.  
<sup>5</sup> Bloomfield, J. J. The Size Frequency of Industrial Dusts. *Pub. Health Rep.* 48: 961-968 (Aug. 11) 1933.

was occasionally found on the posterior abdominal wall. In the case of bituminous coal, the greater portion was found in the omentum and mesentery, while a relatively small part was present on the anterior abdominal wall. As a basis of comparison in describing the reactions caused by the dusts, the nodules formed on the anterior abdominal wall were used, since they were more accessible and were more constant and uniform in appearance. The response in the omentum or at any other point in the peritoneal cavity was, however, the same as that found on the anterior abdominal wall. Nodules were only infrequently found in the peritoneum at the site of the entrance of the needle—so rarely, in fact, that it was safe to assume that the trauma produced by the introduction of the needle was negligible.

#### THE PERITONEAL RESPONSE TO THE VARIOUS DUSTS

**Calcite**—After being injected into the peritoneal cavity, calcite formed nodules that were irregular and more or less discrete but often clumped. A small amount of congestion and edema was noted about the edges of the nodules in the early stages, but this had subsided before the end of thirty days after injection. This congestion and edema were evidently due to the initial foreign body injury instituted by the dust. The nodules became progressively smaller as the interval between injection and examination increased, and this decrease in size was accompanied by the production of brown pigment particles, which were first noted at the edges of the nodules and later covered their entire surfaces and were found dispersed into the adjacent peritoneum. The original dust eventually disappeared, leaving a small area of fine brown pigment particles at the site of the nodule. These, in turn, soon disappeared without the formation of scar tissue. This type of reaction, namely, the disappearance of the dust from the peritoneal cavity, has been designated, for the sake of description, as one of absorption.

**Limestone**—Limestone caused a reaction of absorption similar to that of calcite. The rate in which the dust disappeared from the tissues was much slower than in the case of the purer Iceland spar. In 180 days after injection, practically all of the original dust had disappeared. After 360 days no original dust was present and the amount of brown pigment was materially less than was noted in 180 days. The initial foreign body irritation, the production of the brown pigment and the disappearance of the dust from the peritoneum without the formation of scar tissue was identical with the process produced by calcite.

**Precipitated Calcium Carbonate**—Precipitated calcium carbonate produced a tissue response very much like that of calcite and limestone. The formation of the nodules was identical in character, and the original dust disappeared in about the same length of time as in the case of calcite, yet more brown pigment was produced which lingered in the tissues for a longer time than did that formed by calcite. This increased production of pigment might be attributed to the fact that the dust was in a state allowing easier assimilation by the cells. The pigment particles were much smaller and much more numerous than those produced by either calcite or limestone. No evidence of scar tissue formation was noted in any of the animals examined. The reaction was clearly one of absorption.

**Gypsum**—Gypsum eventually produced a response similar to that of calcite. In the early stages the dust

appeared to lie inert in the peritoneum without any appreciable change. By the end of thirty days a slight decrease in the amount of dust was noted, and by ninety days this decrease was marked. The nodules became progressively darker as the interval between injection and examination increased, but the production of brown pigment, noted in the other three dusts, was scanty or entirely absent. Fine dust particles, more or less isolated, were noted in the peritoneum. These may have been the remains of nodules or else particles disseminated by phagocytes. The diminution in size of the nodules was not as rapid as in the case of calcite, limestone and precipitated calcium carbonate, yet this response was sufficiently marked to designate the reaction as one of absorption.

**Portland Cement**—Portland cement produced a reaction slightly different from that caused by calcite, limestone, precipitated calcium carbonate and gypsum, yet the ultimate outcome appeared to be one of absorption. The initial foreign body irritation was quite severe—

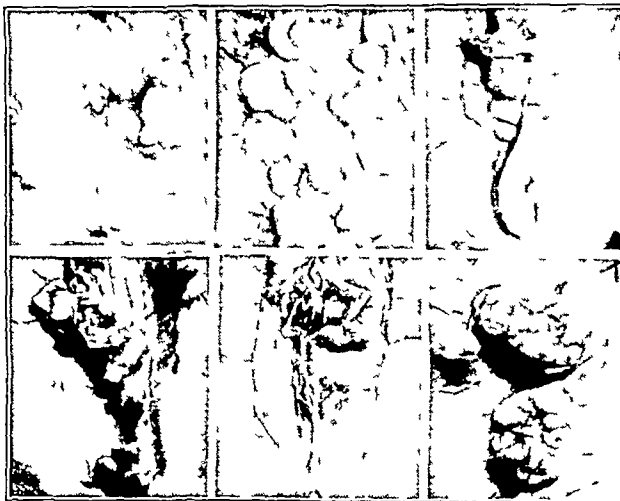


Fig. 2—Above quartz, below chert. Appearance of nodules on anterior abdominal wall seven, thirty and ninety days after injection.

so marked in fact, that sixteen of thirty-six guinea-pigs injected with this dust died during the tests. This was probably due to the chemical properties of the cement. The animals that survived showed extensive peritoneal congestion and edema in the early stages. After this reaction had subsided, the dust decreased in quantity, with the formation of a light brown pigment similar to that produced by calcite, limestone and precipitated calcium carbonate. In 180 days after injection practically all of the dust and a large portion of the pigment had disappeared.

**Quartz**—After an initial stage of foreign body irritation, manifested by edema and congestion about the collections of dust in the peritoneum, quartz produced nodules that progressively increased in size. These nodules, when occurring in clumps, fused together, forming a large single mass. Numerous capillaries were present on the surfaces and throughout the nodules. The appearance was that of cellular proliferation and was apparently due to the chemical irritation supplied by the solution of the silica in the tissues. The maximum size of the nodules was observed ninety days after injection. After this period they became more firm, contracted and fibrous in appearance. At the end of

360 days this induration was quite marked. This type of reaction, for convenience of description, will be referred to as one of proliferation.

**Chert**—Chert caused a reaction similar to that of quartz, though the nodules produced by this dust were larger in size than those formed by the quartz. The color of the nodules, which was the same as that of the dust introduced, remained constant throughout the duration of the tests. The reaction produced by chert was decidedly one of proliferation.

**Soapstone**—Soapstone produced the same type of reaction in the first two weeks after injection that was noted in all of the other dusts, namely, an initial foreign body irritation. This early fixation reaction was not severe and subsided quite rapidly. As the time between injection and autopsy increased, the nodules, at first raised and rounded, became flattened and spreading. The edges became irregular, and numerous fine dust particles were noted in the peritoneum adjacent to the edges of the nodules. Collections of these particles were found at various other points in the peritoneum. The amount of dust in the peritoneal cavity found 360

days after injection was approximately the same as that found in seven days. The response of the peritoneal tissue to this dust is therefore one of inertness.

**Jewelers' Rouge**—Jewelers' rouge, or ferric oxide, behaved in the peritoneum in a manner similar to that of soapstone and silicon carbide. The nodules became flattened, and many fine dust particles were extensively disseminated throughout the peritoneum as the time interval between injection and examination lengthened. The amount of dust observed 360 days after injection was approximately the same as that found in seven days. The response of the peritoneal tissue to this dust is therefore one of inertness.

**Anthracite Coal**—Anthracite coal produced a more rapid response than did soapstone, silicon carbide or jewelers' rouge. Minute dust particles were noted in the peritoneum adjacent to the nodules as early as seven days after injection. By ninety days this distribution was quite extensive. In 180 and 360 days the quantity of this dispersed dust was less, though the amount of dust found in the peritoneal cavity was approximately the same as that found in seven days. It was concluded that anthracite coal was inert in reaction.

**Bituminous Coal**—Like soapstone, silicon carbide, jewelers' rouge and anthracite coal, bituminous coal appeared to be inert and insoluble in the peritoneum. The nodules behaved in a manner similar to those of the dusts that have been named, and the dispersion of the dust particles throughout the peritoneum was particularly widespread. With this dust very few nodules were found on the anterior abdominal wall, but the majority were consistently found in the omentum. Many small nodules and diffuse areas of dust particles were also found in every portion of the peritoneal cavity. The amount of dust present 360 days after injection was approximately the same as that found in seven days, therefore the reaction was one of inertness.

**Precipitator Ash**—Precipitator ash, or "fly ash," produced a reaction similar to that of the other inert dusts mentioned in this series. The nodules behaved similarly in their progress to those formed by soapstone. Relatively coarse, black particles were noted on the surfaces of the dark gray nodules. These were evidently carbon particles, as the dust was of mixed composition. The dissemination of the original gray dust composing the bulk of the sample, while not as extensive as that of the coals, was well marked and was like that noted with soapstone and silicon carbide. As there appeared to be no cellular proliferation or disappearance of this dust from the peritoneal cavity, it seems logical to class this dust as inert in type.

#### CHEMICAL AND PETROGRAPHIC ANALYSES OF THE DUSTS

**Calcite**—Pure Iceland spar was used, chemical analysis of which showed calcium carbonate 99.8 per cent and silica 0.1 per cent. Petrographic examination showed a high purity calcite. The median size of the particles was 1.4 microns.

**Limestone**—A high grade Pennsylvania limestone was used. The chemical analysis showed calcium oxide 54.4 per cent, magnesium oxide 0.4 per cent, iron and aluminum oxides 0.4 per cent and silica 1.5 per cent. Petrographic examination showed granular, irregularly rounded calcite. The median size of the particles was 1.45 microns.

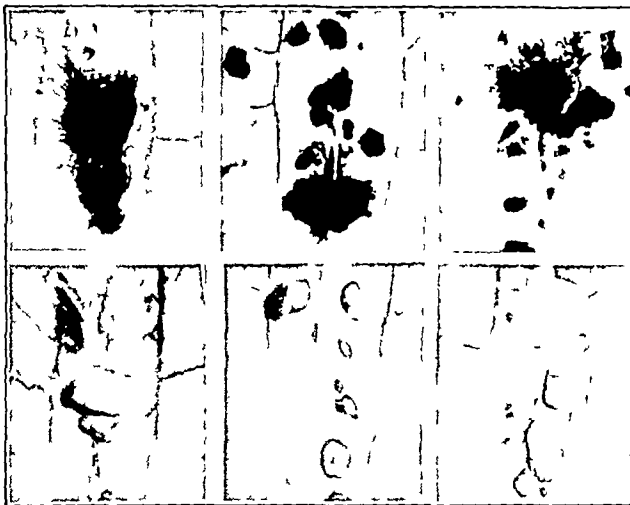


Fig. 3—Above anthracite coal, below jewelers rouge. Appearance of nodules on anterior abdominal wall seven, thirty and ninety days after injection.

days after injection was approximately the same as that noted in seven days. The injected dust was not absorbed and did not initiate a cellular proliferation. The only change noted was that of the distribution of the dust in the peritoneum. The particles became more widespread in their dispersion as the interval between injection and examination increased, and this dissemination was shown microscopically to have been effected by macrophages. Since no dissolution of the dust or cellular proliferation occurred, this type of reaction will be referred to as one of inertness.

**Silicon Carbide**—Carborundum, or silicon carbide, produced essentially the same type of reaction as soapstone. The initial stage of foreign body irritation was not as severe, and the distribution of the fine dust particles in the later stages of the tests were more extensive. Though the nodules became more flattened and spreading, the amount of dust found in the peritoneal cavity 360 days after injection was approximately the same as that noted in seven days. The material is apparently a nonirritating, insoluble foreign body and is readily transported throughout the peri-

**Precipitated Calcium Carbonate**—This substance is a chemical by-product. The chemical analysis showed calcium carbonate 87.9 per cent, magnesium carbonate 10 per cent, magnesium oxide 0.1 per cent, iron and aluminum oxides 0.6 per cent, and silica 0.4 per cent. The median size of the particles was 1.28 microns.

**Gypsum**—The uncalcined, natural mineral was used. The chemical analysis showed silica 1.3 per cent. Petrographic examination showed approximately 30 per cent as calcite in the form of rounded granules and irregular rhomboidal crystals and approximately 70 per cent as fragmented particles of gypsum. The median size of the particles was 1.3 microns.

**Portland Cement**—The chemical analysis of the Portland cement showed calcium oxide 74.4 per cent, magnesium oxide 2.8 per cent, silica 21.1 per cent. Petrographic examination showed normal Portland cement. The particles were sharp and angular. The median size of the particles was 1.05 microns.

**Quartz**—Two specimens of quartz were used. One was ground rock crystal of high purity. Chemical analysis showed 99.4 per cent of silica. Petrographic examination showed clear, crystalline normal quartz. The median size of the particles was 1.7 microns. The other specimen was finely ground Pennsylvania quartz, commonly called flint. The chemical analysis showed 99.1 per cent silica. Petrographic examination showed normal quartz of high purity. The median size of particles was 1.6 microns.

**Chert**—A highly siliceous chert, the waste product from the concentration of lead and zinc ores, was used. Chemical analysis showed 76.1 per cent silica. Petrographic examination showed quartz and chert, stained with limonite, predominating. About 25 per cent of the silica was normal angular quartz fragments. The median size of the particles was 1.22 microns.

**Soapstone**—The chemical analysis of the soapstone showed total silica 49.9 per cent, calcium oxide 1.7 per cent and magnesium oxide 26.2 per cent. Petrographic examination showed about 30 per cent as tremolite, about 65 per cent as talc and about 5 per cent as dolomite. The median size of the particles was 3.5 microns.

**Silicon Carbide**—Pure manufactured silicon carbide was used. Petrographic examination showed no impurities. The median size of the particles was 1.15 microns.

**Jewelers' Rouge**—The jewelers' rouge was pure ferric oxide in a finely divided state. The chemical analysis showed ferric oxide 98.3 per cent and silica 1.5 per cent. Petrographic examination showed a high purity hematite as fine uniform particles. The median size of the particles was 0.95 micron.

**Anthracite Coal**—Two specimens of Pennsylvania anthracite were used. The chemical analyses were approximately the same. Petrographic examinations showed about 95 per cent as coal and about 5 per cent as inorganic material. Of the latter, about 60 per cent appeared as quartz and about 40 per cent as calcite, siderite and rutile. The median sizes of the particles were 0.75 and 1.11 microns, respectively.

**Bituminous Coal**—Two samples of Pennsylvania bituminous coal were used. Chemical analyses showed one to have 8.5 per cent ash of which 0.8 per cent was silica, and the other to have 8 per cent ash of which 3.5 per cent was silica. The median sizes of the particles were 1.15 and 1.19 microns.

**Precipitator Ash**—The precipitator ash was collected from stacks by electrical precipitation. Chemical analysis showed 44.7 per cent silica. Petrographic examination showed predominantly perfectly spherical fused glass, rounded semifused masses made up of crystallites, some quartz fragments, calcite and coal. The median size of the particles was 1.43 microns.

#### CONCLUSIONS

The tissue of the peritoneal cavity responds actively to a dust introduced as a foreign body, and this response is of such a character that it may be used as a basis for the classification of industrial dusts with reference to their pneumoconiosis producing properties. This response falls into three groups, namely, one of absorption, one of proliferation and one of inertness. While, in these experiments, animals were kept on test for as long as 360 days, the response is sufficiently well marked in ninety days to determine the type of reaction, and often conclusions can be reached in thirty days, particularly if the reaction is one of absorption or proliferation. The reaction elicited by each dust was constant and uniform in all the animals injected with that dust. The experiments of long duration reported here confirm the results noted in a previous paper.<sup>6</sup> It appears that this response of the peritoneal tissue to various dusts can be used as a test to determine the possible harmfulness of an industrial dust.

#### ABSTRACT OF DISCUSSION

DR. A. J. LANZA, New York. At a time when the subject of the possible effects of industrial dust is of paramount importance, it is refreshing to see a clear-cut piece of laboratory work. The authors inject the dust intra-abdominally, and the results in the case of silicious dust are in conformity with what would be expected from a knowledge of the clinical picture of the action of these dusts in the pulmonary tissues of human beings. This marks, I hope the beginning of a series of such experiments, which will give industrialists and physicians information as to whether or not any dust present in working operations has characteristics of harmful nature. The advantage of this method is that it does not take the length of time that is spent in the artificial inhalation dusting of experimental animals, which not infrequently has to be carried on for from three to even five years. In this case the results are obtained within weeks or a few months.

DR. WILLIAM D. McNALLY, Chicago. Was a histologic study of the specimens made in the calcium experiment? There is an area extending farther than the calcium, and I can't quite agree that there is no change, because the area appears abnormal when compared with the surrounding peritoneal tissue. An area of normal tissue is present and, further, a white area that looks as if there was a calcium soap being formed. Similar pictures are seen in disease of the pancreas, in which there are erosions of the peritoneum and depositions of a calcium soap. If that should happen in the small alveoli of the lung with calcium definite damage would occur. I should like to have that explained.

DR. E. R. HAYHURST, Columbus, Ohio. The study is a decided advance in available methods of estimating diagnosis and prognosis in industrial dust work. I do not believe, however, that such studies will answer all questions in relation to the harmfulness of so-called nonpoisonous dusts. I have seen dusts that were 99 per cent silica, which, because of peculiar physical properties, would not remain suspended in the air so that they could be inhaled, at least in amounts that would be likely to get beyond the normal nasal dust trap. Therefore, the testing of a "proliferative" dust by this method would not necessarily mean that it might damage the lungs in industrial

<sup>6</sup> Miller J. W. and Sayers R. R. The Physiological Response of the Peritoneal Tissue to Dusts. Pub. Health Rep. 49: 80-89 (Jan. 19)

exposures May I ask what kind of tissue forms over these dust particles when they are inert or absorbed? I can understand the reaction in the proliferative type, but it seemed to me that the first two would also cause some sort of reaction, which might be seen microscopically if not in the specimens shown in the display in the Scientific Exhibit

DR JOHN W MILLER, Washington, D C Microscopic sections of the pigmented remains of calcite nodules showed a larger number of fat cells than did the other portions of the peritoneum I did not find any calcium in these sections by staining methods Both Dr Gardner and I think that the pigment is possibly of hematogenous origin, some of these particles responded to an iron reaction and some did not In answer to Dr Hayhurst's question, a thin capsule was noted over the dust nodules of the inert-reaction group, but the dispersion of particles was a characteristic feature in the peritoneum These particles were engulfed by macrophages, which fact was particularly well illustrated in the case of carbon particles This is a preliminary paper, reporting only a portion of the study

### CLINICAL CIRCULATORY EFFECTS OF DINITROPHENOL

A B STOCKTON, M D

AND

W C CUTTING, M D

SAN FRANCISCO

During the clinical use of sodium dinitrophenol (1-2-4) in obese patients, the occasional appearance of subjective symptoms such as tachycardia, dyspnea and profuse diaphoresis<sup>1</sup> suggested the necessity of investigating the effects of the drug on the circulation

Thirteen patients with apparently normal cardiovascular systems were selected for this study Six of the group were placed at bed rest in the hospital, and control observations of blood pressure, pulse rate, vital capacity and venous pressure made regularly at 8 a m, 2 p m and 7 p m The control period was continued until at least three consecutive results were in close agreement A mean of three or more control results

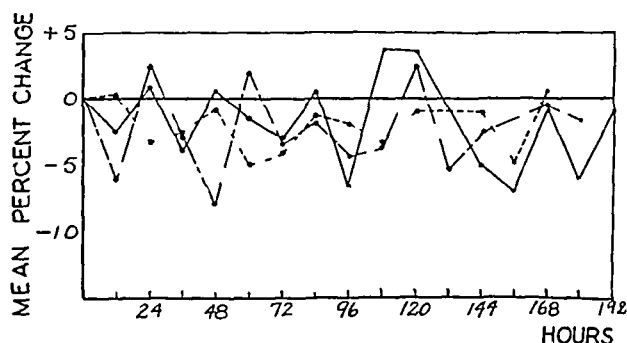


Chart 1—Mean per cent changes in systolic and diastolic blood pressures and in vital capacity of thirteen patients following the daily oral administration of 300 mg of sodium dinitrophenol Solid line systolic pressure line of dots diastolic pressure broken line vital capacity

was taken as the base The control period was never less than three days and was sometimes as long as five days A quantity of 300 mg of sodium dinitrophenol was then administered orally in three divided doses

From the Departments of Pharmacology and of Medicine Stanford University School of Medicine  
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Read before the Society for Experimental Biology and Medicine Pacific Coast Branch, at the American Association for the Advancement of Science Berkeley Calif June 21 1934  
1 Tainter M L, Stockton A B and Cutting W C Use of Dinitrophenol in Obesity and Related Conditions J A M A 101 1472 (Nov 4) 1933

each day, and the circulation and vital capacity were observed for from four to twelve days

The ambulatory patients were treated in a similar manner, except that the same functions were observed once daily at 4 p m Before the observations were made, the patient was required to rest in a prone position without pillows for one hour

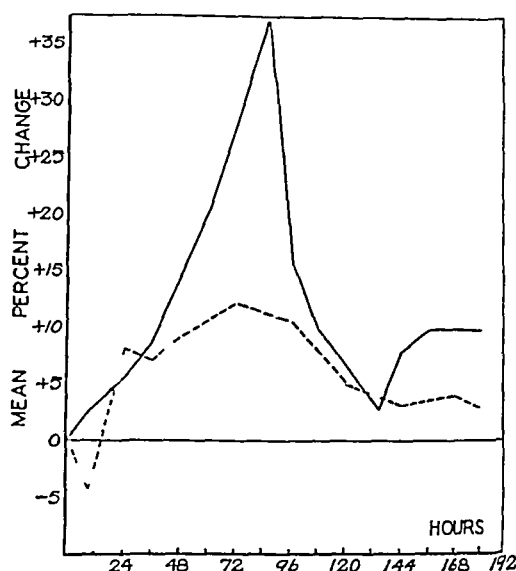


Chart 2—Mean per cent changes in pulse rate and venous pressure of the same group of patients Solid line venous pressure broken line, pulse rate

Blood pressure readings were taken by the same observer, using a standardized mercury manometer The pulse rate was counted for three full minutes, with intervals of five minutes between the counts, and an average used Vital capacity was measured by means of a Collins spirometer, the average of three different trials being used Venous pressure changes were measured by a direct method suggested by Dr William Dock and described by Rytand<sup>2</sup> In this method an intravenous needle inserted into the median cubital vein is connected by means of a Kauffman-Luer syringe to a water manometer The readings were made only after a period of three or more minutes without change in the level of the manometer The results obtained are presented as curves in the accompanying charts showing changes in the different physiologic functions observed

### RESULTS

Vital capacity and systolic and diastolic blood pressure were not significantly affected by the sodium dinitrophenol Most of the individual variations fell between 10 per cent above and 10 per cent below the control level (chart 1)

Definite increases in venous pressure and in pulse rate occurred in ten of the thirteen cases studied These increases showed much fluctuation The individual variation in pulse rate was between -11.6 per cent and +30.1 per cent, and in venous pressure between -16.9 per cent and +49.5 per cent (chart 2)

The concurrent increases in pulse rate and venous pressure explained the maintenance of normal blood pressure in spite of the marked peripheral vasodilatation resulting from the dinitrophenol Patients stated that the sensation of warmth and the sweating occurred

2 Rytand D A The Effect of Digitalis on the Venous Pressure of Normal Individuals J Clin Investigation 12 847 (Sept) 1933

in waves likely to be excited by exertion, by a warm, humid atmosphere, or by drugs causing peripheral vasodilatation, such as acetylsalicylic acid or alcohol. In patients under observation during these periods of vasodilatation, maximum increases in venous pressure and in pulse rate were demonstrated. Chart 3 shows the results obtained in patient M, which were characteristic for other patients. Despite the variability in all observations, it was quite evident that, while no significant changes occurred in blood pressure and in vital capacity, there were definite increases in pulse rate and in venous pressure.

Observations by one of us (S) of blood pressure and pulse rate changes in a separate and larger group of seventy-five ambulatory patients indicated that there was an ultimate reduction in both systolic and diastolic pressures. These reductions were probably due to loss of body weight, since they persisted after the dinitrophenol had been discontinued. However, these observations are being extended in a larger number of

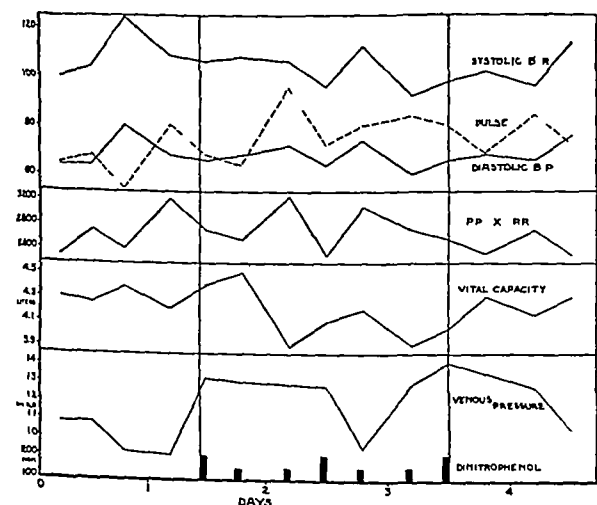


Chart 3—Consecutive actual changes in blood pressure, pulse rate, vital capacity and venous pressure in patient M receiving daily therapeutic doses of sodium dinitrophenol. First segment blood pressure changes represent millimeters of mercury; pulse, pulse rate per minute. Second segment  $P \times P \times R$  = pulse pressure times pulse rate.

ambulatory patients in order to determine the significance of the changes. A considerable time must elapse before results on several hundred patients are obtained and prepared for publication.

#### CONCLUSIONS

The oral administration to resting patients of sodium dinitrophenol in therapeutic doses, during short periods of time, caused no significant changes in vital capacity and in blood pressure.

There were significant increases in pulse rate and in venous pressure. These increases persisted during the medication and were maximum during the periods of peripheral vasodilatation caused by the drug.

**Intracranial Aneurysm**—In 1923, Symonds reported five cases of intracranial aneurysm in which the diagnosis was made during life. In two of his cases the diagnosis was confirmed by necropsy, in another case the necropsy was incomplete, and in the remaining two the patients were still living. This report served as the turning point from the time-honored tradition that an exact diagnosis of intracranial aneurysm was impossible during life. During the past few years several other papers have appeared containing the reports of cases in which a definite clinical diagnosis was established—Garvey, P. H. Aneurysms of the Circle of Willis, *Arch. Ophth.* 11 1032 (June) 1934.

## THE FATE OF THE "GOOD CHRONIC" CASE OF TUBERCULOSIS

### A YARDSTICK FOR THE RESULTS OF THORACOPLASTY

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AND

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Prof. Edward Archibald of McGill University, in describing the patients on whom he has performed the operation of thoracoplasty, has made use of the term a "good chronic" case of pulmonary tuberculosis, suggested to him, he states, by Brunner in his analysis of the operations of thoracoplasty performed in Sauerbruch's clinic. All patients coming to this severe operation have evidently well advanced cases of pulmonary tuberculosis, almost invariably with cavitation. The results obtained from thoracoplasty in this "good chronic" group are far better than those obtained in other groups, and in order to evaluate these results it becomes necessary to ascertain the results in a similar group in which no operation has been performed. Obviously the term "good chronic" implies the converse "bad chronic," and further study has brought out that an intermediate group, a group passing or slipping from the "good" to the "bad" chronic state, was of considerable importance in connection with the surgical treatment of pulmonary tuberculosis.

It is highly necessary to define what these terms imply. The criteria for a "good chronic" case are as follows: A cavity at least 2 cm. and usually larger in diameter must be present. The general condition must be favorable. The temperature and pulse must be normal during the period of observation of several months. The appetite and strength must be good and the patient must sleep well and be able to take some exercise. Expectoration may be present but must not be excessive. The number of tubercle bacilli in the sputum is not taken into consideration. Apart from the fact that the roentgenogram is used to detect or confirm the presence of cavity, the criteria are wholly clinical. Patients not conforming to these criteria would have to be classified as "bad chronics," but it soon became evident that the latter group was a broad one embracing many patients slipping from the better to the worse group. For this reason we think it best to recognize a "slipping" or intermediate group. We do this for the reason that in our opinion, patients in the "bad chronic" group do not as a rule respond any too favorably to surgical treatment. The patients most suitable for surgical intervention, if it is accepted that the "good chronics" do well in many instances without such treatment, are those slipping back from the "good chronic" group toward the "bad chronics."

In order to determine what happens to "good chronic" cases we studied 336 patients at the Trudeau Sanatorium (table 1) and forty-seven patients treated in the village of Saranac Lake. We noted the condition of the patients at the end of five and when possible at the end of ten years. Few of these patients received any form of surgical treatment and if so they did worse than those who received none. At the end of five years 80 per cent of the "good chronics" among the Trudeau patients were alive and only 38 per cent of the "bad chronics." Of the "good chronics" 54 per



cent were at work and of the "bad chronics" only 12 per cent. At the end of ten years the figures are, for the "good chronics," 64 per cent alive and 52 per cent at work, for the "bad chronics," 25 per cent and 11 per cent, respectively. The "good chronics" do

TABLE 1—Sanatorium Cases

'Good Chronics,' 203						Bad Chronics, 131					
5 Years			10 Years			5 Years			10 Years		
Working	Not Working	Dead	Working	Not Working	Dead	Working	Not Working	Dead	Working	Not Working	Dead
111	53	41	107	28	70	16	33	82	14	18	89
54%	26%	20%	52%	14%	34%	12%	26%	63%	11%	14%	76%

TABLE 2—Saranac Lake Cases

Good Chronics, 24			Bad Chronics, 23		
5 Years			5 Years		
Alive	Unknown	Dead	Alive	Unknown	Dead
11	6	7	5	1	17
46%	25%	29%	22%	4%	74%

TABLE 3—Death According to Year in Percentage

Year	'Good Chronics'		Bad Chronics	
	Deaths	Percentage	Deaths	Percentage
1	8	4	44	34
2	9	4+	9	7
3	12	6+	12	9
4	6	3	8	6
5	11	2+	9	7
6	7	3+	2	1+
7	3	1+	1	1
8	4	2	2	1+
9	4	2	4	3
10	4	2		

TABLE 4—Classification of Sanatorium Cases

	Moderately Advanced	Moderately Advanced to Far Advanced	Far Advanced
203 good chronics	50	28	13
131 bad chronics	42	27	31

TABLE 5—Comparison of the Results of Medical and Surgical Treatment in "Good" and "Bad" Chronics

	Treatment	Time Elapsed in Years	Living	Dead	Work In.
203 good chronics	Medical	5	80	20	54
41 good chronics	Surgical (thoracoplasty)	0 10	50	15	
131 bad chronics	Medical	5	38	62	12
52 bad chronics	Surgical (thoracoplasty)	0 10	48	52	
266 effective artificial pneumothorax	Surgical	4 13	87 2	72 7	56 4
249 ineffective artificial pneumothorax	Surgical	4 13	20	70	5 6
142 thoracoplasty	Thoracoplasty	0 10	64	36	26

remarkably well and their conditions show little change in the number working at the end of ten when compared with those at the end of five years. During the first three years 14 per cent of the "good chronics" and 50 per cent of the "bad chronics" die, while at the end of five years the figures are respectively 19 per cent and 63 per cent and at the end of ten years 32 per cent and 75 per cent.

The figures for the small group of Saranac Lake cases show little differences, as can be noted from the accompanying tables.

From the figures at our command<sup>1</sup> we have been able to construct table 5, showing a comparison of the results of medical and surgical treatment in "good" and "bad chronics." The difference between the results of treatment in these two groups is very striking. Attention should be drawn to the very poor results obtained from ineffectual artificial pneumothorax.

It is of considerable interest that the figures recently collected by Hedblom show little difference from those collected some years ago by Alexander and published in his book on thoracic surgery. Roughly, one third of the cases are economic recoveries, one third of the patients are alive and one third of the patients are dead. We feel that in the future the thoracic surgeons in reporting their results should divide their cases into these three or other similar groups.

## Clinical Notes, Suggestions and New Instruments

### HYPERTHYROIDISM IN CHILDREN

CLARENCE K. JONES, M.D., CHICAGO

Hyperthyroidism in children is a rather rare disease. Occasionally a single case is reported, but most of the cases have been reported from the larger clinics. Dinsmore<sup>1</sup> of the Cleveland Clinic reported forty-eight cases in patients ranging up to 17 years of age, while Helmholtz<sup>2</sup> reported thirty from the Mayo Clinic. Greene and Mora<sup>3</sup> from Richter's service reported twenty-six cases in their series, the ages ranging from 8 to 16 years inclusive. This represented 21 per cent of their 1,200 consecutive cases that came to operation. Twenty-two of these patients were girls and four were boys. One child, a girl, was 8 years old, two were 11, and one was 12, the rest of the patients were fairly evenly scattered over the next four year period. Cowden, reviewing the literature in 1923, found no case of hyperthyroidism in a boy under 10 years of age.

The symptoms in the cases cited were manifested for from two months to three years, the average being nine months. In Helmholtz's series, tachycardia was noticed in all his thirty cases. Enlargement of the thyroid gland and nervousness were present in twenty-eight of the cases. Exophthalmos was a symptom in twenty-five. Loss of weight was noted in about half of the cases reviewed. Tremor, weakness, excessive appetite and free sweating were usually present.

From the foregoing it may be seen that the clinical picture of hyperthyroidism in children closely resembles that of the adult. The reason the loss of weight is not noticed in a greater number of cases is probably that the child is normally gaining several pounds annually at this age and that the toxicity from the hyperthyroidism is just about enough to offset the normal gain. In one case reported by Greene and Mora the gain was 7 pounds (3,175 Gm.) in spite of the toxic thyroid.

Exciting factors were noted in several of the cases reviewed, such as tonsillitis, influenza, scarlet fever, colds and whooping cough.

The metabolic rate in Greene and Mora's series averaged 34.6 plus in 26 readings per child, the extremes being plus 86 and plus 13, the latter patient having been on iodine for seven

<sup>1</sup> We are indebted to Dr. J. N. Hayes and Dr. E. N. Packard for permission to use figures from their forthcoming book on artificial pneumothorax.

Read before the North Shore Branch of the Chicago Medical Society, March 6, 1934.

<sup>2</sup> Dinsmore, R. S. Hyperthyroidism in Children. Surg. Gynec. & Obst. 42: 172 (Feb.) 1926.

<sup>3</sup> Helmholtz, H. F. Exophthalmic Goiter in Childhood. J. A. M. A. 87: 157 (July 7) 1926.

<sup>4</sup> Greene, E. I. and Mora, J. M. Thyroidectomy for Thyrotoxicosis in the Young. Surg. Gynec. & Obst. 53: 375 (Sept.) 1931.

weeks Helmholtz obtained readings varying from plus 11 to plus 55

In most of the cases reviewed, iodine was given prior to operation, by far the greater number of cases reacting favorably to the medication. Helmholtz stated that one of his cases showed no reduction in the metabolic rate after several weeks of compound solution of iodine.

The amount of thyroid tissue left at operation is usually greater than that left in the adult. It is ordinarily considered good surgery in the adult to leave no more thyroid gland than a piece equal to about the size of the distal phalanx of the thumb on the posterior capsule while it is the opinion of most surgeons today that three or four times that amount should be left in the child. Lahey<sup>4</sup> states that he prefers to do his operations on preadolescent thyroids in two stages with intervals of six weeks. However, it must be remembered that Lahey operates on most of his adult patients in two stages. Dinsmore felt it desirable to ligate the superior thyroid vessels some three months prior to the thyroidectomy.

At the Mayo Clinic there were two deaths following twenty-four operations, Greene and Mora had no fatalities in their series of twenty-six cases. Dinsmore fails to mention the mortality from the Cleveland Clinic. Recurrence was more common than in adult cases, but this may be accounted for by the necessity of leaving more thyroid tissue.

The following is a case of toxic thyroid.

#### REPORT OF CASE

L. C., a white boy, aged 10 years, brought to my office, June 2, 1928, complained of loss of weight, malaise, nervousness, inability to do school work, frequent bowel movements, and headaches.

The family history was negative except for the fact that I had operated on the father for hyperthyroidism, April 17, or about two weeks before examining this boy.

The patient had had measles, mumps, whooping cough, chickenpox and tonsillitis. Tonsillectomy and adenoidectomy had been performed six years before. Six weeks before admission he had an acute cold with sore throat. The history further showed that shortly after the onset of this cold the present symptoms were first noticed.

The patient was frail, nervous, pale and emaciated, he weighed 68 pounds (30.8 Kg.), a loss of 10 pounds (4.5 Kg.) over a six weeks period. Tremor of the fingers was present and bilateral enlargement of the thyroid gland especially of the right lobe. The pulse was 124, the hands were clammy and damp with perspiration. There was a slight bilateral exophthalmos, with some nystagmus. There was increased cardiac dullness, measuring 9 cm. to the left of the midsternal line. The urine showed a trace of albumin and a few leukocytes. Examination of the blood showed hemoglobin, 80 per cent, red blood cells, 4,660,000, white blood cells 11,200, differential count, normal, basal metabolic rate, plus 38.

The patient was put to bed with absolute rest, forced feeding with four feedings daily, and compound solution of iodine 3 minims (0.18 cc.) three times a day. During the next two months the pulse varied from 110 to 130. All other subjective and objective symptoms showed little or no change during this rest period of more than two months, so the patient was sent to St. Luke's Hospital for observation and treatment.

On admittance to the hospital the basal metabolic rate was plus 40, or an increase of two points over the test made more than two months before, in spite of the fact that he had been on iodine continuously and in bed during the entire period. The blood picture was practically unchanged and examination of the urine was negative.

After a few days rest and observation, an operation was decided on, and on August 17, or about two and one-half months after the initial visit, a thyroidectomy was done under gas anesthesia. Most of the right lobe was removed and about two thirds of the left. The wound was closed with a subcuticular stitch without drainage. The patient had a stormy time during the first four days after operation the pulse varying between 140 and 168 but by the fifth day it had dropped to

84. Iodine was continued daily, 5 minims (0.3 Gm.), during this period. The boy left the hospital ten days after the operation, at which time he was feeling fine, the pulse averaging about 80.

The pathologic report showed extensive hyperplasia of the thyroid alveoli with lymphocytic infiltration, only a few of the alveoli containing normal colloid material.

A metabolic test taken two months after operation gave a reading of minus 11. The weight was 84 pounds (38 Kg.) and the pulse 73. All other subjective and objective examinations were negative. Periodic check ups have been made over the last five years and to date there has been no return of symptoms, the boy developing into a normal young man of average weight and with a stable nervous system.

122 South Michigan Avenue

## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.

CHICAGO

NOTE—In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by the various members are incorporated in the final draft prepared for publication. The series of articles will be continued from time to time in these columns.—Ed

#### THERAPY OF ANTHRAX

The diagnosis is given under Carbuncle.

#### PROPHYLAXIS IN ANIMALS

The carcass of an infected animal, which must not be skinned or opened, should be destroyed by burning, if possible, or otherwise by thoroughly covering with powdered unslaked lime and burying it, at least 6 feet deep, in an unfrequented fenced-off place. Ground contaminated with discharges should be burned over. If the animal dies in a stable, everything contaminated must be disinfected and, if possible, burned.

Animals should be protected by not being permitted to graze on land known or suspected to be infected and being kept during an outbreak from exposure to all insects that may act as carriers, until the animals are immunized.

Combined active and passive immunization should be accomplished by subcutaneous injection of antiserum and of vaccine. Immunity is acquired in ten or twelve days and lasts for at least a year.

#### PROPHYLAXIS IN MAN

Workers who handle suspected material, such as hides or wool, should be compelled to wear gloves and overalls while handling it. Three rooms should be provided for these workers: one in which they leave their work clothes, a second room, a lavatory in which they must cleanse the hands, face and other exposed parts thoroughly, paying special attention to keeping the finger nails clean, and a third room where they have left their street clothes. Wool sorters should be protected against possibly infected dust by wearing masks.

Slight abrasions and even small pimples should receive prompt treatment, and antiserum should be employed on mere suspicion of infection.

<sup>4</sup> Lahey, F. H. Primary Hyperthyroidism in Children. S. Clin. North America 9: 1327 (Dec.) 1929.

## TREATMENT

Anthrax antiserum should be administered at the earliest possible moment, locally as well as systemically.

Local injection is done after iodization of the skin surrounding the lesion, from 10 to 12 cc of the serum being injected through two or three punctures just outside the indurated border of the lesion and rather deeply (from 1 to 1½ inches) into the subcutaneous tissue at the base of the induration, in such a way as to circumscribe the lesion. Injections are repeated at intervals of twenty-four, twelve or, in severe cases, of six hours, until from four to six injections have been given or, rather, until the inflammation, which is increased after the first few injections, shows definite evidence of subsiding.

Systemic administration in nonsepticemic cases is carried out by means of intravenous injections of 50, 100 or 200 cc of antiserum every twelve to six hours (according to the severity of the case) until the disease is controlled, then intramuscular injections are given for several days longer.

In septicemic cases, i. e., those presenting a positive blood culture, 200 cc of antiserum is injected intravenously every three hours until the blood culture is negative.

Local treatment consists of absolute rest, elevation, and warm boric acid compresses until the eschar separates. No excision or cauterization is necessary. If an abscess forms, mere incision is enough. In properly managed cases the wound heals with a surprisingly small scar.

The fever regimen (q v) is followed.

## Council on Physical Therapy

THE FOLLOWING ARTICLE HAS BEEN ADOPTED BY THE COUNCIL ON PHYSICAL THERAPY AND THE COMMITTEE ON STANDARDIZATION AND DRUGS<sup>1</sup> OF THE SECTION ON OPHTHALMOLOGY OF THE AMERICAN MEDICAL ASSOCIATION.

H. A. CARTER, Secretary

### A PRACTICAL COMPARISON OF SOME INSTRUMENTS USED IN ORTHOPTIC TRAINING

GEORGE P. GUIBOR, M.D.  
CHICAGO

Because of the large number of instruments offered for the training of the fusion faculty in cases of squint, it would seem to be of value to discuss the indications for the use of some of these instruments and the results to be obtained.

These instruments may be classified according to their construction into

- 1 Instruments depending on the use of prisms to produce the superposition of images
- 2 Instruments depending on the reflection by mirrors to produce the superposition of images
- 3 Combinations of 1 and 2
- 4 Instruments depending on the projection of light forms on a screen to produce the superposition of images

From the Department of Ophthalmology, Northwestern University Medical School.

<sup>1</sup> The members of the Committee on Standardization of Instruments and Drugs are Dr. Sanford R. Gifford, Chicago, chairman; Dr. Francis Heed Adler, Philadelphia; Dr. Clifford Walker, Los Angeles; Dr. Jonas Friedenwald, Baltimore, Md.; and Dr. John MacNie, New York City.

The following list includes most of the instruments employed in the United States and England.

#### I Prism refracting instruments

##### (a) Stereoscope

- 1 Standard stereoscope (made in various models)
- 2 Variable prism stereoscope
- 3 Training stereoscope
- 4 Kinetic stereoscope
- 5 Telebinocular
- 6 Stereophorometer
- 7 Kratometer
- 8 Phoriascope
- 9 Stereocampimeter
- 10 Correct-eyescope (made especially for drawing)

##### (b) Normalizer

##### (c) Panocular

#### II Mirror reflecting instruments

- 1 Cheiroscope
- 2 Amblyoscope
- 3 Synoptiscope
- 4 Synoptophore
- 5 Stereo-orthopter
- 6 Orthoptoscope

#### III Combinations—stereocampimeter with mirror attachment

#### IV Projection of light in screen—myologic unit

In using any of these instruments, several facts must be remembered. First, no instrument, even if it is advertised as an automatic training device, will replace personal supervision and hard work in the training of fusion, the checking of progress and the determining of suppression. Second, all instruments have defects and limitations which are apparent only after orthoptic training has been attempted over a period of time with such equipment. Third, as the instrument becomes more technical and mechanical it requires more personal supervision and its practical uses can be less easily varied to suit individual cases. Fourth, the tendency to make use of elaborate and psychologically impressive instruments should be discouraged unless such equipment accomplishes definite results not obtainable with more simple apparatus.

As types of prism deflecting instruments, the ordinary Brewster or Holmes stereoscope or its modifications as listed are all valuable instruments. The simple hand stereoscope, as well as its more expensive modifications, appears to answer most of the requirements given for an efficient instrument. By varying the illumination and using large colored pictures before the suppressed eye, or by drawing pictures in the stereoscopes adapted for this purpose, it is usually possible to overcome suppression.

By the use of prisms, cases of squint of the accommodative type of as much as 35 degrees may be made to fuse with the stereoscope. By varying the distance between charts and reducing the amount of prism necessary to superimpose the images and later substituting prisms of opposite sign which call for more muscular effort, all the various steps in orthoptic training may be accomplished with the stereoscope. With the stereoscope, much depends on the type of card employed. With the split charts, which contain a few simple objects in marked stereoscopic relief and in which the distance between charts may be varied, such as those of Sattler and the author, it is surprising how often patients with squint of long standing will fuse at the first or second attempt.

In divergent squint, however, of an amount greater than 20 degrees, the use of the stereoscope is usually impossible until necessary surgical procedures have been performed to reduce the angle of squint

With the many cards at one's disposal, the routine can be made so variable and stimulating that young children will cooperate and enjoy the exercises for as long as an hour. Parents can learn the use of the stereoscope readily and can cooperate in home training.

Objective methods for checking subjective or psychologic reactions have been formulated.<sup>1</sup> The cost of this instrument is exceedingly small.

The objections to the small hand stereoscope are that there is some prismatic distortion at times, that it is limited to squint of 35 degrees, or less, depending on the type of squint, and that no kinetic or rotatory stimulus can be produced with this rigid instrument.

As a type of mirror reflecting instrument, the one most commonly employed is the amblyoscope of Worth (and its modifications the synoptophore and the synoptiscope). This instrument has both diagnostic and therapeutic uses. It may be used to diagnose the degree of squint, normal or abnormal correspondence as well as the fusion ability. It is easily movable. With the more recent stereoscopic charts, and if variation of light is utilized, stereoscopic ability may be well trained and may be maintained during the building of fusion amplitude and duction. No prismatic aberration is present. It may be used to train vertical imbalances. The cost of this instrument is modest. It seems important to emphasize the advantages of the synoptophore and synoptiscope in that cyclophorias may be diagnosed and partially overcome with these instruments. The variation of the illumination in these instruments is accurately gaged.

The disadvantage of the amblyoscope is that few stereoscopic charts applicable to it are available at the present time, so that variability in routine is difficult to secure. Until more stereoscopic charts are available, one can seldom depend on the amblyoscope entirely for fusion and duction training. More charts are available for the synoptophore and synoptiscope. These instruments, however, are large and expensive and will probably find their use chiefly in institutions where large numbers of patients are being trained.

As regards the more elaborate instruments in which the principle of fusing moving objects is employed, a few words are necessary. It has been my experience that most patients stimulated to overcome suppression by these instruments can do so with one of the more simple instruments, employing mirrors or prisms. It does not seem to have been proved that fusion of the moving targets in these elaborate instruments has a marked effect on the muscles and the fusion sense superior to that obtained by overcoming prisms of varying degree in the ordinary type of duction training with the stereoscope or amblyoscope.

The assertions that such instruments overcome amblyopia more rapidly than may be done with other means certainly rest on no foundation whatever, in my opinion. No instrument will take the place of prolonged monocular occlusion and atropinization for this purpose, the effect of the latter procedures being limited to a certain percentage of cases, and chiefly to those seen at an early age.

<sup>1</sup> Gubler G. P. Some Possibilities of Orthoptic Training. Arch Ophth 11 433 (March) 1934

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH Secretary

**DEXTROSE** (See New and Nonofficial Remedies, 1934, p 270, and THE JOURNAL, April 7, 1934, p 1154)

The several accepted dextrose solutions and dextrose in physiologic solution of sodium chloride marketed in Vacoliter Containers are also supplied in Half Size Vacoliter Containers.

**DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED)** (See New and Nonofficial Remedies, 1934, p 393)

E. R. Squibb & Sons, New York

Refined Diphtheria Toxoid Alum Precipitated Squibb (See THE JOURNAL Feb 24 1934 p 605) —Also marketed in packages of ten 0.5 cc vials representing ten immunizing doses.

**BUTYN** (See New and Nonofficial Remedies, 1934, p 52)

The following dosage form has been accepted:

Ophthalmic Ointment Butyn 2% and Metaphen 1 10 000. Contains 2 per cent of butyn with metaphen 1 10 000 in a base of petrolatum. Manufactured by the Abbott Laboratories North Chicago Illinois.

**SCARLET FEVER IMMUNITY TEST** (See New and Nonofficial Remedies, 1934, p 406)

Parke, Davis & Co, Detroit

Scarlet Fever Streptococcus Toxin for the Skin Test P. D. & Co. (See New and Nonofficial Remedies 1934 p 406) also marketed in packages of one 10 cc vial containing sufficient for 100 tests.

**RABIES VACCINE** (See New and Nonofficial Remedies, 1934, p 378)

Parke, Davis & Co, Detroit

Rabies Vaccine (Cumming) (See New and Nonofficial Remedies 1934 p 380) also marketed in packages of seven vials each containing one dose.

**NORMAL HORSE SERUM** (See New and Nonofficial Remedies, 1934, p 362)

Parke Davis & Co, Detroit

Normal Horse Serum P. D. & Co. (See New and Nonofficial Remedies 1934 p 363) also marketed in packages containing one 1 cc rubber stoppered vial.

**DUOTAL** (See New and Nonofficial Remedies, 1934, p 150)

The following dosage form has been accepted:

Duotal Tablets 5 grains

Manufactured by Winthrop Chemical Co. Inc. New York

**AGAR** (See New and Nonofficial Remedies, 1934, p 25)

The following dosage form has been accepted:

Agar Agar Shreds Reinschild

Prepared by the Reinschild Chemical Co. New Rochelle N. Y.

**NEO-SYNEPHRIN HYDROCHLORIDE** (See THE JOURNAL, June 16, 1934, p 2024)

The following dosage form has been accepted:

Neo-Synephrin Hydrochloride Emulsion (Aromatic). Neo-synephrin hydrochloride 0.25 per cent sodium benzoate 0.4 per cent camphor 0.07 per cent menthol 0.052 per cent oil of red thyme 0.17 per cent in a mineral oil and water emulsion containing acacia. The product is preserved with chlorbutanol 0.5 per cent.

**PROCAINE HYDROCHLORIDE** (See New and Nonofficial Remedies, 1934, p 60)

The following dosage form has been accepted:

Procaine Neo-Synephrin Hydrochloride Hypodermic Tablets. Each tablet contains procaine hydrochloride 0.02 Gm. neo-synephrin hydrochloride 0.0003 Gm. sodium chloride 0.007 Gm. and potassium sulphate 0.004 Gm. One tablet dissolved in 1 cc of distilled water yields a solution containing procaine hydrochloride 2 per cent neo-synephrin hydrochloride 0.03 per cent sodium chloride 0.7 per cent and potassium sulphate 0.4 per cent.

## Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG Secretary

### ADVERTISING OF AMERICAN HONEY INSTITUTE

**Sponsor**—American Honey Institute, Madison, Wis., is a trade association for promoting the general welfare of the honey industry, investigating its problems, and disseminating information on honey.

**Occurrence, Composition and Nutritional Values of Honey**—Honey is deposited by bees in the cells of honeycomb, which the insect forms out of wax secreted by its body. It is gathered by the bees chiefly from the nectar of flowers and the exudations of leaves. The sucrose of the nectar is almost wholly inverted into dextrose and levulose. The nectar becomes concentrated in the hive by loss of moisture. The flavors of honey are due largely to the characteristic esters found in the nectar of different flowers.

The United States Department of Agriculture definition and standards for the various forms of honey follow:

1 Honey is the nectar and saccharine exudations of plants gathered, modified and stored in the comb by honeybees (*Apis mellifica* and *A. dorsata*), is levorotatory, and contains not more than 25 per cent of water, not more than 0.25 per cent of ash, and not more than 8 per cent of sucrose.

2 Comb honey is honey contained in the cells of honeycomb.

3 Extracted honey is honey which has been separated from the uncrushed comb by centrifugal force or gravity.

4 Strained honey is honey removed from the crushed comb by straining or other means.

The nutritional values of honey are essentially those of carbohydrates as a class; it contributes little to the minerals of the diet and is devoid of vitamins.

**Analyses\*** (representative analyses for various American honeys)

	Mol- ture per cent	Invert Sugar per cent	Sucrose per cent	Ash per cent	Dex- trin per cent	Unde- rmined per cent	Free Acid as Formic per cent
<b>Alfalfa</b> ( <i>Medicago sativa</i> )							
Maximum	20.47	70.18	10.01	0.10	0.60	3.12	0.17
Minimum	14.01	72.60	0.28	0.03	0.04	0.40	0.04
<b>White clover</b> ( <i>Trifolium repens</i> )							
Maximum	20.24	78.10	7.09	0.20	2.46	7.40	0.10
Minimum	14.54	70.32	0.00	0.04	0.07	3.11	0.00
<b>Buckwheat</b> ( <i>Fagopyrum esculentum</i> )							
Maximum	18.90	77.48	0.06	0.11	1.41	3.30	0.22
Minimum	18.11	70.21	0.00	0.07	1.04	3.20	0.20
<b>Cotton</b> ( <i>Gossypium herbaceum</i> )							
Maximum	18.91	80.69	1.04	0.28	1.83	4.20	0.20
Minimum	17.79	74.70	0.48	0.13	0.40	0.48	0.12
<b>Basswood</b> ( <i>Lilula sp.</i> )							
Maximum	20.20	78.00	2.00	0.30	7.00	4.21	0.18
Minimum	10.66	69.80	0.00	0.11	1.00	2.83	0.00
<b>Sumac</b> ( <i>Rhus</i> )							
Maximum	19.20	73.73	2.01	0.90	6.42	6.68	0.18
Minimum	18.17	68.61	0.36	0.21	1.66	3.89	0.08
<b>Orange</b> ( <i>Citrus aurantium</i> )							
Maximum	16.99	77.57	0.60	0.08	0.40	4.31	0.08
<b>Lupelo</b> ( <i>Lupinus aquaticus</i> )							
Maximum	18.38	72.40	4.36	0.08	2.60	6.02	0.06
Minimum	16.29	72.09	1.60	0.07	1.47	4.00	0.00

\* U. S. Dept. of Agric. Bur. of Chem. Bul. 110 (1903)

**Calories**—3134 per gram 8897 per ounce

**Advertising**—The advertising consists essentially of general information on honey and its uses. Recipes are provided.

## FARMER JONES BRAND PURE COUNTRY SORGHUM SYRUP

**Manufacturer**—American Syrup & Sorghum Company, St. Louis

**Description**—Sorghum syrup or concentrated, clarified sorghum cane juice.

**Manufacture**—The juice is expressed from sorghum cane stalks and is partially neutralized with dilute lime water, brought to a boil, filtered under pressure with the aid of infusorial earth, concentrated under "vacuum" to a semisyrup, heated to boiling, again filtered under pressure with the aid of infusorial earth and vegetable carbon, concentrated by boiling under "vacuum" to 81.5 per cent solids, and filled into friction top cans.

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	21.9
Ash	2.3
Fat (ether extract)	0.0
Protein (N X 6.25)	0.4
Reducing sugars as invert sugar	34.7
Sucrose	36.4
Dextrins (by difference)	4.3

**Calories**—30 per gram 85 per ounce

**Claims of Manufacturer**—For cooking, baking and table use.

## HERSHEY SYRUP GENUINE CHOCOLATE FLAVOR

**Distributor**—Chocolate Sales Corp., Hershey, Pa.

**Manufacturer**—Hershey Chocolate Corp., Hershey, Pa.

**Description**—Chocolate flavored syrup prepared from sucrose, water, cocoa and invert sugar.

**Manufacture**—The cocoa used is prepared as described for Hershey's Breakfast Cocoa (THE JOURNAL, March 17, 1934, p. 843) with the exception that the fat content is reduced to 9 per cent. The invert sugar ingredient is prepared by hydrolyzing sucrose with U. S. P. hydrochloric acid and subsequently neutralizing the acid with U. S. P. sodium carbonate.

Weighed amounts of the ingredients are mixed with violent beating in steam jacketed kettles. The mix is heated to boiling and flowed into filling machines, from which it is packed in steam heated cans. The canned syrup is processed at 88°C for twenty minutes.

**Analysis** (submitted by manufacturer) —

	per cent	Moisture fat sugar free basis
Moisture	38.2	
Ash	0.65	6.6
Ash insoluble in water	0.33	
Ash insoluble in acid	0.02	0.2
Fat	1.0	
Protein (noncaffeine and nontheobromine N X 6.25)	2.9	
Reducing sugars as invert sugar	5.0	
Sucrose	41.0	
Crude fiber	0.6	6.1
Carbohydrates other than crude fiber (by difference)	56.4	
*Theobromine	0.27	
*Caffeine	0.02	

\*By Prochnow's modification of the Beckurts-Fromme method. Arch. d. Pharmaz. 247: 698, 1910.

**Calories**—25 per gram 71 per ounce

**Claims of Manufacturer**—For covering desserts and preparing chocolate flavored milk drinks.

## KRIM-KO CHOCOLATE FLAVORED DRINK

**Bottlers and Distributors**—(1) Alamito Dairy Company, Omaha; (2) Carnation Company, Waterloo, Iowa; (3) City Dairy Company, South Bend, Ind.; (4) Cloverdale Farms Company, Inc., Binghamton, N. Y.; (5) Harris Cream Top Milk Company, Houston, Texas; (6) Hazle Milk and Ice Cream Company, Hazleton, Pa.; (7) Landgren's Dairy, Kenosha, Wis.; (8) Marigold Dairies, Inc., Austin, Fairbault, Owatonna, Red Wing and Rochester, Minn.; (9) Oakland Dairy, Pontiac, Mich.; (10) Quality Milk Products Company, Tulsa, Okla.; (11) Southwest Utility Dairy Products Company, Oklahoma City; (12) Wisconsin Valley Creamery Company, Wisconsin Rapids and Stevens Point, Wis.

**Licenser**—Krim-Ko Company, Chicago, manufactures the Krim-Ko Chocolate Flavored Drink Base and licenses its use, the name Krim-Ko, and standard advertising under definite contract conditions.

*Description*—Pasteurized chocolate flavored sweetened skim milk, contains skim milk (from 05 to 15 per cent milk fat), sucrose, chocolate and cocoa, tapioca flour, salt and traces of tartaric acid and agar, flavored with imitation vanilla extract. See Krim Ko Chocolate Flavored Drink, *THE JOURNAL*, June 30, 1934, page 2187

#### HAWAIIAN FINEST QUALITY PINEAPPLE JUICE

- (1) AMERICAN LADY
- (2) EDELWEISS
- (3) NONE-SUCH
- (4) SAVOI
- (5) SUN-BLEST
- (6) TOPMOST
- (7) WEIDEMAN BOY BRAND
- (8) WHITE VILLA

*Distributors*—(1) and (6) General Grocer Company St Louis (2) John Sexton & Company, Chicago and Brooklyn (3) Durand McNeil-Horner Company, Chicago (4) Steele-Wedeles Company, Chicago (5) Jacobson-Shealy Co., Inc., San Francisco (7) The Weideman Co., Cleveland, Ohio (8) White Villa Grocers, Inc., Cincinnati and Dayton, Ohio

*Packer*—Hawaiian Pineapple Company, Ltd., San Francisco

*Description*—Canned Hawaiian pineapple juice retaining in high degree the natural vitamin content, the same as Dole Hawaiian Finest Quality Pineapple Juice (Unsweetened) (*THE JOURNAL*, June 3, 1933, p 1769)

#### GOLD MEDAL STERILIZED UNSWEETENED EVAPORATED MILK

*Distributor*—Mohawk Milk Products Co., Inc., New York, subsidiary of the Carnation Company, Milwaukee

*Description*—Canned sterilized unsweetened evaporated milk. The same as Gold Cross Unsweetened Sterilized Evaporated Milk, *THE JOURNAL*, Jan 28, 1933, page 259

*Claims of Manufacturer*—See announcement of acceptance of Evaporated Milk Association Educational Advertising, *THE JOURNAL*, Dec 19, 1931, page 1890

#### BIRELEY'S CALIFORNIA ORANGE JUICE WITH LEMON JUICE

(ADDED SUGAR, PECTIN AND ORANGE OIL)

*Manufacturer*—Bireley's, Hollywood, Calif

*Description*—Pasteurized California orange juice containing added lemon juice, sucrose, pectin and oil of orange. Retains in high degree the vitamin content of the orange and lemon juices

*Manufacture*—The orange and lemon juices are prepared as described for Golden Bear California Pure Orange Juice (*THE JOURNAL*, Sept 15, 1934, page 839)

During the season when tree-ripened fruit is not available, stored frozen juice prepared in the following manner is used. The strained juice obtained as described is frozen in a vertical type direct expansion freezer so designed as to freeze the juice rapidly (—17 C) without incorporation of air, the juice issuing at from —3 to —2 C

The mixture of formula proportions of ingredients is processed and canned as described for Golden Bear California Pure Orange Juice

*Analysis* (submitted by manufacturer) —

	per cent
Moisture	91.8
Total solids	48.2
Ash	0.2
Fat (ether extract)	0.03
Protein (N X 6.25)	0.4
Reducing sugars as invert sugar	6.9
Sucrose (copper reduction method)	39.0
Crude fiber	0.1
Carbohydrates other than crude fiber (by difference)	46.1
Titratable acidity as citric acid	1.4

*Calories*—19 per gram 54 per ounce

*Vitamins*—Assay shows retention in large measure of the original vitamin C content

*Claims of Manufacturer*—For use as a beverage dilute with four parts of water

#### STRAINED BEETS, CARROTS, CELERY, GREEN BEANS, PEAS, PRUNES FLAVORED WITH LEMON JUICE, SPINACH, TOMATOES, AND VEGETABLES WITH CEREAL AND BEEF BROTH

UNSEASONED

- (1) RED & WHITE BRAND
- (2) WHITE SWAN

*Distributors*—(1) Red & White Corp., Chicago

(2) Waples-Platter Co., Fort Worth, Texas

*Packer*—The Larsen Company, Green Bay, Wis

*Description*—Respectively sieved beets, carrots, celery, green beans, peas, prunes flavored with lemon juice, spinach, tomatoes and vegetables (carrots, potatoes, tomatoes, celery, peas, beans spinach) with pearl barley and beef extract, prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt. These products are the same as the respective accepted Larsen's vegetables and fruits (*THE JOURNAL*, July 1, 1933, p 35, July 8, 1933, p 125, July 22, 1933, p 282, July 29, 1933, p 366, Aug 12, 1933, p 525, Aug 19, 1933, p 605, Aug 26, 1933, p 675, Sept 2, 1933, p 779)

#### IRRADIATED VITAMIN D PASTEURIZED MILK

- (1) BOSWELL DAIRIES
- (2) DAIRY LABORATORIES
- (3) FERNDAL FARM
- (4) GLENCLIFF
  - (a) GRADE A HOLSTEIN
  - (b) GRADE A JERSEY
  - (c) GRADE A
- (5) HARRIS CREAM TOP
- (6) NATOMA FARM'S
- (7) PORTLAND MILK PRODUCERS ASSN
- (8) RIVERVIEW-DAMASCUS
- (9) SPARKS DAIRY
- (10) UNITED DAIRY
- (11) WESTERN DAIRY COMPANY
- (12) WIELAND'S

*Distributors*—(1) Boswell Dairies, Fort Worth, Texas (2) Dairy Laboratories, Inc., Seattle (3) Ferndale Farms, Inc., Brooklyn (4) Western Creameries, Inc., Tulsa, Okla (5) Harris Cream Top Milk Company, Houston, Texas (6) Natoma Farm Hinsdale, Ill (7) Portland Milk Producers Association, Inc., Portland, Ore (8) Riverview-Damascus Milk Company, Portland, Ore (9) Sparks Dairy, Inc., Buffalo (10) United Dairy Company, Inc., Chicago (11) Western Dairy Company, Chicago (12) Wieland Dairy Company, Inc., Chicago

*Description*—Bottled pasteurized vitamin D milk irradiated with ultraviolet rays (patent No 1,680,818)

*Preparation*—The milk complies with legal requirements and is pasteurized by the standard holding method. For description of irradiation, see *THE JOURNAL*, October 7, 1933, page 1155

*Vitamins*—Clinical investigation shows this milk to be a reliable antirachitic agent if the proper amount is used. Contains 135 U S P X (Revised, 1934) vitamin D units per quart

*Claims of Distributors*—Irradiated antirachitic pasteurized milk having otherwise the flavor and food values of usual pasteurized milk

#### POLAND WATER CARBONATED BY ARTIFICIAL CARBONATION

*Manufacturer*—Hiram Ricker & Sons, South Poland, Maine

*Description*—Spring water of very low mineral content, artificially carbonated

*Manufacture*—Natural Poland Water (*THE JOURNAL*, May 27, 1933, p 1689) is artificially carbonated with carbon dioxide gas from liquid carbon dioxide in tanks, and bottled by the standard procedure



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SATURDAY, SEPTEMBER 22, 1934

## CAPILLARY PRESSURE AND CAPILLARY PERMEABILITY

The capillaries have generally been regarded as minute, inert, thin-walled tubules connecting the terminations of the smallest arteries with the commencement of the smallest veins and conducting blood through the body tissues in whatever quantity the arterioles might supply. During the past few years, however, a large amount of evidence has accumulated demonstrating conclusively that the capillaries perform other functions. Indeed, a recent commentator<sup>1</sup> has stated that the capillaries form one of the most important units of the entire circulatory system. Modern studies have shown that the capillaries are independently contractile and are capable of sensitive adjustment to the circulatory needs of the body tissues which they supply.<sup>2</sup> Also they perform the vital function of controlling the interchange of substances between the blood and the fluid bathing the body tissues. The importance of the capillaries as a filtering system is in part the result of the large total area of their walls. The capillaries of the muscles of an average man, for example, have a total area of approximately 6,300 square meters, or more than 3,000 times the area of the entire body surface. Furthermore, so efficient is the capillary wall as a filter that, if there were no restraining forces, the entire plasma volume of an average man would pass through the capillaries into the body tissues within ten seconds. Obviously, the movement of fluid between the blood and the body tissues depends fundamentally on the nature and permeability of the dividing membrane, the capillary endothelium. In a recent comprehensive review, Landis<sup>3</sup> has discussed the relation between capillary pressure and capillary permeability to the exchange of fluid between the blood and the body tissues.

The movement of fluid through the capillary wall depends primarily on the balance between capillary blood pressure and the colloid osmotic pressure of the blood, the former force promoting the filtration of fluid from the capillaries and the latter favoring retention or absorption. Measurements show that these two opposing physical forces are approximately equal. Capillary pressure, as determined by the long period, microcannulation technic, varies from 12 to 32 mm of mercury, colloid osmotic pressure shows a similar value equivalent to from 22 to 29 mm. By the same method, Landis has also shown that a gradient of pressure exists in the capillary itself, the pressure in the arterial portion definitely exceeding that in the venous end. Furthermore, the capillary pressure in the arterial portion exceeds the colloid osmotic pressure, thus favoring the filtration of fluid from the capillaries, whereas the reverse is true in the venous end, the opportunity for fluid absorption is thereby enhanced. In general, those factors which increase capillary pressure promote an increased filtration of fluid through the endothelium, whereas a decrease in pressure favors a retention of fluid. Such variations in capillary pressure may be elicited by changes in arterial tone, freedom of venous outflow, posture or temperature.

Another physical factor of some importance in regulating the movement of fluid through the capillary wall is that of tissue pressure. This force opposes the filtration of fluids into the tissues. Tissue pressure is effective only within limits, however, as it fails under prolonged, excessive filtration, presumably because of the imperfect elasticity of the tissues.

Complex changes in capillary pressure and capillary permeability may be initiated by such agents as variations in temperature, tissue activity and injury. Heat may increase the filtration of fluid through the capillary wall by producing capillary dilatation, by causing a rise in capillary pressure or by actual injury of the endothelium, resulting in an increased permeability of the endothelium to colloids and a consequent lowering of the effective osmotic pressure of the plasma proteins. Functional activity of the tissues induces a hyperemia and a simultaneous rise in capillary pressure, thus favoring an increased movement of fluid into the tissues. The accumulation of carbon dioxide and slight change in hydrogen ion concentration that occur during vigorous tissue activity appear to exert little if any effect on the permeability of the capillaries. Anoxemia, however, if extreme, may produce a temporary increase in permeability, which may be great enough to reduce the effective colloid osmotic pressure of the blood to half its normal value. Local injury of the capillaries may set up a series of complex responses, including vasodilatation, rise in capillary pressure, altered rate of blood flow, increased endothelial permeability and, finally, stasis. All forms of local or general edema produced by injury are due fundamentally to increased

<sup>1</sup> The Human Capillaries editorial J. A. M. A. 102:295 (Jan 27) 1934.

<sup>2</sup> Krogh August. The Anatomy and Physiology of the Capillaries revised edition. New Haven: Yale University Press, 1929. Lewis Thomas. The Blood Vessels of the Human Skin and Their Responses. London: Shaw & Sons, Ltd. 1927.

<sup>3</sup> Landis E. M. Capillary Pressure and Capillary Permeability. Physiol. Rev. 14:404 (July) 1934.

capillary permeability with the easy passage of proteins and water through the endothelium

Is the movement of fluid through the capillary wall controlled by simple physical forces, such as those discussed, or is there an active intervention of the endothelium? This question still seems to be an open one. Apparently, many of the facts concerning fluid balance, particularly in the intact animal and in cases of clinical edema, cannot be explained in terms of simple physical forces. However, Landis has pointed out that not until the physical factors are adequately understood will the search for "vital" intervention prove productive.

In view of the many contributions elucidating the question of capillary function, most physiologists will undoubtedly agree with Landis that the capillaries form a most important unit of the circulatory system, responding individually in a delicate manner to the circulatory needs of the immediately adjacent tissues, and controlling effectively the interchange of substances between the blood and the fluid bathing the body tissues.

#### FLIES, FILTH AND BACTERIA

Real understanding of the place of flies as vectors of disease probably dates from the report of the Typhoid Commission of 1898. Thus Vaughan,<sup>1</sup> who had been one of the members of this commission, states that typhoid was less frequent among those who ate in screened mess rooms than among those who took their food in unprotected quarters. Flies were found swarming over infected fecal matter in the latrines and the same ones visiting and feeding on the food prepared for the soldiers in the mess tents. Now it is generally recognized that the house fly also plays a part in the distribution of conditions other than typhoid.

The exact role of the common fly as a carrier of disease probably varies greatly in different localities. A recent report by Parisot and Fernier<sup>2</sup> is significant in this connection. Their particular interest in the subject arose from the fact that in the rural districts of the department of Meurthe-et-Moselle, as the American expeditionary forces frequently testified, it is customary for manure heaps to be placed in front of the houses—the size of the heap bearing mute witness to the number of livestock belonging to the owner. Naturally flies are especially numerous in these districts, and although no figures are quoted by the authors it is indicated that disease, especially of the gastro-intestinal tract, is unusually frequent.

In order to make a rough estimate of flies as a potential bacterial reservoir, Parisot and Fernier carried out bacterial counts on flies caught by hand. Ten flies were placed in a bottle, each bottle having a capacity of about 20 cc. To each bottle 10 cc of sterile physiologic solu-

tion of sodium chloride was added. The flies were kept in this solution for thirty minutes and agitated frequently. With a sterile pipet yielding twenty drops per cubic centimeter, one drop of the liquid was withdrawn and diluted 1:1,000. This was seeded on gelatin or agar and the colonies were counted at the end of three days on gelatin and forty-eight hours on agar after incubation at 37 C. In order to determine the number of bacteria corresponding to one fly, the colonies given by the count had to be multiplied by 20,000 to allow for the dilution. Naturally the final figures are thus only approximate. They also carried out a special test for *B. coli* by preparing ten tubes of peptone broth treated with phenol to 1:25 per thousand. Into the first tube they introduced twenty drops of the liquid used for washing the flies. This quantity was decreased step by step to one drop of a 1:10 dilution in the ninth tube, the tenth serving as a control. The tubes were placed in the incubator for five days at 38 C and the presence of *B. coli* was determined by testing the cultures for indole production according to the method used for water analysis. On this basis the approximate number of *B. coli* per fly could be estimated.

As a result of these studies they felt that they could state that each fly without distinction of origin carried microbes ranging in number from 60,000 to over 25 million. Both in regard to total bacterial flora and number of *B. coli* carried, those flies coming in contact with unprotected manure heaps were heavier reservoirs than those caught in town flats or especially in forests. Thus in the flies caught in the immediate proximity of manure heaps the total bacterial content varied from over 10 million to over 26 million, and in all instances more than 200 *B. coli* per fly were also found. On the other extreme were the flies caught in forests, which contained from 60 thousand to 602 thousand microbes. In only one instance was a *B. coli* colony found.

An interesting part of these investigations concerned the sterilizing effects of the sun's rays on the bacterial flora of flies. When a group of flies was exposed to the sun's full rays for two hours at from 30 to 40 C the count was 160,000, in control flies there was a bacterial count of 2,540,000 colonies at the moment of capture. Similar but even more pronounced was the drop in bacterial flora of flies caught near manure heaps.

Since the work of the Typhoid Commission there has never been any doubt that flies carrying pathogenic micro-organisms can readily seed foodstuffs. The truth is again demonstrated by the results of Parisot and Fernier. After only one minute contact between the fly *Musca domestica* and an ordinary agar plate, ninety-three colonies were counted after twenty-four hours. Furthermore, contact of only a few minutes was found sufficient to seed milk, from which enormous bacterial proliferation could occur even after two hours.

While it is true that these studies emanate from rural districts in France, renewal of the knowledge of the

<sup>1</sup> Vaughan, V. C. Epidemiology and Public Health. St. Louis C. V. Mosby Company 2: 304, 1923.  
<sup>2</sup> Parisot, J. and Fernier, L. The Best Method of Treating Manure Heaps to Prevent the Hatching of Flies. League of Nations Quart. Bull. of the Health Organization 3: 1 (March) 1934.

bacteria carrying ability of flies may be particularly apopos in view of the widespread gastro-enteritis and summer diarrhea in this country this year

THE AGLOMERULAR KIDNEY

Older pathologists believed that the ultimate fate of the kidney glomerulus in chronic nephritis is fibrinous degeneration with the formation of a permanent hyaline scar. The ratio of normal glomeruli to hyaline scars, therefore, was taken as a reliable index to the extent of the kidney degeneration. Doubt as to the validity of this assumption has recently been expressed by pathologists, who conceive the possibility of complete absorption of degenerated glomeruli without the formation of permanent scars.

Joelson Beck and Moritz<sup>1</sup> of the Laboratory of Surgical Research, Western Reserve University School of Medicine, for example, made histologic sections of dog kidneys at varying intervals after unilateral urethral obstruction. From these sections they inferred a probable reduction in the total number of glomeruli which was greater than that indicated by the percentage of hyaline glomerular remnants.

This inference is confirmed by Moritz and Hayman,<sup>2</sup> who have applied to the problem some of the newer methods of quantitative glomerular assay. To count the total number of glomeruli in a kidney, the Cleveland investigators perfused intact kidneys with physiologic solution of sodium chloride followed by a prussian blue injection mass. Blocks of the injected kidneys were taken for routine histologic study. Aliquot parts of the same kidneys were macerated in 50 per cent hydrochloric acid. Since the injected glomeruli are resistant to this acid, they appear as deeply stained blue balls in the digestates. The number of injected glomeruli, therefore, is counted by means of a ruled watch glass. From this number the number of noninjected normal glomeruli and of recognizable hyaline scars is readily determined. Applying this technic, the Cleveland investigators found that, within sixty days after partial urethral obstruction plus unilateral exposure to x-rays in rabbits as many as 70 per cent of all glomeruli may be completely absorbed from the exposed kidney without leaving microscopically demonstrable hyaline masses. In presumably normal human kidneys they found the average number of apparently normal glomeruli to be 1,282,800. In chronic renal disease they found several cases in which the total number of demonstrable glomeruli was reduced to 500,000 or even to 300,000 per kidney. Only 2 to 6 per cent of this number might be represented by hyaline or fibrinous masses. From one half to two thirds of all glomeruli of these kidneys had apparently disappeared without leaving microscopically demonstrable traces.

1 Joelson J J Beck C S and Moritz A R Renal Counter balance Arch Surg 19 673 (Oct) 1929  
2 Moritz A R and Hayman J M Jr Am J Path 10 505 (July) 1934

Current Comment

PRACTICAL PATRIOTISM

The Department of Health of New Haven, Conn., has instituted a campaign to prevent the sale of fire works for the Fourth of July. On the cover of the July bulletin of the department<sup>1</sup> is a tabulation of Fourth of July accidents from fireworks for New Haven and Bridgeport for the last six years. In 1929 New Haven had fifty-one such accidents and Bridgeport seventy-four. The following year New Haven had 143 and Bridgeport 211. In that year Bridgeport adopted an ordinance prohibiting the sale and use of fireworks and New Haven rejected a similar ordinance. In the following four years New Haven had 152, 79, 83 and 104 accidents, while Bridgeport had 7, 6, 4 and 2. Such graphic representation is more than convincing of the desirability of similar ordinances to control elsewhere the unnecessary damage resulting from atomic celebrations of the nation's independence.

CYTOPLASMIC ANTIBODIES

The recently developed technic for obtaining practically undiluted cytoplasm for immunologic study should yield valuable immunochemical data and modify many theories of specific allergy and specific immunity. The well confirmed fact that certain experimental allergies and immunities are not accompanied by demonstrable "antibodies" in the blood stream and the recently suggested possibility that homologous intracellular and extracellular "antibodies" may be of different specificities<sup>1</sup> demonstrate the need for some such cytoplasmic technic. Study of intracellular specificities has usually been attempted by extracting minced tissues with physiologic solution of sodium chloride, glycerin, alcohol or other solvents, or by perfusing intact organs with Ringer's solution. Such technics at best yield but dilute solutions of the intracellular products. To obtain relatively undiluted cytoplasm, therefore, Seegal and Khorazo<sup>2</sup> of Columbia University expressed tissue juices by means of a hydraulic press. The tissues were first cut into small fragments and then minced with a large volume of filter paper. The resulting grumose mass was wrapped in cheese-cloth and subjected to a pressure of about 16,000 pounds to the inch. About 15 or 20 per cent by weight of the tissue was recovered in the expressed juice. The pressure was found sufficient to break up all tissue cells, no intact cells being demonstrable in the residue. As a sample of the application of this technic, the Seegals<sup>3</sup> made a quantitative study of the cytoplasmic antibodies in certain hypersensitive tissues. Following unilateral injection of typhoid vaccine into the anterior chamber of the rabbit's eye, for example, the local specific agglutinin titer of the press juice at times was from two to four

1 Health Monthly Bulletin New Haven Department of Health 61, July 1934  
2 Chambers J V Proc Soc Exper Biol & Med 30 874 (April) 1933  
3 Seegal Beatrice C and Khorazo Deborah Proc Soc Exper Biol & Med 31 435 (Jan) 1934  
4 Seegal Beatrice C and Seegal David Proc Soc Exper Biol & Med 31 437 (Jan) 1934

times that of the blood stream and from ten to twenty times that of the aspirated aqueous humor. Occasionally intracellular agglutinins were demonstrated with no demonstrable agglutinins in the adjacent extracellular fluids.

## Medical Economics

### SAN DIEGO CENTRAL CLINIC SERVICE

The Central Clinic Service of San Diego originated with a suggestion from the Health Council of the Community Welfare Council. The objective was to provide an organized method of meeting the medical needs of the resident indigents and others whose incomes would permit either a part or full pay service. The Central Clinic Committee is composed of representatives of the county medical society, the community welfare council, the county and city health departments, county hospital advisory board, health and development department of the city schools, navy relief, Mercy Hospital and San Diego Hospital. An executive secretary and staff operate under the supervision of the board of directors. The principal functions of this executive staff are to conduct a social service investigation to determine resources and fees to be charged and to direct patients to the physician of their choice or, if no choice exists, to a list of physicians in alphabetical order.

Patients come to the Central Clinic Service from four main sources, the physician, hospital, clinic or by direct application of the patient himself. By far the most important source is the physician, as is shown by table 1, covering the year 1933 and first six months of 1934.

TABLE 1—Sources from Which Patients Came to Clinic  
Year 1933

	Number	Per Cent
Referred by physicians	541	40.7
Referred by self	219	15.4
Referred by county	247	18
Referred by Mercy Hospital	87	6.3
Referred by San Diego Hospital	20	1.3
Referred by school clinic	103	7.6
Referred by other agencies	133	9.8
Jan 1 1934 to June 30 1934		
Referred by physicians	328	50.7
Referred by self	106	16
Referred by county	68	10.3
Referred by Mercy Hospital	26	3.9
Referred by San Diego Hospital	5	0.7
Referred by school	68	10.3
Referred by other agencies	54	8.2

There has been a continuous growth in the work of the clinics and in the proportion of families that are able to pay full or part fees.

TABLE 2—Distribution of Wages

241 or 53.8%	of this group and 30.4% of the total number of families earned below \$75 monthly
140 or 31.3%	of this group and 17.6% of the total number of families earned between \$75 and \$110 monthly
37 or 7.1%	of this group and 4% of the total number of families earned between \$110 and \$125 monthly
10 or 2.2%	of this group and 1.3% of the total number of families earned between \$125 and \$130 monthly
25 or 5.6%	of this group and 3.1% of the total number of families earned between \$130 and \$135 monthly

The fees collected in 1933 amounted to \$22,850.39. In the first six months of 1934 they were \$18,888.56. The character of the population served is shown by the fact that, of 794 families given reduced fees in 1933, 448, or 56.4 per cent were earning regular wages of some amount. The distribution of these wages is given in table 2.

Information on which this article is based is obtained from the Bulletin of the San Diego County Medical Society (Jan. 19 1934) and from material furnished by the executive secretary of the clinic.

Of the 794 families, 346 earned irregular wages or had other sources of income such as compensation, commission, pensions, or were unemployed. These were distributed as in table 3.

There are 182 physicians in the San Diego County Medical Society who agreed in January 1933 to take Central Clinic Service patients.

"As much time as we know must be spent by all families in 'making ends meet' it has been surprising to learn how few of them have actually figured medical costs into monthly or annual budgets.

"One of the important factors in the work of the Central Clinic Service has been to analyze expenditures with heads of families, to make suggestions and to plan monthly allotments, for medical service. It has been gratifying to find that this service is successful and that families have profited by the experience.

TABLE 3—Income of Families Given Reduced Fees

129 or 37.3%	of this group or 16.2% of the total number of families were unemployed
122 or 35.3%	of this group or 15.4% of the total number of families earned irregular wages
16 or 4.6%	of this group or 2% of the total number of families had compensations
31 or 8.9%	of this group or 3.9% of the total number of families earned commissions
48 or 13.9%	of this group or 6% of the total number of families had pensions

"'Steering' patients is one of the real jobs of the Central Clinic Service. The 20 per cent of patients sent to physicians at full fee were not all bargain hunters who came to the agency seeking lowered fees. Many of them were persons who were at a loss how to arrange for adequate care. The explanations of the parts played by diagnostic and treatment service of the laboratories, x-ray departments, specialties of all kinds has been important. Interpretation of the social situation of the patient to the physician undertaking the treatment has been equally important.

"Many cases have been undertaken as Central Clinic Service cases only to find that, once the service has been arranged, the patients can make their own further plans. Having assurance that costs could be controlled if necessary has been a factor in the patients' undertaking diagnostic or treatment procedures.

"Gratitude to the referring physician and to the whole service has been the outstanding point of view of patients and their families.

"The chance to have the service of the family physician or the specialists within fees that they can pay has given many patients real gratification. It has meant that the values of the patient-physician relationship have been preserved, that medical service of the finest type has been available to all members of this community.

"If social problems arise, the patients are referred to social agencies which can assist or advice is given by the Central Clinic Service workers. Cooperation between agencies has been a policy always observed.

"Each case is approached from the point of view of the family in relation to the present medical problem. The record kept is a modification of the usual medical-social face-sheet used in most case work practice. The patient shares in making the plan, he examines his own resources and those of his family. Both assets and liabilities, social and financial, are considered, situations are faced frankly. Relatives who can assist are asked to do so. But patients are taken into the plan and the success depends on the skill of the social worker in establishing in the patient the sense that he is making his budget and at his own standard of living.

"Policies regarding eligibility for reduced fees are based necessarily on the medical service involved. A family which would not be given reduced fees for minor dental service might be eligible for major surgery.

"Life insurance is generally considered an asset. However, if the family is overinsured on the general family budget the cashing of some policies is encouraged. This is true, too, if the family is obviously letting present needs suffer to save for the indefinite demands of the future.

"The owning of homes or the buying of moderately priced homes does not in any case exclude patients from the service. The purchase or retention of property for income or speculation, however, places the family in another category.

"The owning of automobiles does not exclude from service, but the purchase of expensive cars or luxuries in furniture and household equipment does.

"Reduction of fees is on a sliding scale and these above-mentioned factors are all taken into consideration.

"Patients are quick to recognize that the purpose of the Central Clinic Service is to give them adequate medical service and the cooperation of the majority of the families is splendid.

"The year shows that the applicants are made up of sincere persons, occasionally misguided, occasionally querulous, as a result of ill health or poverty, but eager for the most part, to be self dependent.

"The plan of fee setting for cases requiring hospitalization has been to use the part-pay hospital fee as a basis for the surgeons' fee and to pay the anesthetist and assistant in proportion.

"The original plan of fees outlined in Dr Hall Holder's study of Central Clinic Service published in February 1933 is in use now. The basic surgical fee to hospitals is \$3.50 per day including operating room service, routine medicines, and a minimum supply of dressings. Four-bed wards are used except in those cases where a private room is considered necessary by the physician. Private-duty nursing has been on the same basis.

"Nursing service has been limited to a few days or nights and patients, for the most part, have accepted that the physician's judgment shall determine the type of nursing service required.

"It has been almost a universal experience that if requests are made for special services, not medically necessary, the patients are not within the part-pay group.

"Part of the work of the Central Clinic Service is to plan the surgical service with the patients, outlining the facilities involved, explaining and interpreting those necessary for the welfare of the patients. This is an important and detailed social service function.

"The secretary and the board of directors cannot speak too highly of the attitude of all cooperating agencies. The Central Clinic Service average of twelve hundred telephone calls a month bespeaks the constant relationship of the service with physicians, hospitals, druggists, ambulance service, and nursing service in working out the individual cases.

"Both the executive-secretary and the field worker are members of the American Association of Social Workers and are 'registered social workers' under the standards recently adopted by the California Conference of Society Work."

The reception of the plan by the community may be judged to some extent from the following editorial in the San Diego Union, Aug 20, 1934.

"San Diego County's medical society undertook a new experiment in cooperating with its members' clientele some eighteen months ago when it established the Central Clinic. Now, after an extremely encouraging beginning, the society asks local employers to help extend the service.

"As many readers will recall from published reports, the Clinic was designed to meet the need of persons who wished to pay their way but who could not carry the full cost of medical or surgical treatment. To solve this problem an office was established under a competent social worker who was responsible for fixing the amount that any particular applicant could pay. On their part approximately 65 per cent of the Society's members agreed to abide by the decision of the central office.

"The experiment is a success. It has been widely discussed and, we are informed, has been copied in other communities. Viewed from the layman's point of view, this success is understandable. Obviously the physicians made a real sacrifice when they surrendered some of their freedom of action by accepting the aid of a third party in arriving at an equitable fee in any given instance.

"This sacrifice should win them a sympathetic hearing in calling upon local employers to cooperate by either making loans to their employees against future wages or by working

out some other means of spreading the cost of emergency treatment over a considerable period.

"All parties admit that the cost of medical care is sometimes prohibitively high. We congratulate the physicians in attacking this problem locally. And we believe that they have made sufficient progress to justify their request that business concerns help broaden the Clinic's usefulness."

## Association News

### MEDICAL BROADCASTS Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, central daylight saving time. The next three broadcasts will be as follows:

September 27 Swimming Pool Sanitation, J F Hammond, M D  
October 4 Autumn Leaves W W Bauer, M D  
October 11 Multiple Births, W W Bauer, M D

### National Broadcasting Company

Through the courtesy of the National Broadcasting Company, the American Medical Association will resume broadcasting over the blue network on Oct 2, 1934. Broadcasts will be scheduled each Tuesday afternoon from 4 to 4:15, central standard time. The number of stations, and their identity, to which this program will be available will be published in THE JOURNAL as soon as available. Topics and speakers for October are as follows:

October 2 Curiosities of Medicine Morris Fishbein M D  
October 9 School Health Problems W W Bauer, M D  
October 16 Research in Medicine A C Ivy M D  
October 23 Reading About Health W W Bauer, M D  
October 30 'Diphtheria Must Go' W W Bauer, M D

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### CALIFORNIA

**Sale of Dinitrophenol Restricted**—Physicians licensed to practice medicine in California will have sole charge of the distribution of dinitrophenol in the future, in accordance with a resolution adopted by the state department of health, August 20. Since dinitrophenol has already been responsible for a number of deaths, the board forbids any one other than a licensed physician to prescribe, dispense or sell this product.

**Gifts for Research**—Among gifts presented to the University of California recently were \$2,500 from C. S. Howard and \$800 from other citizens of San Francisco for support of research on poliomyelitis now in progress at the George Williams Hooper Foundation under the direction of Karl F. Meyer, Ph D. A gift of \$5,000 from the Rockefeller Foundation for the study of chemical aspects of vitamins and hormones under Dr Herbert M. Evans, Berkeley, was also announced.

**Society News**—At a joint meeting of the San Francisco District Dental Society and the San Francisco County Medical Society, September 4, the following dentists presented the program: Leland E. Carter, DDS, "Dental Radiographic Interpretation", A. W. Ward, DDS, "Focal Infection", and Henley Miller, DDS, "Aspects of Oral Surgery". Dr. Walter L. Bierring, Des Moines, Iowa, President, American Medical Association, addressed the Alameda County Medical Association, September 6, on "The Educational Function of the American Medical Association". A symposium on epidemic poliomyelitis formed a part of the program before the health officers' section of the American Public Health Association at Pasadena, September 3-6. The speakers included Drs. Jay D. Dunshee, state health officer, James P. Leake of the U. S. Public Health Service, and Karl F. Meyer, Ph D., San Francisco.

## ILLINOIS

**Encephalitis Continues to Increase**—For the week beginning September 3, forty-nine new cases of epidemic encephalitis were reported in Illinois, indicating a new high weekly prevalence level for the state this season, the Illinois State Department of Health reports. The department points out however that, since this total is only slightly higher than the forty-seven cases for the previous week, the peak wave has probably been reached. It was stated that three epidemic centers, Fulton, Peoria and Vermilion counties, reported eleven, twelve and seventeen cases respectively for the week of September 3, giving a total of forty. Elderly persons continue chiefly to be the victims, although a number of cases have been reported among children and young adults.

**Society News**—Dr Sidney O Levinson, Chicago, discussed infantile paralysis before the Iroquois County Medical Society at Watseka, September 13.—The Pike County Medical Society was addressed in Pleasant Hill, July 26, by Drs Kirk Shawgo on appendicitis, Milton E. Bitter, normal pregnancy, its care and delivery, Frank Cohen, allergy, and Walter M Whitaker, diarrhea in children. All are from Quincy.—Dr Frederick B Balmer, Chicago, discussed "Medical Economics as an Essential Part of a Physician's Education" before the Peoria City Medical Society at its annual fish fry at the Illinois Valley Yacht and Canoe Club, September 5.—At a meeting of the Adams County Medical Society in Quincy, September 10, Dr Clayton J Lundy, Chicago, discussed the treatment of rheumatic disease. A motion picture on "The Mechanism and Electrocardiographic Registration of the Normal Heart Beat" was also shown.—Dr William Thalheimer, Chicago, addressed the Fulton County Medical Society, August 15, on poliomyelitis.

## INDIANA

**University News**—The medical library of Indiana University recently received 130 volumes from Dr Joseph N Study, Cambridge City. Six volumes on internal diseases and a separate medical index were contributed by Mr Robert R Litz of the Medical and Dental Equipment Exchange, Indianapolis.

**Society News**—Dr Oscar N Torian, Indianapolis discussed childhood anemias before the Carroll County Medical Society at Brighurst, August 17.—Dr John H Warvel, Indianapolis, addressed the Clinton County Medical Society in Frankfort, September 6, on diabetes.—Dr Jean P Pratt, Detroit, addressed the Tippecanoe County Medical Society at Lafayette, September 13, on "Endocrine Disturbances Peculiar to Women."

## IOWA

**Society News**—At a meeting of the Van Buren County Medical Association at Keosauqua, August 10, Drs John H Peck, Des Moines, discussed "Our Responsibility in Tuberculosis," and Daniel J Glomset, Des Moines, "Coronary Disease."—Dr Owen H Wangenstein, Minneapolis, among others, addressed the Scott County Medical Society, July 26, on "Diagnostic and Therapeutic Considerations in the Management of Acute Abdominal Lesions."—Speakers before the annual meeting of the Dallas-Guthrie Counties Medical Society and its women's auxiliary in Woodward, August 2, included Drs Thomas A. Burcham, Des Moines, on "Problems of the State Society," and Stuart W Harrington, Rochester, Minn, "Diagnosis and Surgical Treatment of Carcinoma of the Breast."—Dr James C Donahue, Centerville, addressed the Davis County Medical Society in Bloomfield, July 11, among others, on "Fracture of Cervical Vertebrae."—At a meeting of the Floyd County Medical Society in Charles City, June 26, Dr James B Miner Jr read a paper on "Clinical Types of Nocturnal Dyspnea."—Dr Oliver J Fay, Des Moines, among others, addressed the Cerro Gordo County Medical Society, August 14, on principles of medical practice.

## KANSAS

**Dr Mills Appointed Editor**—Dr William M Mills, Topeka, has been appointed editor of the *Journal of the Kansas Medical Society*, succeeding Dr Earle G Brown. He will be assisted by a newly appointed editorial board, the selection of which is now being made by the executive secretary committee.

**Society News**—Dr Walter H Nadler, Chicago, will speak before the Shawnee County Medical Society, October 1, on "Diagnosis and Treatment of Diabetes Mellitus."—The Wyandotte County Medical Society was addressed, September 18, by Dr William W Abrams on hypoglycemia. The society was addressed by Dr Charles F Taylor, Norton, on tuberculosis and hospital facilities.

## KENTUCKY

**Course in Pediatrics**—A graduate course in pediatrics will begin at the Children's Free Hospital, Louisville, October 10, and continue for ten weeks, under the auspices of the American Academy of Pediatrics. A fee of \$5 will be charged for the course. In addition to the lectures and round table discussions, the newer diagnostic and therapeutic measures will be demonstrated.

**Society News**—At a meeting of the Mason County Medical Society, July 26, Dr Granville S Hanes, Louisville, discussed rectal conditions.—A recent session of the Pulaski County Medical Society was addressed by Dr Louis Frank, Louisville, on "Cancer of the Uterus," and Dr Aura J Miller, Louisville, the pathology involved.—Speakers before the Seventh Councilor District Medical Society at Crab Orchard, July 26, included Drs Winston U Rutledge, Louisville on "Fungus Infections of the Skin," and Fred W Rankin, Lexington, "Lesions of the Large Bowel and Rectum." A resolution was passed at this meeting commemorating the death of Dr James B Kinnaird, Lancaster.

## MARYLAND

**Typhoid Carrier Discovered**—In August, typhoid in a young man was reported to the Baltimore Health Department. Investigation disclosed no probable source of infection, but inquiry in the patient's family revealed that his mother had had the disease about forty years previously. Specimens proved positive for typhoid.

**Vaccination Law Enforced**—The Baltimore Health Department has requested school authorities to adhere strictly to the vaccination law which forbids teachers to accept a pupil who does not present a certificate of successful vaccination. Parents have been urged to consult their family physicians and in those cases in which it is necessary a list of clinics has been furnished.

## MICHIGAN

**New Health Unit**—With headquarters in Hillsdale, the new health unit for Hillsdale County began to function, September 1. The W K Kellogg Foundation sponsors the unit with the cooperation of the state and county. Dr Edward G McGavran is director of the unit.

**Society News**—Dr Frank G H Maloney, Ironwood, was chosen president of the Upper Peninsula Medical Society at its recent annual meeting in Ironwood, succeeding Dr John J Walch, Escanaba. The next annual convention will be held in Iron Mountain, with the Dickinson-Iron County Medical Society as host.

**Farewell Gifts to Dr Warnshuis**—Organizations with which Dr Frederick C Warnshuis, formerly of Grand Rapids, has been associated for many years presented him with gifts on his departure recently for California to become secretary of the California Medical Association. The Kent County Medical Society gave a farewell party, at which a radio was presented to Dr Warnshuis. The council of the Michigan State Medical Society gave him a wrist watch and the house of delegates a traveling bag, in recognition of his long service as secretary of the society. In addition, the house of delegates adopted a resolution expressing appreciation of his work as secretary and editor of the society's journal and as secretary of the State Board of Registration in Medicine. The staff of Butterworth Hospital, Grand Rapids, also entertained Dr Warnshuis at a dinner and presented him with a desk set.

## MINNESOTA

**Graduate Course**—The University of Minnesota Medical School, Minneapolis, will offer a short graduate course for physicians, September 24-25. Half days will be devoted to a consideration of diabetes, tuberculosis, the heart and a fracture clinic, while Monday evening will be given over to a discussion of cancer. The fracture clinic will be given by the staff of the Minneapolis General Hospital.

**Society News**—Speakers before the Wabasha County Medical Society at Lake City, July 5, included Drs Rudolph C Radabaugh, Hastings, on "Pioneer Medical Conditions in the County" and "Fecal Impaction Following Cholecystitis", Francis J Savage, St Paul, "The Work of the State Medical Association During the Past Ten Years" and "Fractures of the Humerus", Emery Covell Bayley, Lake City, "Report of Operation for Strangulated Hernia on a Four Weeks Old Premature Infant," and J Grafton Love, Rochester, "Treatment of Head Injuries."



**Southern Medical Meeting**—The Southern Minnesota Medical Association held its annual meeting at Mankato, August 13. Speakers included the following physicians

Edward T. Evans Minneapolis Backache  
Lee W. Barry St. Paul, Dysmenorrhea  
Owen H. Wangersteen Minneapolis Abdominal Pain  
Henry W. F. Woltman Rochester Headache  
Louis A. Brunsting Rochester Itching  
Philip W. Brown Rochester Diarrhea  
Gilbert J. Thomas Minneapolis Hematuria  
Arhe R. Barnes Rochester Irregular Pulse  
Thomas J. Kinsella Oak Terrace Surgery in Pulmonary Tuberculosis  
Edward L. Tuohy, Duluth Management of Essential Hypertension  
Arthur E. Hertzler Hilstead, Kan., Functional Disorders of the Gastro Intestinal Tract  
Joseph C. Michael and Burton P. Grimes Minneapolis End Results in the Malarial Treatment of Dementia Paralytica

Clinics and demonstrations were also a part of the program. Dr. Sidney A. Slater, Worthington, was elected president, Drs. Charles W. Mayo, Rochester, and Joseph C. Michael, Minneapolis, vice presidents, and Harold C. Haben, Rochester, secretary.

### NEW MEXICO

**Public Health Meeting**—Dr. Eugene P. Simms, Alamo gordo, was elected president and Dr. Walter E. Kaser, Las Vegas, vice president of the New Mexico Public Health Association at its annual meeting recently. A resolution adopted at the meeting empowered Dr. John Rosslyn Carp, Santa Fe, state health officer, to appoint a health education committee to disseminate information about public health problems of the state. George I. Sanchez, who was elected president of the committee at a meeting in Albuquerque, August 14, and Drs. Carl Mulky and Charles Howe Eller have accepted membership on the committee and others will include representatives of newspapers, parent-teacher associations, the Catholic Church and parochial schools and the Protestant churches.

### NEW YORK

**Society News**—Dr. William Justus Merle Scott addressed the Medical Society of the County of Monroe, Rochester, at a special clinic at Strong Memorial Hospital, August 16, on "Treatment of Gastric Versus Duodenal Ulcers."—Dr. Stuart B. Blakely, Binghamton, spoke on "Psychology in Obstetrics" before the Broome County Medical Society, September 11.

### New York City

**Dr. Holden Made Professor Emeritus**—Dr. Frederick Clark Holden, who has been associated with University and Bellevue Hospital Medical College since 1919, has retired as professor of obstetrics and gynecology and has been appointed professor emeritus. Dr. William Emery Studdiford Jr. has been promoted to professor of obstetrics and gynecology, effective September 1. Dr. Richard Charles Bodo has been made associate professor of pharmacology.

**Survey of Slum Areas**—An inventory of real property in Manhattan by the Tenement House Commissioner and New York City Housing Authority has brought out the fact that nearly a fourth of the families lack ordinary sanitary conveniences. The figures show that 157,749 homes are without central heating plants, 120,622 have no tub or shower bath, 60,742 are without running hot water and 11,576 lack private indoor toilets. These conditions were found not only on the East Side, the recognized tenement district, but in other and supposedly more prosperous sections as well.

**Hospital News**—The Beth David Hospital has purchased the Manhattan General Hospital and expects to occupy it within a year. With the additional ward space to be provided the capacity of Beth David Hospital will be increased to 250 beds. This institution has been at its present location since 1910.—The medical staff of the Jewish Memorial Hospital will be reorganized and enlarged in anticipation of the completion of its new building, according to *New York Medical Week*. Information concerning staff positions and application blanks may be obtained by writing Jacob Carlinger, superintendent. The address is Dyckman Street and River Road.

**Course in Dental Medicine**—The fourth lecture course in dental medicine will open at Mount Sinai Hospital, October 9, with Dr. Ernst P. Boas as the speaker on "Physical Diagnosis. Clinical Observations in Relation to Dental Conditions." The following completes the series:

Dr. Samuel H. Geist November 13 Importance of Prenatal Care  
Harry Sobotka Ph.D. December 11 Chemistry of the Saliva and Its Influence on the Tissues  
Dr. Paul Klemperer January 8 Histopathologic Studies of the Dental Tissues  
Dr. Philip Finkle February 12 Arthritis and the Teeth  
Dr. Albert A. Berg March 12 Treatment of Oral Surgical Lesions from the Viewpoint of the General Surgeon  
Harry A. Goldberg D.D.S. April 9 Dental Infections Their Significance and Treatment—Local and Systemic

### NORTH CAROLINA

**Outbreak of Malaria**—About 500 persons have been stricken with a malignant form of malaria in Camden County, newspapers reported August 6. Bruce Mayne of the U. S. Public Health Service and Dr. Joseph C. Knox, Raleigh, state epidemiologist, went to the scene to investigate.

**Society News**—Drs. Margaret Caroline McNairy, Lenoir, and Glenn R. Frye, Hickory, addressed the Catawba Valley Medical Society, July 10, on antepartum care and late toxemias of pregnancy, respectively. Dr. John D. Rudisill, Lenoir, discussed a recent outbreak of anthrax in and near that town.

**Personal**—Dr. Robert S. McGeachy, Greenville, has resigned as health officer of Pitt County to accept a similar position in Halifax County. Dr. Zack P. Mitchell, Weldon, has transferred from Halifax to Vance County. Dr. Needham E. Ward Jr., Durham, was named temporary health officer of Pitt County.

### OHIO

**Memorial for Dr. Shipley**—Funds are being solicited by a civic committee of Canton to equip an emergency unit at the Aultman Hospital, Canton, as a memorial to the late Dr. Ralph T. Shipley, for many years chief of staff of the institution. Dr. Shipley died July 7. The committee hopes that all contributions will be received by October 1.

**Dr. Hertzler Lectures**—Dr. Arthur E. Hertzler, professor of surgery, University of Kansas School of Medicine, will deliver the annual graduate lectures of the Academy of Medicine of Lima and Allen County, October 8-12. Ten lectures comprise the series which will be devoted to "Surgical Pathology," "Surgical Diagnosis" and "After-Care of Surgical Cases."

**Poetry Contest**—The Academy of Medicine of Cleveland announces that a poetry contest for members will close, November 10, the winner to receive a silver cup. The material may be presented in any of the classic forms but must not exceed forty lines, it must be the original work of the candidate. All contributions should be sent to the editorial board, which has designated an outside authority to serve as judge.

**Health at Columbus**—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended September 1, indicate that the highest mortality rate (161) appeared for Columbus and that the rate for the group of cities as a whole was 93. The mortality rate for Columbus for the corresponding period last year was 108 and for the group of cities, 96. The annual rate for eighty-six cities for the thirty-five weeks of 1934 was 116, as against a rate of 11 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

### OREGON

**State Medical Meeting at Corvallis**—The sixtieth annual meeting of the Oregon State Medical Society will be held at Corvallis, September 27-29, with headquarters at the Hotel Benton. Guest speakers will be:

Dr. William C. Woodward Chicago, director Bureau of Legal Medicine and Legislation American Medical Association The Pending Cultist Initiative Measure  
Dr. Walter L. Biering Des Moines Iowa, President American Medical Association Heart Disease and the General Practitioner  
R. R. Parker U. S. Public Health Service Hamilton Mont. Rocky Mountain Spotted Fever  
Dr. Sterling Bunnell, San Francisco Primary Operation for Intracapsular Fracture of the Femoral Neck

Oregon physicians who will participate include:

Dr. Andrew J. Browning Portland Practical Considerations of Glaucoma  
Dr. Ernest A. Woods Ashland Infections of the Nose and Throat with Reference to Foreign Protein Therapy  
Dr. Joseph B. Bilderback Portland Vitaminized Foods  
Dr. John Guy Strohm Portland Acute Gonorrheal Infection in the Male  
Dr. Charles E. Hunt Eugene, Recent Trends in Obstetric Analgesia A National Survey  
Dr. Albert W. Holman Portland, Functional Endocrine Disturbances of the Female Sex Organs  
Dr. T. Homer Coffen Portland Treatment of Angina Pectoris  
William Levin Dr. P. H., Portland Tularemia and Its Incidence in Oregon  
Dr. Arthur J. McLean Portland Fracture of the Vertebrae with Spinal Cord Lesions Indications for Laminectomy

Dr. Woodward will also address a joint meeting of civic clubs on "Why Regulate the Practice of the Healing Arts?" The eighth annual golf tournament will be held at the Corvallis Country Club, Saturday afternoon, and the annual banquet will be Friday evening at the Hotel Benton.

## PENNSYLVANIA

**State Medical Meeting at Wilkes-Barre**—The eighty-fourth annual session of the Medical Society of the State of Pennsylvania will be held in Wilkes-Barre, October 1-4. Guest speakers will be

- Dr. Frederick C. Holden, New York, Why Women Die in Childbirth—Some of the Reasons and Remedies
- Dr. George W. McCoy, Washington D. C., Research Work of the National Institute of Health
- Dr. C. Macfie Campbell, Boston, Psychiatry from the Standpoint of the General Practitioner
- Dr. Herrman L. Blumgart, Boston, Clinical Management of Patients Before and After Total Ablation of the Thyroid for Chronic Heart Disease
- Dr. Jerome P. Webster, New York, Deforming Scars: Causes, Prevention and Treatment
- Dr. John Shelton Horsley, Richmond, Va., Diagnosis and Treatment of Cancer of the Large Bowel
- Dr. Charles N. Spratt, Minneapolis, Glaucoma: Results with Sclerecto-Iridodialysis
- Dr. William V. Mullin, Cleveland, The Blood in Otolaryngology
- Dr. I. Newton Kugelmann, New York, Clinical Control of Hemorrhagic Disturbances in Childhood
- Dr. Arthur F. Abt, Chicago, Leukemia in Childhood
- Dr. Howard Fox, New York, Diseases of the Tongue
- Dr. George G. Smith, Boston, Treatment of Tumor of the Bladder

The annual golf tournament will be held at the Fox Hill Country Club, Pittston, Monday, October 1.

## Philadelphia

**President's Message to County Society**—Dr. Seth A. Brumm, president of the Philadelphia County Medical Society, in an address before the board of directors of the society at the opening of the season's activities, September 12, outlined recommendations of policy for the coming year. Dr. Brumm asserted that it is the duty of the society to uphold the ten principles of medical practice adopted by the House of Delegates of the American Medical Association at the eighty-fifth annual session in June. He said "the vigorous national policy of the American Medical Association must be followed by equally vigorous and intelligent economic policies by every state society, and the policies of the state societies must be supported and augmented by vigorous county medical society programs." In this connection he recommended closer cooperation between the medical profession and the lay health agencies of Philadelphia. "I believe the time has come when these agencies should be properly coordinated in order that their activities may be always intelligently directed by reason of the medical profession acting in an advisory capacity and with the added thought that all medical activities in Philadelphia should be and always remain under the jurisdiction of the medical profession," he declared. In a discussion of the civic relations of the society Dr. Brumm urged cooperation with the city department of health and touched on treatment of indigent patients at hospital clinics. It is especially important, he said, that hospital staffs guard against outside interference in order that the civic relation between the medical profession and the public shall remain at all times above reproach. In connection with continued education of the physician, Dr. Brumm recommended appointment of an advisory committee of medical educators to work with the society's committee on education in the formulation of a definite policy for efficient medical instruction adapted to the needs of the members.

## TENNESSEE

**University News**—Among changes in faculty positions announced by Vanderbilt University School of Medicine are the promotions of Dr. Seale Harris Jr. to associate professor of medicine and Jack M. Wolfe, Ph.D., to assistant professor of anatomy. The university also announces the publication in two volumes of the lectures delivered by Sir William B. Hardy and Dr. Francis R. Fraser in 1931 and 1933 under the Abraham Flexner Lectureship.

**Health at Nashville**—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended September 8, indicate that the highest mortality rate (184) appears for Nashville and that the rate for the group of cities as a whole was 101. The mortality rate for Nashville for the corresponding week of last year was 165 and for the group of cities, 94. The annual rate for the eighty-six cities for the thirty-six weeks of 1934 was 115, as against a rate of 11 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

**Society News**—Drs. Walter C. Alvarez and Frederick A. Willius, Rochester, Minn., addressed a special meeting of the Nashville Academy of Medicine and Davidson County Medical Society, July 31, on "Diagnosis and Treatment of Diarrhea" and "Newer Concepts of Coronary Disease," respectively. At the meeting of the Chattanooga and Hamilton County Medical Society, September 6, Dr. Robert C. Robertson, Chattanooga, spoke on Direct Fixation on Hip Fractures. Dr. Jewell M. Dorris, Memphis, addressed the Giles County Medical Society, July 26, on "Diagnosis and Treatment of Head Injuries." Speakers at the July meeting of the Hardin Lawrence-Lewis-Perry-Wayne Counties Medical Society, Savannah, July 31, were Drs. John H. Tilley, Lawrenceburg, on "Acute Abdominal Symptoms Arising from Ovarian Pathology," Phillip C. Schreier, Memphis, "Treatment of Cervical Erosions and Its Relationship to Cancer," and Walker L. Rucks, Memphis, "Infant Feeding." Dr. James E. Cottrell, Philadelphia, addressed the Knox County Medical Society, July 10, on infantilism and dwarfism.

## VIRGINIA

**Typhoid from Spring Water**—Twelve cases of typhoid with two deaths have been reported from Edgewood, near Roanoke, as a result of using water from a contaminated spring.

**Personal**—Dr. Edwin L. McQuade, recently health officer of Albemarle County, has been appointed director of rural health work for the state department of health to succeed Dr. Irl C. Riggan, who was recently made state health officer.

## WEST VIRGINIA

**Toxoid Replaces Toxin-Antitoxin**—The West Virginia Department of Health announces that henceforth one-dose toxoid will be distributed for immunization against diphtheria instead of toxin-antitoxin. Physicians who still prefer the older preparation may have it on request.

**Society News**—Dr. Rome H. Walker and Mr. Joe W. Savage, Charleston, president-elect and executive secretary, West Virginia Medical Association, addressed the Greenbrier Valley Medical Society at Ronceverte, August 21, on medical economics. The Fayette County Medical Society was addressed at its meeting in Oak Hill, August 14, by Dr. Walter E. Vest, Huntington, on "Lung Abscess," and Dr. George E. Gwinn, Beckley, on "Newer Developments in the Treatment of Tuberculosis." At a meeting of the Logan County Medical Society in Logan, August 15, papers were presented by Drs. Oscar B. Biern and Richard B. Easley, Huntington, on "Medical Aspects of Cholecystitis and Cholelithiasis." Dr. Carl S. Bickel, Wheeling, discussed placenta praevia and toxemias of pregnancy before the Tyler-Wetzel Bi-County Medical Society at New Martinsville, recently. Dr. Waitman F. Zinn, Baltimore, addressed the Monongalia County Medical Society, Morgantown, August 7, on "Acute Infections of the Middle Ear and Its Complications."

## WISCONSIN

**Presentation of the Gold Seal**—At the annual dinner of the State Medical Society of Wisconsin in Green Bay, September 13, the gold seal of the society was presented to Dr. Arthur W. Rogers, Oconomowoc, president of the Waukesha County Medical Society and of the Milwaukee Academy of Medicine and formerly president of the state society, to Dr. Rock Sleyster, Wauwatosa, editor of the state society's journal, formerly president and secretary of the society, and now vice chairman of the Board of Trustees of the American Medical Association, and to Dr. Olm West, Chicago, Secretary and General Manager of the American Medical Association.

**Society News**—Dr. George H. Ewell, Madison, addressed the Columbia County Medical Society at the Wisconsin Dells, August 13, on "Diagnosis and Treatment of Diseases of the Rectum and Anus." At a meeting of the Polk County Medical Society, July 19, Drs. William T. Peyton, Minneapolis, and William A. O'Brien, St. Paul, discussed the diagnosis and treatment of malignant conditions and relationship of public health and the medical profession, respectively. Dr. Maynard H. Fuller, Green Bay, addressed the Shawano County Medical Society, July 26, on "Industrial Eye Injuries." Speakers before the Tenth Councilor District Medical Society at Iron River, August 15, included Dr. Myron O. Henry, Minneapolis, on "Supracondylar Fractures of the Humerus." Drs. Harold E. Marsh and Carl S. Harper, Madison, were guest speakers at a meeting of the Ninth Councilor District Medical Society at Marshfield, August 16, on "Treatment of Thrombophlebitis with Leeches" and "Toxemia of Pregnancy," respectively.

## WYOMING

**Rocky Mountain Spotted Fever**—Twenty-one deaths from Rocky Mountain spotted fever have occurred in a total of ninety-one cases reported for the year 1934 up to August 1, according to *Colorado Medicine*. It is pointed out that the northern two thirds of Wyoming produced all the cases, while the southern one third was entirely free. The wood ticks appeared earlier than usual this year and in greater numbers. The supply of the Spencer-Parker vaccine which is distributed free by the U S Public Health Service from Hamilton through the state health departments, was inadequate, this year less than half of the persons who wanted to be vaccinated could be accommodated.

## GENERAL

**Society News**—The Radiological Society of North America will hold its twentieth annual meeting at the Hotel Peabody, Memphis, Tenn., December 3-7. Further information may be obtained from the secretary, Dr Donald S Childs, 607 Medical Arts Building, Syracuse, N Y.

**Bequests and Donations**—The following bequests and donations have recently been announced:

St Vincent's Hospital New York \$65 000 by the will of the late Mrs Margaret Havens Hurlburt.

Mount Sinai and Beth Israel hospitals New York \$5 000 and \$2 500, respectively by the will of the late Harry M Goldberg. Each will also benefit from the residuary estate.

New Rochelle Hospital Association New Rochelle N Y \$10 000 by the will of the late Florence M Childs.

New Rochelle Hospital, \$1 000 by the will of George W Kuchler.

White Plains Hospital Association \$5 000 by the will of the late Clara B Brown.

**Officers of Academy of Ophthalmology and Otolaryngology**—Dr Frank E Burch, St Paul, was chosen president elect of the American Academy of Ophthalmology and Otolaryngology at the annual session in Chicago, September 10-14, and Dr Wells P Eagleton, Newark, N J, became president, other officers elected included Drs William Thornwall Davis, Washington, D C, Samuel Iglauer, Cincinnati, and Marie F Weymann, Los Angeles, all vice presidents, and William P Wherry, Omaha, secretary, reelected. The academy's medal of honor was awarded to Dr Carl Koller, New York, who first introduced cocaine as a local anesthetic fifty years ago. In the absence of Dr Koller, who was unable to attend because of illness, the medal was received by his daughter, Mrs James Becker, Highland Park, Ill.

**Mississippi Valley Tuberculosis Meeting**—The annual joint meeting of the Mississippi Valley Conference on Tuberculosis and the Mississippi Valley Sanatorium Association will be held in Cedar Rapids, Iowa, September 27-29, at the Hotel Montrose. In a symposium on the pathology of tuberculosis the following physicians will take part: Drs Frank P McNamara, Dubuque, Iowa, Charles A Doan, Columbus, Samuel A Levinson, Henry C Sweaney and Richard H Jaffe, Chicago, and Harold E Robertson, Rochester. Dr Henry Kennon Dunham, Cincinnati, will conduct an x-ray clinic Thursday evening, and among physicians who will deliver addresses are:

Dr Nathaniel G Alcock, Iowa City, Genito Urinary Tuberculosis.

Dr Michael H Ebert, Chicago, Clinical Types of Skin Tuberculosis and Their Biological Significance.

Dr Jacob J Wiener, Bedford Hills N Y, Status of the Tuberculous Patient Following Discharge from the Sanatorium with Medical Treatment, Episodes and Collapse Therapy.

Dr Frederic Maurice McPhedran, Philadelphia, The X-Ray Film in Pulmonary Diagnoses—Standardization of Technique and Apparatus.

At the annual banquet Friday evening speakers will be Drs Walter L Bjerring, Des Moines, President of the American Medical Association, and H Kennon Dunham, Cincinnati, president of the National Tuberculosis Association.

## Government Services

## U S Public Health Service

Passed Asst Surg Harold D Lyman relieved at Windsor Ont. Canada and assigned at the Relief Station Washington D C.

Passed Asst Surg Waldemar C J Dreesen relieved at Washington D C about September 15 and assigned at New Orleans (Algiers).

Passed Asst Surg Cassius J Van Slyke relieved at Chicago and assigned at Ellis Island.

Sr Surg Grover A Kempf relieved at Berlin Germany and assigned to Washington D C.

Surg Paul D Mossman relieved at Albuquerque N M and assigned at the marine hospital Ellis Island.

Surg Frank V Meriwether, relieved at New Orleans and assigned at the marine hospital Ellis Island.

Drs Frederick J Brady and Thomas H Tomlinson Jr have been appointed and commissioned as assistant surgeons in the regular corps of the service.

## Foreign Letters

## LONDON

(From Our Regular Correspondent)

Aug 25, 1934

## A Large City Without Fatal Automobile Accidents

While automobile traffic continues to take a terrible toll, which in spite of every effort of the authorities tends to increase, the shipping and industrial town of Sunderland, with a population approaching 200,000, is able to announce that it has no deaths from automobile traffic. This surprising result caused the minister of transport to inquire of the mayor the reason for the freedom of the town from fatal accidents. His answer shows that the reason can be given in one word—education. For a considerable time the police have given particular attention to traffic problems and in a tactful way have exercised a control that has had the effect of reducing unnecessary fast driving. Cautions, written and verbal, have been issued when necessary and only in serious cases, now reduced to a minimum, have proceedings against drivers been taken. By means of a local "safety week" the public has been made aware of the seriousness of the position as regards road accidents resulting from carelessness. Warning posters are displayed on boards made by members of the fire department. Transparencies bearing a warning are given to drivers and affixed to windshields and windows of all types of automobiles. The theaters show a slide two or three times daily bearing advice on the avoidance of accidents. Instruction in safety first principles is given in schools throughout the year. During three or four periods of the day the police assist across the street children going to and coming from school. This has a most beneficial effect in training the children to be careful in crossing the street. When the schools reassemble after the holidays, 20,000 warning leaflets will be distributed by the police to children between 6 and 13 years of age. The shop keepers and other residents of the town display warning posters issued by the National Safety First Association. It is to be noted that this praiseworthy effort has not produced any undue slowing or congestion of traffic.

## The Dangers of Sewers

From time to time fatalities occur among men working in sewers. Some of the larger authorities issue fairly comprehensive instructions for this work, but there is a want of uniformity. As no investigation had been made by any government department or advice issued, the Ministry of Health a year ago appointed a committee to inquire into the subject. In the report it is pointed out that the dangers to men entering sewers or sewage tanks are of two kinds: (1) flooding and (2) gases. As a precaution against the former, bars or chains should be provided at all manholes in sewers, so that they can be fixed across the sewer below the point at which the man is working. Gases are classified as asphyxiating, poisonous and inflammable. The composition of air in sewers usually differs little from that of the outside atmosphere, but it may be much modified by stagnation in the sewer, due to structural defects, or by the admission of gases or liquids which readily vaporize. When stagnation occurs, the solid matter undergoes fermentation and absorbs oxygen from air in the sewer. If there is little ventilation, the evolved gases gradually displace the air, so that the sewer atmosphere becomes irrespirable from reduction of its oxygen content. Of the gases that gain admittance to sewers, coal gas is the commonest, but acetylene, from decomposition of unspent calcium carbide, is occasionally found. Ether may give rise to an explosive mixture. Of the vaporizable liquids that enter sewers, inflammable wastes from dry cleaning works are occasionally encountered, but gasoline is by far the com-

monest and may cause dangerous explosions. In sedimentation tanks the gases to be feared are usually those produced in the early stages of fermentation—carbon dioxide and hydrogen sulphide, but in septic tanks they are those produced in the later stages—methane and carbon dioxide. The dangers of asphyxiation from irrespirable gases can be removed only by adequate ventilation of sewers and tanks. The greatest risk in this country is that of poisoning by hydrogen sulphide. The first and principal precaution is to prevent accumulation of sewage or sludge by cleaning out tanks and, when necessary, sewers at frequent intervals.

It is laid down that with reasonable care accidents should not occur. The tests and precautions for ensuring safety are simple and should be strictly observed. Before any man enters a sewer or tank it should be ventilated. Tests must then be made for hydrogen sulphide (by exposing lead acetate paper for five minutes), for asphyxiating conditions (by a safety lamp) and for inflammable gases (by a detector lamp). All the men should be versed in the tests, and a life line should be worn by the first man entering a sewer or tank until safety has been established. So long as any man is in a sewer, three manholes (the one entered and that on each side) should be kept open and two men posted at the entry manhole. Smoking and the use of naked lights should be forbidden. Rescue kits should be carried by every sewer gang and kept apart from the ordinary tools, the man in charge of the gang being responsible. It should include at least two life lines and one breathing apparatus.

#### Public Health Service Under Indian Administration

That the cessation of British rule and the establishment of self government has disadvantages of which those who clamored for self government appear to have been oblivious can be illustrated in various parts of the world. In a letter to the *Times*, Mr C. L. Dunn, formerly a director of public health in the United Provinces, India, points out that, while there has been an increase in the number of hospitals and dispensaries since the health service was transferred to Indian Ministers in 1921, there has been a serious deterioration in the equipment of many hospitals and the qualifications for the personnel have been lowered. The United Provinces government reported on this deterioration in buildings and equipment to the Simon commission, and Mr Dunn vouches for a decline in the standards of cleanliness, discipline and efficiency generally, which has taken place in many hospitals in the United Provinces. In Assam they have been reduced in number and their qualifications lowered. In Bombay, Bihar and Bengal, though there has been an increase in the local staff, the provincial public health personnel, there has been a lowering of qualifications. In the Punjab the provision is so scanty that there is only one health officer and one sanitary inspector for approximately every million of the population, and in 1931 a committee of the provincial council recommended the abolition of the entire public health department. In the Central Provinces this has actually taken place. In Madras a great many of the so-called health officers have very low qualifications and some no special health qualifications at all.

In the engineering branch of the public health departments there has also been a setback. In 1921 each major province had a special branch of this kind, responsible for drainage water supplies and other sanitary works and staffed by well qualified engineers. Progress in the introduction of drainage schemes, water supplies and other services was continuous. But since 1921 the great majority of qualified engineers doing this work have been dismissed and replaced by unqualified Indian operatives. As a result not only has progress stopped but many local bodies have failed to maintain existing drainage schemes and waterworks in repair. Waterworks are continually

breaking down, even in important cities and nuisances caused by defective drainage are almost unbelievable.

The main cause of all this deterioration is the maladministration of local authorities, to which convincing testimony is borne year after year in the reports of provincial governments. So little recognition is there of the value of efficiency that in one province the superintending engineer of the public health department was censured by the legislative council for reporting the facts, and the minister under whose authority the report was printed undertook that the officer should be asked to modify his report. Any good work that is being done, such as the inauguration of maternity and child welfare activities and missions to lepers, are due to voluntary agencies and receive little help from the governments.

#### Deafness Caused by Pneumatic Drills

The antinoise campaign has been described in previous letters. Local authorities in London are considering the adoption of silencers for pneumatic road-braking machines on account of the protests made by hospitals and the public in residential areas. A pneumatic drill probably creates more noise than any other device used in the streets of London, and experiments have been in progress for some time to mitigate the nuisance. Silencers have been brought to the notice of the local authorities and in some cases taken up by them. But the contractors object to their use because of a small loss of efficiency. It has been found that about three fourths of the noise produced is due to the "bark" of the exhaust air after compression, and all attempts to muffle it produced prohibitive back pressure in the drill, with consequent loss of power. The latest type of silencer is claimed to lessen the noise of escaping air by 60 or 70 per cent, with a loss of well under one tenth in efficiency. Apart from the effect on the nerves of the public, the noise of the unsilenced drills in time produces partial deafness in nearly all those who work them.

#### Research on the Storage of Food

The progress made by research on the transport and storage of fish, fruit and vegetables is shown in the annual report of the Food Investigation Board, which has just been issued. The work was undertaken with the object of improving the food supply of Great Britain. It was found that fish can be kept in good condition aboard a trawler in crushed ice for as long as ten or twelve days. For trawlers that make trips involving long absence from port, the exact conditions for brine freezing and cold storage of the common sorts of white fish were worked out. Work has been done on the herring with the aim of improving the smoking of this fish by defining the conditions required for producing kippered herrings of high quality. It was found that if herrings are rapidly frozen in brine and stored at a low temperature they will retain their quality for a considerable period. Kippers made from them after four months' storage are barely distinguishable from those made from the freshest fish.

#### CHILLED MEAT

The trade in frozen mutton and lamb has been thoroughly investigated in cooperation with various interests in New Zealand and Australia. The most important advance as regards beef was the demonstration on a semicommercial scale by the Low Temperature Research Station that it can be held in perfect condition in a chilled state for as long as sixty or seventy days in an atmosphere containing from 10 to 20 per cent of carbon dioxide. Provided the necessary gas tightness can be secured in the refrigerated spaces of ships, Australia and New Zealand can send their beef to the United Kingdom in chill. Recently the Low Temperature Station showed that bacon and pork can be stored successfully for considerable periods in high concentrations of carbon dioxide. This is

important, as bacon cannot be stored successfully for any length of time merely by the use of cold, and consequently it has not been feasible to import it from Australia and New Zealand

#### GAS STORAGE OF FRUIT

Much of the board's work, especially on fruit, cannot find its full application unless it is accompanied by parallel work overseas. Successful cold storage of fresh fruits depends on a number of factors. Different varieties do best at different temperatures. The work on the gas storage of fruits is of more value to the home than to the overseas producer. Remarkable individuality was found in the response of different varieties of English apples to atmospheres containing different proportions of oxygen and carbon dioxide. In the present state of knowledge it is impossible to foretell how a particular fruit or a particular variety of fruit will respond to an abnormal atmosphere of given composition. It is thus essential to ascertain by trial the exact requirements of the fruit in question. But the general principle of gas storage has been shown to be beyond dispute though its possibilities as an alternative to cold storage are largely unexplored.

#### British Medical Association to Meet in Australia

The 103d annual meeting of the British Medical Association will be held in Melbourne next year during the week beginning September 9, under the presidency of Sir Richard Stawell, consulting physician to the Melbourne Hospital and to the Children's Hospital, Melbourne. The work of the meeting will be divided into fourteen sections, and it is noteworthy that the presidents of these are in all cases drawn from Great Britain. Lord Horder, medicine, Sir Thomas Dunhill, surgery, J S Fairbairn, obstetrics and gynecology, A E Barclay, radiology and radiotherapeutics, Robert Hutchison, diseases of children, Prof Edwin Bramwell, neurology and psychologic medicine, Prof E W Hey Groves, orthopedics, F F Muecke, otorhinolaryngology, Prof A Murray Drennan, pathology and bacteriology, Sir H J Gauvain, public medicine, including tuberculosis, industrial and tropical hygiene, and the history of the development of medicine in Australia, J M H Macleod, dermatology, E K Le Fleming, medical sociology, A J Ballantyne, ophthalmology, and Sir William Willcox, pharmacology, therapeutics and anesthesia.

#### PARIS

(From Our Regular Correspondent)

Aug 1, 1934

#### The International Congress of Neurologists

The fourteenth International Congress of Neurologists was held in the Salpêtrière Hospital, in the amphitheater in which Charcot taught. Dr Vurpas delivered the opening address, on "The Method to Follow in the Observation and Coordination of Neurologic Facts." The question discussed was "Study on the Vegetative Centers in the Mesencephalon." Mr Laruelle of Brussels presented a paper on the anatomy of the median diencephalon and of the upper centers of the region that forms the wall of the third ventricle, and discussed the various cell types, the topography of the nuclei, and the question of vegetative localization. He opposes the view of Karplus and Kreidl and holds that the vegetative centers are not restricted to the diencephalon but extend upward toward the cortex.

J Lhermitte discussed the role of the hypophysis and the anatomoclinical syndromes ascribable to the hypothalamic vegetative apparatus. He suspects the existence in the hypothalamus of a double polarity, one of a nervous order and the other of a hormone nature. Thus one can differentiate, on the one hand, the syndromes of hypophyseal origin (acromegaly, gigantism, Cushing's disease, Simmonds' disease or hypophyseal cachexia), and on the other hand syndromes involving the tuber cine-

reum and the infundibulum: diabetes insipidus, narcolepsy, obesity and lipodystrophies, adiposogenital syndrome, premature sexual development, and the like. He discussed the possible relations between the genital glands and the hypothalamus in hematopoiesis and considered the relations between the hypothalamus and epilepsy, and its influence in certain mental disorders. Passing over such vegetative disorders as salivary, sudoral, lacrimal and sebaceous hypercrinias, arterial hypertension and peptic ulcers, he emphasized merely from what angles study of these questions should be pursued: physiologic specificity of the centers revealed by histology in the diencephalon, nature of the lesions provocative of the syndromes observed, and their grouping under general syndromes. Many members of the assembly (Nicolesco, Marinesco, Façon, Bruch, Andre Thomas, de Martel, Ayala and others) reported observations of cases illustrating the pathology of the hypothalamus. Andre Thomas contributed a paper on thermic regulation and the part played therein by the region of the infundibulum and the tuber cinereum, basing his contentions on experimental tests and on numerous anatomic observations. Cerebral tumors, for example, may be revealed by certain febrile disorders. But the tumors are not always localized in the region of the infundibulum and the tuber cinereum. Surgical hyperthermia appears associated particularly with disequilibrium of intraventricular pressure and possibly with a reaction of the choroid plexuses. In epidemic encephalitis thermic disorders exist, and their lesions are distributed, by a process of selection, throughout the diencephalon and the mesencephalon. In fact (according to Thomas), *one cannot define the role of the region of the tuber cinereum and the infundibulum toward thermoregulation or fever without including many other regions of the neuraxis that cooperate with it.* If the tuber cinereum exerts a preponderant influence such that it can be accorded the significance of a brain center, it must be recalled that more or less remote lesions may modify the thermic curve, either by acting at a distance on the infundibulum or by some other mechanism. Aside from experimental research, one must recognize that most observations based on pathology supply arguments of probability rather than of certainty in favor of a center in the tuber cinereum or the hypothalamus.

#### French Assembly of General Medicine

The twelfth session of the French Assembly of General Medicine was devoted to a study of the dietary habits of certain regions with relation to the public health. The communications furnished by the physicians of the provinces constitute a remarkable survey of the various types of alimentation, from which results the local predominance of various types of diseases of the digestive tracts and of organic disorders. For example, gout and urinary lithiasis are unknown in the peasants who drink only cider. On the other hand, the latter are more exposed to poor dentition and to gastric ulcer that may lead to cancer. The war served to increase in the rural districts the consumption of meat, to which the peasants became accustomed during their service in the army. The conclusions that summarize the discussions and that were unanimously accepted by the assembly were the following. The diet of the French people is usually ample. An inadequate diet is found chiefly in hovels but also among the well-to-do classes through ignorance of what constitutes a suitable diet, and, particularly among the women owing to the fear of losing their slender figures. Physical education and sports, which are increasingly favored, have a tendency to establish a more rational diet. Alcoholism is less frequent among the younger generation, which is disciplined by athletics and the various sports. Hygiene has left its marks on puericulture. Cholera infantum has become a rarity and has ceased to be the social scourge it was a number of years ago. In the remote rural districts this result

appears to be due to the action and instruction of the family physician. The assembly called to the government's attention four points that are important: 1 The bread is frequently of poor quality and poorly baked. There is unanimous opposition to bread containing chemical products. 2 The supervision of milk is inadequate. Milk from poorly nourished and unhealthy cows should be rejected. 3 Rural school children are often puny because they lack suitable lunches and are reduced to one warm meal a day, and that in the evening. 4 Physicians demand that the government supervision, which has proved effective for oysters, be extended to other types of shellfish and that the raising of bivalves in waters into which sewers empty shall be prohibited.

#### Monument to Dr Roux

The monument erected to the memory of Dr Roux in the gardens of the Hôpital des enfants-malades was dedicated recently in connection with the holding of the international congress of French speaking pediatricians in Paris. The monument consists of a large low relief, the work of the sculptor Rouché, which represents the eminent scientist in his laboratory examining a microscopic specimen. At the dedicatory ceremonies Dr Martin, who was the collaborator of Roux at the Institut Pasteur in his discoveries of antidiphtheritic serotherapy, gave a biographic sketch of the scientist, interspersed with personal reminiscences, while Professor Marfan emphasized the importance of this discovery. The ceremonies were attended by many official delegates.

#### BERLIN

(From Our Regular Correspondent)

July 30 1934

#### Hereditary Cutaneous Diseases and Consent to Marriage

In an address before the medical society of Frankfurt-on-Main, Schmidt-La Baume warned against exaggeration in the medical consultations on marriage. Only a small number of hereditary diseases are of practical importance. In research on these diseases, race, family and twin relationships constitute excellent research material. In studying familial pathology, great caution must be exercised, as some diseases must have left traces in almost every family tree. A common source of error is the inaccuracy of statements with regard to family trees. One must distinguish carefully between medical diagnoses and statements derived from the family history. If a certain disease is dominant, it is more important to study complete groups of siblings than to search through a large number of generations. Many siblings, however, do not attain the age in which the disease appears. It will be understood that recessive diseases are not recognized until late as hereditary diseases. A denial, by the consultant, of approval of a contemplated marriage should be based only on absolutely certain results of hereditary research.

The attempts to build up a rigid system characterizing the various hereditary diseases are still rudimentary. Among the large number of cutaneous diseases many eliminate themselves; many others are rare and many are not so important, as the damage they cause is slight. For example, the presumably dominant varices are not sufficient reason for withholding consent to marriage. Of importance are chiefly bullous conditions, keratoses and blastomas. Of the bullous conditions especially epidermolysis dystrophica and epidermolysis simplex deserve attention; hereditary transmission in the latter case being dominant and in the former recessive. If the family history of a candidate for marriage shows these diseases the medical consultant may with justice advise caution or actually prohibit marriage. According to the literature pemphigus vulgaris is hereditary but since it will be impossible to find a family tree

that furnishes unequivocal proof of this contention, it is not a valid reason for refusing consent to a marriage. In the case of light dermatoses, hereditary influences have been demonstrated with certainty, hence consent to marriage should under all circumstances be withheld. Folliculoses and hidroses have only a cosmetic interest, it should, however, be emphasized that acne vulgaris is of a highly hereditary nature. Ichthyosis congenita is of a recessive hereditary nature, the new-born with this disorder usually die from its effects. Keratoma palmare, which renders patients incapable of doing any form of manual work, is of a pronounced hereditary type. Xeroderma pigmentosum is a severe type of disease that usually leads to the formation of malignant tumors, marriages between persons with too high a degree of consanguinity are frequently associated with this condition. In the family trees one finds a morbidity of 25 per cent, there is evidence therefore of a typically recessive disease. In the three last named diseases, permission to marry should be refused under all circumstances. Of the anomalies affecting the males, onychogryposis and anonychia are of a dominant hereditary nature, but these conditions do not assume an important role in connection with consultations on marriage.

Malignant tumors are by no means uniform in their hereditary aspects. Recklinghausen's disease is sometimes dominant but not regularly so, sterilization is demanded in some quarters. Psoriasis, or at least the predisposition to it, is of a dominant hereditary nature, however, in only one case out of seven does the person thus menaced develop the disease. There is no adequate reason to warn a person thus menaced against marriage. Infectious dermatoses are not of practical importance in this connection. An urgent warning is uttered against exaggerations with reference to cutaneous disorders in connection with heredity and great caution should be observed in the matter of withholding consent to marriage.

As far back as the closing years of the last century, an international congress in Paris demanded prohibition of marriage in the presence of venereal disease. The consultation centers for venereal patients are not much frequented. The crusade against venereal disease must be carried on in an entirely different manner than in the past. The preliminary instruction should be given in the upper classes of the common schools. In contradistinction to gonorrhea, syphilis is exceedingly important for posterity. If syphilis is treated in the primary stage, a negative serologic test must be demanded over a period of two years. But if syphilis is not treated until the secondary stage is reached, not only the serum test but also examination of the cerebrospinal fluid must be negative for at least five years before consent to marriage can be given. In connection with the examination, it must be borne in mind that malaria may induce a positive Wassermann reaction. In the case of congenital syphilis, this test cannot be influenced by treatment but sometimes becomes negative spontaneously after a period of years. In the presence of neurosyphilis and/or a visceral involvement, marriage must be prohibited under all circumstances, the candidates for marriage being informed of the exact situation. The greatest caution should be used toward all new antisyphilitic remedies for the complete testing of their efficacy must be extended over generations. Until such extensive research has been completed there is no question of a serious competitor of arsphenamine. It cannot be too strongly emphasized that a person with syphilis is an absolutely unsuitable partner for marriage.

#### Moral Offenses During the Postwar Period

According to extensive research by Dr Julier, the number of offenses against good morals recorded for 1913 (18,862 cases) has not been equaled in any year (up to 1930) since the war. In 1926 the total was 16,441, following which a retrogression



set in, the total number for 1930 having been 13,630. The first year after the war (1919), a marked reduction in the total number of recorded offenses is observable, but the reduction is due to postwar laxness in following up cases and hence permits no conclusions with reference to real conditions. The figures for incest reached the peak for the prewar period in 1913, from 1919 on they showed a gradual increase and reached their postwar peak in 1925. The underlying cause cannot be unemployment, for this crime shows a high incidence also in the rural districts. Incest with violence applied to children shows an almost uninterrupted increase, with its peak in 1926, and continues then along about the same level, which corresponds to the prewar figures. Exhibitionism reached its peak in 1926, which was followed by a considerable decline. Homosexual crimes of men increased markedly between 1921 and 1924 and then declined. On the other hand, the increase of cases of abuse of authority by guardians, private educators and others is due mainly to ethical deterioration following a period of reduced sense of moral responsibility. In 1930 there were recorded 244 such cases, as against 130 in 1913. As to the participation of juveniles themselves in such crimes, incest accompanied by violence exceeds among male juveniles all other punishable offenses in frequency and, in particular, far exceeds the incidence of criminal moral offenses among female juveniles. In these statistics, however, it must be borne in mind that official statistics comprise only cases in which a sentence was imposed by the court of first instance, so that the numerous offenses committed by unknown persons, the acquittals, the withdrawals of charges, and cases in which secrecy was observed for moral reasons, are not included.

#### Reorganization of the Public Health Service

In the reorganization of the public health service, which has frequently been discussed in these letters, the federal government has adopted new measures. In the past, in the various *lander* of the German reich the administration of the public health service was in the hands of government health officers, which were linked up with the lower administrative bodies. In view of their multiplicity of tasks, the health officers were unable to satisfy the constantly increasing demands particularly as regards the providing of financial aid for those in need of welfare care and treatment, so that the communes turned over to their own communal physicians the task of securing financial aid and treatment for the needy, and also the officers of the social insurance system and of the organizations for the care of war victims began to appoint their own confidential physicians. Other centers, then recognizing the importance of health values for the people, began to be active in this field. But the fact cannot be ignored that these tasks require a uniform administration. The law that goes into effect, April 1, 1935, furnishes the basis for such reorganization. This law provides that, for the uniform administration of the public health service in the cities and rural districts, bureaus of health shall be created and directed by government health officers. The duties of these bureaus are (1) execution of the medical tasks of the sanitary police, administration of hereditary and racial matters, including consultations on marriage, enlightenment of the people in hygienic subjects, care of the health of school children, consultation services for mother and child, welfare aid for the tuberculous, for venereal patients, for persons with physical handicaps, for invalids and for drug addicts, (2) medical cooperation in measures for the promotion of proper care of the body, including physical exercise, and (3) the activities of the health bureaus, the courts and the confidential physicians, so far as they are entrusted to the health officers. In addition, further duties of the character of those of confidential physicians may be assumed in the field of social insurance, that is, in the *krankenassen* and the like.

The hospitals, the sanatoriums and the convalescents' homes, on the other hand, are to remain under the same administration as before. These bureaus of health are government institutions, toward the support of which the cities and the rural districts will contribute. In some instances, existing institutions of the cities and rural districts will be allowed to take over the functions of the newly created bureaus of health, in which event the central government will contribute to their financial upkeep, since, in general, the reich contributes to the support of the public health service. The bureaus of health are also empowered to charge fees, in accordance with a fee schedule to be established by the federal minister of the interior. In short, this new law will effect a uniform reorganization of the public health system under the direction and general supervision of the federal minister of the interior.

#### BUDAPEST

(From Our Regular Correspondent)

Aug 17, 1934

#### Celebration of the Professorship of Emile de Grosz

Dr Emile de Grosz, professor of ophthalmology at the University of Budapest, president of the International Trachoma Committee and leader of the Budapest postgraduate medical courses, solemnized the thirty year jubilee of his professorship. Since January 1904 he has been head of the Budapest eye clinic. For this occasion his pupils edited a souvenir volume. During these thirty years, 659,068 outpatients have attended his clinic, while the number of inpatients amounted to 52,032.

The ruling principle at his clinic is the motto of his predecessor, the celebrated clinician Arlt: "*Salus aegroti suprema lex esto*." In his clinic the welfare of the patient is supreme, and the didactic feature is secondary. The main requirement of practical medical teaching is that the behavior of the teacher with the patients should serve as an example to the students.

During the thirty years, 4,326 glaucoma patients were admitted to the hospital and more than 10,000 glaucomatous outpatients were attended at the clinic. Of the patients admitted to the hospital, 18.6 per cent had no light sensation at all, and the rate is still higher among the outpatients.

In the development of his clinic, Professor Grosz has paid particular attention to the development of a library. The grant for this purpose from the ministry was inadequate, and Grosz had to look for another source of money to be able to augment the library. Eventually this was found in fees paid to him by the so-called extra patients attending the clinic. In the jubilee booklet, Professor Grosz complains of the high prices of books and periodicals, rendering difficult their purchase. He mentions one book, the "*Kurzes Handbuch*," each volume of which costs 185 marks, the whole work of seven volumes 1,780 pengos (about \$510), for which sum quite a nice little house can be purchased in one of the suburbs of Budapest. The subscription to German ophthalmologic periodicals varies between 60 and 120 marks.

The clinic has a complete library of rare books on the work of ophthalmologists. Most precious among them are Jacob Schallung's "*Ophthalmia sive disquisitio hermetico-gallenica de natura oculorum*," which appeared in German and Latin in 1615 in Erfurt. Georg Bartisch's "*Augendienst*," published in Dresden in 1583 which, as the first ophthalmologic manual, reached three editions and a valuable book Vopiscus Fortunatus Plempius's "*Ophthalmographia sive tractatio de oculo*," the first edition of which appeared in 1632 in Amsterdam. A curious book is that written by Laurentius Heister, professor of surgery and anatomy at the University of Altdorf, "*Apologia de cataracta glaucomate contra Wolfhusi*" (1717). This book was written by Heister in defense of his earlier published book against Woolhouse, a contemporary English physician.

De Grosz's eye clinic is equipped with a modern bacteriologic and serologic laboratory, a pathologic-histologic section that attracts many distinguished foreign guests. During the course of last year prolonged studies in the latter laboratory were made by O Schopfer of Tübingen and S R Gifford and T D Allen of Chicago. During the course of the past thirty years more than 300 publications of pathologic reference appeared, mainly in foreign medical journals, written by the staff of de Grosz's clinic. An integral part of the clinic is the optical laboratory, which is a museum of optical instruments. All scientific optical instruments can be found here. The teaching staff of de Grosz's clinic consists of one adjunct, three assistants, three salaried juniors, three unsalaried assistants and five unsalaried juniors. The number of students who attended Professor de Grosz's lectures during the thirty years was 8,763. The attendance was greatest in the second session of the 1918-1919 school year, 708, and the smallest, 117, in 1928-1929.

### QUEBEC

(From a Special Correspondent)

Aug 30, 1934

#### Celebration of the Fourth Centenary of the Discovery of Canada

To add to the ceremonies organized by the Canadian government for the celebration of the fourth centenary of the discovery of Canada by Jacques Cartier, the thirteenth Congress of French-Speaking Physicians of North America held a joint session with the twenty-third annual Congress of the French-Speaking Physicians of Europe, which convenes alternately at Paris and in some large city of Belgium or Switzerland. The joint congress was attended by 143 French physicians, five of them professors at the Faculté de médecine de Paris, under the conduct of Prof Emile Sergent and Prof Henri Hartmann, several professors from Lyons, Bordeaux and Marseilles, a number of physicians and surgeons from the hospitals of Paris and the provinces, and a group of Belgian and Swiss physicians. Likewise a number of physicians from the United States, including Prof Max Einhorn of New York, were in attendance. The chief topics considered were "Pancreatitis," "Hypoglycemic States" and "Pyretotherapy." On the opening topic (pancreatitis) papers were presented by Albert and Jean Lesage of Quebec, Professors Cade and Ravault of Lyons, and Rambeaud and Albert Puech of Montpellier. P Brocq, surgeon to the "hopitaux de Paris," and Professor Berard of Lyons gave an account of their studies on the surgical treatment. It appears that pancreatitis, in the first stage of edema, sometimes clears up spontaneously. Einhorn shared that view and reported successful results obtained with duodenal intubation. Brocq questioned these results, however, and expressed his doubts as to whether a true case of pancreatitis was involved. On the second topic (hypoglycemic states), Prof Marcel Labbe of Paris, Dr Jean La Barre of Brussels and Professors Lemieux and S Leblond of Ghent furnished three papers describing the role played by the various endocrine glands. The third topic (pyretotherapy) was considered by Charles Richet Jr of Paris, Henri Roger of Marseilles, and Fribourg-Blanc, A Halphen and Jacques Auclair of Paris, the last two speakers dealing chiefly with the use of short waves and diathermy. The diseases in which pyretotherapy has been tried during recent years were reviewed, including dementia paralytica, septicemia, gout and diabetes. The speakers emphasized that the results of pyretotherapy are rather uncertain, being sometimes most remarkable and sometimes temporary or even almost nil, without any assignable reason to explain the widely different therapeutic effects. The subject is still controversial, and extended experimentation will be necessary to clarify the situation. The numerous unofficial communications dealt with widely different subjects, as is usual. International congresses with too exten-

sive programs are like vast expositions to which every one brings his product and at which attention is generally dissipated. They are clearing houses for medical ideas. To get the full value of attendance at such a congress, a report of the proceedings should be read later. The sessions, which lasted four days, were held simultaneously in two different auditoriums. In addition, every morning, in five hospitals, lectures were delivered by eminent foreign specialists, French or Belgian. Particular attention may be called to the lectures of Prof Pierre Duval on "Postoperative Azotemia," of Professor Hartmann on "Stenosing Rectitis," of Professor Fiessinger on "Les gros foies de surcharge," of Professor Sergent on "The Results of Thoracoplasty and of Phrenicectomy," of Dr Oscar Mercier on "The Diseases of the Neck of the Bladder," and of J N Lavergne on "The Diagnosis of Hydronephrosis."

Emphasis was laid on research on tuberculosis. Professor Arlong of Lyons presented a study on the avian bacillus and the tuberculous virus, while Dr Edouard Morin offered a paper on the same subject. A special section was devoted to mental hygiene and to psychiatry, to which the Canadian physicians made important contributions. The congress, which was presided over by Prof Albert Paquet of Quebec, was the occasion for many social functions. On the opening day the foreign conventionists proceeded to the cemetery for the purpose of depositing floral wreaths on the tomb of Prof Arthur Rousseau, who had been chosen to preside at the congress but who died several months ago. A eulogy in his memory was delivered by Prof Emile Sergent.

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## Marriages

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MALVERN BRYAN CLOPTON, St Louis, to Mrs Rachel Lowe Lambert of Princeton, N J, in Rindge, N H, July 10

JOHN SASSER MCKEE JR, Morgantown, N C, to Miss Betty Ambler McGill of Appomattox, Va., June 30

JOHN RICHARD SHANNON MAYS, Macon, Ga, to Miss Geraldine Barrett of Hendersonville, N C, June 2

ANDREW MUNCY GROSECLOSE, Roanoke, Va, to Miss Mary Katherine McLaughlin of Richmond, July 5

HERBERT STEPHAN DIECKMAN, Evansville, Ind, to Miss Ona Emily Boyd of Indianapolis, May 24

HENRY SOFOROUS BOURLAND, Drexel Hill, Pa, to Miss Inez Reeves at Bradford, Iowa, June 22

HENRY PERRINE COLMORE, San Juan, P R, to Miss Mary Virginia Thomas of New York, June 23

FRED GLENN DE BUSK, San Francisco to Miss Maurine A Jenkins of St Paris, Ohio, June 17

THOMAS CYPRIAN LAWFORD to Miss Doris Louise Petty, both of Hilton Village, Va, July 7

JOHN MARSHALL WINKFIELD, Strasburg, Va, to Miss Mary G Boland of Reading, Pa, July 2

CHARLIE FRANK MANGES to Mrs Susie Robinson Ware, both of Blacksburg, Va, July 2

MATTHEW J BOLAND, Hamburg, Pa, to Miss Eleanor Mundy of Tamaqua, May 31

ORVILLE LINDSAY ABBOTT, Bellflower, Ill, to Miss Truth Kirk at Bloomington, June 16

ARTHUR WILLIAM ABTS to Miss Frances Reinhart, both of Humphreys, Neb, June 15

GALITAN NEWTON WILSON to Mrs Louise Amiot, both of Vernon, Texas, June 16

WILLIAM DEVITT, Allenwood, Pa, to Miss Lida Wendle of Lewisburg recently

HUGO ALFRED AULER to Miss Mary Blanton, both of Austin, Texas, June 12

VIRGIL C DAVES, Vienna, Ga, to Miss Henrilea Gross of Alamo, June 3

MARK DANIEL to Miss Evelyn Lipkin, both of New York, recently

## Deaths

**William Campbell Posey** ☉ Radnor, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1889, Chairman of the Section on Ophthalmology of the American Medical Association, 1909-1910, and at one time member of the Advisory Committee on Trachoma Among the Indians, member of the American Academy of Ophthalmology and Otolaryngology, member and past president of the American Ophthalmological Society, fellow of the American College of Surgeons, since 1922 member of the board of directors of the National Society for the Prevention of Blindness, formerly professor of diseases of the eye, Philadelphia Polyclinic for many years on the staffs of the Wills Hospital, Howard Hospital, Children's Hospital and the Chestnut Hill Hospital, Philadelphia Abington (Pa.) Memorial Hospital and the Westerly (R. I.) Hospital, co-author of "Treatise on Diseases of the Eye, Ear, Nose and Throat," "The Eye and the Nervous System" and "The Wills Hospital of Philadelphia", author of "Hygiene of the Eye", aged 68, died suddenly, September 5 of cerebral hemorrhage while aboard the liner *Rer* en route to the United States from Naples, Italy

**William Cline Borden** ☉ Lieut Colonel, U. S. Army, retired Washington, D. C., Columbian University Medical Department, Washington, 1883, entered the army as an assistant surgeon in 1883 veteran of the Spanish-American War was promoted through the various grades to that of lieutenant colonel in 1909 when he retired for disability in line of duty returned to active service during the World War as chief of the surgical service, Walter Reed General Hospital, 1917-1919 member of the House of Delegates of the American Medical Association in 1904, professor emeritus of surgery, formerly dean, professor of surgery, medical ethics and histology, George Washington University School of Medicine, professor of military surgery, Army Medical School, and professor of surgical pathology and military surgery, Georgetown University School of Medicine, 1898-1907, a founder and fellow of the American College of Surgeons, surgeon in chief at the George Washington University Hospital, 1909-1931, aged 76, died, August 18, at his summer home in Chaumont, N. Y.

**Maurice Fishberg** ☉ New York, New York University Medical College 1897, clinical professor of medicine, University and Bellevue Hospital Medical College, 1915-1928 vice president of the New York Academy of Sciences, 1909-1910, consultant to the Montefiore Hospital County Sanatorium, Bedford Hills, N. Y., author of "Materials for the Physical Anthropology of the Jews," "The Jews—A Study of Race and Environment," and "A Treatise on Pulmonary Tuberculosis", aged 62, died suddenly, August 30, of heart disease

**Hugh Wilkinson** ☉ Kansas City Kan., Rush Medical College, Chicago, 1901, past president of the Wyandotte County Medical Society, secretary of the Kansas City Southwest Clinical Society, fellow of the American College of Surgeons, served during the World War, surgeon to the Bethany Methodist Hospital, on the courtesy staff of St. Margaret's and the Providence hospitals, aged 57, died, August 14, of coronary thrombosis

**Joseph Baxter Emerson**, New York, University of Virginia Department of Medicine, Charlottesville, 1876, member of the Medical Society of the State of New York and the American Otolological Society, for many years on the staffs of the Englewood (N. J.) Hospital and the Manhattan Eye and Ear Hospital, aged 80 died, July 24, at the home of his daughter near Charlottesville, Va., of carcinoma

**Carl Ferdinand Bookwalter** ☉ Chicago, Johns Hopkins University School of Medicine, Baltimore, 1910, assistant professor of oto-laryngology, Northwestern University Medical School fellow of the American College of Surgeons, on the staff of the Passavant Memorial Hospital aged 54 was found dead, September 10, in a hotel at Danville, Ill., of a gunshot wound, presumably self inflicted

**Paul Edward Allen**, Cherokee, Iowa, State University of Iowa College of Homeopathic Medicine, Iowa City 1910 member of the Iowa State Medical Society, past president of the Cherokee County Medical Society on the staff of the Sioux Valley Hospital, aged 51, died, July 2, of streptococcal infection

**Benjamin Alexander Owen** ☉ Perry, Okla., Maryland Medical College Baltimore, 1905 also a pharmacist, past president and secretary of the Noble County Medical Society, county superintendent of public health, aged 59 died, July 17, in the Enid (Okla.) Hospital of carcinoma of the pancreas

**Shirley Dan Folsom**, Muscatine, Iowa, Hahnemann Medical College and Hospital, Chicago, 1917, member of the Iowa State Medical Society, served during the World War, on the staff of the Benjamin Hershey Memorial Hospital, aged 47, died suddenly, July 22, of acute dilatation of the heart

**Philip Charles Douress**, Trenton, N. J., Jefferson Medical College of Philadelphia, 1912, member of the Medical Society of New Jersey, served during the World War police surgeon, on the dispensary staff of St. Francis Hospital, aged 46, was killed, August 30, in an automobile accident

**Charles Ernest Howard**, Cogswell, N. D., American College of Medicine and Surgery, Chicago, 1905, served during the World War, aged 54, died, July 29, in the Veterans Administration Facility Fargo, of chronic nephritis, cirrhosis of the liver and Korsakoff's syndrome

**Charles Hunter Drake**, Birmingham, Ala., Tulane University of Louisiana Medical Department, New Orleans, 1906, member of the Medical Association of the State of Alabama, served during the World War, aged 57, died, August 14, of chronic hypertension and hemiplegia

**Floyd McKennan Baldwin**, South Pasadena, Calif., Rush Medical College, Chicago, 1903, served during the World War, formerly operated a hospital bearing his name in Red field S. D., aged 58, died, August 16, in the Palo Alto (Calif.) Hospital, of cerebral hemorrhage

**Henry Graham Bartlett**, Benton Harbor, Mich., Chicago Homeopathic Medical College 1896, member of the Michigan State Medical Society, formerly health officer of St. Joseph, aged 64, died August 21, of cerebral hemorrhage and mitral insufficiency

**George Curtis Ellis**, Chicago Rush Medical College, Chicago, 1918 on the staff of the Provident Hospital aged 44, died September 2, in the Albert Merritt Billings Hospital, of carcinoma of the rectum with metastasis to the liver

**Max Green**, Philadelphia, Jefferson Medical College of Philadelphia, 1903, member of the Medical Society of the State of Pennsylvania, on the staff of the Mount Sinai Hospital, aged 64, died, August 19 of heart disease

**Leon Deville**, San Diego Calif., College of Physicians and Surgeons, medical department of the University of Southern California, Los Angeles 1911 aged 60, died, June 7, of acute myeloid leukemia and bronchopneumonia

**Philip Benjamin Fry** ☉ Benicia, Calif., College of Physicians and Surgeons of San Francisco, 1902, past president of the Solano County Medical Society, aged 62 died, August 21, of fatty degeneration of the heart

**Frank Hinchey**, St. Louis Missouri Medical College, St. Louis, 1894, member of the Missouri State Medical Association on the staff of the Missouri Baptist Hospital, aged 66, died August 9, of heart disease

**William H. Wilson**, Washington, D. C., Howard University College of Medicine, Washington, 1907, clinical instructor in surgery at his alma mater, on the staff of Freedmen's Hospital, aged 51, died, June 27

**John Brockinton Pressley**, Santa Rosa, Calif., University of California Medical Department, San Francisco, 1882, aged 74, died, June 22, in the Santa Rosa Hospital, of chronic endocarditis and myocarditis

**Robert H. Harrison**, Houston, Texas, Medical College of Ohio Cincinnati, 1883, aged 73, examining surgeon to the Southern Pacific Hospital, where he died, July 14, of myocarditis and angina pectoris

**Charles Stuart Hutchison**, Los Angeles College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898, aged 60 died suddenly, August 4, of cerebral hemorrhage

**William H. Harris**, Augusta, Maine University of Vermont College of Medicine, Burlington 1888, member of the Maine Medical Association, aged 72 died, June 13, of arterio sclerosis and nephritis

**Churchill Charles Franklin** ☉ Trenton, N. J., Harvard University Medical School, Boston, 1925 aged 37, died, July 25 in St. Francis Hospital, of tuberculous arthritis and pulmonary tuberculosis

**Henry Sumner French**, St. Paul University of Minnesota Medical School, Minneapolis, 1920, aged 41 died, August 2, in the Ancker Hospital, of injuries received when struck by an automobile

**Joseph Schofield Winters**, Bessemer, Ala., Louisville (Ky.) Medical College, 1890, member of the Medical Association of the State of Alabama aged 67, died, August 5, of cerebral hemorrhage

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted, on request.

### TUBERCULIN TESTING AND INCIDENCE OF TUBERCULOSIS

To the Editor—I have read with some interest your article on tuberculin testing which appeared in *Queries and Minor Notes* in *The Journal* May 26 and I feel that your comments are not sufficiently comprehensive. You have presented but one phase of a highly controversial subject and that giving the view of what is probably a minority of those interested in this work.

All will agree that a person who reacts to tuberculin has been exposed to tubercle bacilli but I question strongly that seeking this source often results in finding an open case of tuberculosis unless the reactor happens to be an infant or very young child in which case owing to the limited number of people with whom he comes in contact it is frequently possible to determine such a source. But as the child grows older and his circulation among the population becomes wider, the possibility of detecting such a source becomes remote and in the case of adolescents and adults the task assumes such proportions as to require a spirit of investigation and a corps of searchers such as few could possibly possess.

Even when a definite tuberculous lesion is demonstrable in the child it is no simple matter to find the original source of infection at home. In a recent article Edwards (*Am. Rev. Tuberc.* 27:611 [June] 1933) states that in the examination of the families of a large number of children who have been diagnosed as having tuberculosis of childhood only a single case of adult pulmonary tuberculosis could be found.

It is true that the positive test establishes the fact that the tissues are sensitive or allergic to the products of growth of tubercle bacilli, but it is by no means so certain as is implied that such people are more likely to develop tuberculosis and fare poorly because of this allergy. Quite the contrary view is held by many. You neglected to mention that many careful students of the subject including Parke Krause, Opie and Heimbeck, are convinced that there is developed within the individual simultaneously a relative degree of immunity to the disease and if he should contract it a certain amount of resistance.

In discussing this subject Myers (*Am. Rev. Tuberc.* 27:121 [Feb.] 1933) quotes the work of Heimbeck who showed that of 185 pupil nurses who had negative tuberculin reactions when they entered training fifty three contracted the disease, whereas among 152 classmates who were positive but three developed tuberculosis. Surely this does not show any particular predilection for the disease among those who have had a previous experience with tubercle. The same author, Myers in a previous publication (*Recent Facts on Transmission of Tuberculosis*, *The Journal* Aug. 1 1931, p. 316) describes seven cases that had recently come to his attention among nurses and medical students none of whom reacted to tuberculin at the beginning of their training but who soon acquired the infection together with symptoms of the disease when they were assigned to a tuberculosis hospital. Obviously the fact that they had not been previously infected was no asset to them, no mention is made of their classmates who had positive reactions, but probably their experiences were more favorable.

Opie (*Tr. Col. Phys. Philadelphia* 1927) draws the conclusion that 'Latent tuberculosis of childhood confers immunity against subsequent infection, but resistance is limited and transient. Pulmonary tuberculosis of adults is not derived from the disease of childhood, but it is the result of new infection and pursues a chronic course because some immunity induced by preceding disease still persists.' Willis (*Am. Rev. Tuberc.* 17:240 [March] 1928) has shown in animal experimentation with the tubercle bacillus that relative immunity and resistance increased with the virulence of the organism, that they receded with healing of the infection but that they still persisted in latent form and that they were immediately reactivated by reinfection. Such resistance is illustrated very effectively in those people who develop the exudative lesion described by Wessler and Jaches and who are able to heal it entirely with an absence or minimum of symptoms, also in those with productive lesions which remained stationary or progressed slowly over a great many years allowing the patient to lead a comfortable and useful existence.

I feel that it is decidedly objectionable to broadcast the statement that the person who reacts positively to the test is a potential case of a reinfection type of tuberculosis because of the implication that such people are in danger of developing tuberculosis. It is true that no one possesses absolute immunity to the disease but it has yet to be shown that those who have had a primary infection are more likely to succumb than those not so infected. It is contrary to the facts as they are known, else how explain the fact that in large cities with an overwhelming proportion of the population infected the mortality rates are so relatively low?

It is my impression that the amount of tuberculin generally used in testing is 0.1 mg. Assuming this to be the case I think your statement 'The dose of tuberculin used in testing school children causes no harm whatever, even if the child has a reinfection type of disease' is one to which many pediatricians would take issue for the feeling is distinctly held by many that it may reactivate dormant bacilli and may cause a spread in active lesions. One not infrequently observes a large local inflammatory area, sometimes even vesicle formation at the site of inoculation and a rise in temperature, it is reasonable to suppose that such local and constitutional reaction is coexistent with the stimulation of the original focus in the lung or hilus.

The views expressed in your answer are contrary to those held by many prominent phthisiologists. One would think that in discussing such a subject these opposing opinions should be stated in order to avoid presenting to the medical public one extreme view of a controversy.

John Francis Cross, Yakima, Wash., Creighton University School of Medicine, Omaha, 1921, member of the Washington State Medical Association, aged 39, died, June 29, of coronary thrombosis.

Peter V Faucher, Quebec, Que. Canada, Laval University Faculty of Medicine, Quebec, 1887, professor of materia medica and therapeutics at his alma mater, aged 69, died, July 3.

James Randall Wilder, Washington, D. C., Howard University College of Medicine, Washington, 1888, aged 68, died, July 7, of chronic duodenal ulcer, stenosis and pulmonary edema.

Bernard Francis McDermott, Los Angeles, College of Physicians and Surgeons, Baltimore, 1897, aged 61, died, June 8, of cerebral thrombosis and chronic nephritis.

John Martin Helgesen, Beloit, Wis., College of Physicians and Surgeons, Keokuk, Iowa, 1897, aged 61, died suddenly, July 25, in Cassville, of cerebral hemorrhage.

William L Higginbotham, Sherman, Texas, University of Tennessee Medical Department, Nashville 1891, formerly a druggist, aged 77, died, July 13, of heart disease.

George Higginson, Nashville, Tenn., Vanderbilt University School of Medicine, Nashville, 1891, aged 69, died, August 15, of pulmonary abscess and Parkinson's disease.

Frank Hiram Edwards, Los Angeles, Chicago Homeopathic Medical College, 1895, Rush Medical College, Chicago, 1901, aged 61, died, August 17, of heart disease.

Edward Stephen O'Brien, San Francisco Medical College of the Pacific, San Francisco, 1879, aged 80, died, June 1, of chronic myocarditis and bronchopneumonia.

Joe Elmer Widner, Chicago, Niagara University Medical Department, Buffalo, 1890, aged 65, died, July 31, of chronic nephritis, arteriosclerosis and myocarditis.

George H Haas, Allentown, Pa., Hahnemann Medical College and Hospital of Philadelphia, 1887, aged 74, died, July 20, of carcinoma of the intestine.

Walter Louis Perrott, Palo Alto, Calif., Cooper Medical College, San Francisco, 1898, aged 69, died, June 30, of myocarditis and cirrhosis of the liver.

Benjamin Blake Dutton, Hartfield, Va., Washington University School of Medicine, Baltimore, 1872, aged 83, died suddenly, July 6, of heart disease.

William H Snavelly, Tampa, Fla., Medical College of Ohio, Cincinnati, 1881, aged 82, died, July 26, of cerebral hemorrhage and arteriosclerosis.

Harbard Smith, Smithville, Ga., University of Georgia Medical Department, Augusta, 1893, aged 74, died, July 12, of arteriosclerosis and uremia.

Bennett Clark Hyde, Lexington, Mo., University Medical College of Kansas City, 1895, aged 62, died suddenly, August 7, of cerebral hemorrhage.

Charles Maynard Smith, Johnsonburg, N. Y., University of Buffalo School of Medicine, 1888, aged 69, died, July 9, of paralysis agitans.

Robert Crosby, Vancouver, B. C., Canada, University of Toronto Faculty of Medicine, 1898, aged 64, died, July 5, of angina pectoris.

Alice Morgan Goss, San Francisco, Hahnemann Medical College and Hospital, Chicago, 1890, aged 78, died, June 26, of myocarditis.

Charles Stillman Mann, San Francisco, University of California Medical Department, San Francisco, 1890, aged 70, died, June 15.

Charles Sylvester Maguire, San Francisco, University of California Medical Department, San Francisco, 1893, aged 63, died, June 14.

James M Hensley, Bellaire, Ohio (licensed in Ohio in 1896), aged 82, died, July 25, in Springfield, of cerebral hemorrhage.

L Anna Ballard, Lansing, Mich., Woman's Hospital Medical College, Chicago, 1878, aged 86, died, August 23, of angina pectoris.

Samuel A Wright, Hallandale Fla., Northwestern Medical College, St. Joseph, Mo., 1883, aged 91, died, July 25, of uremia.

Harriet Herr, New York, Eclectic Medical College of the City of New York, 1889, aged 65, died, July 21, of uremia.

Charles Curtis Bliss, Pasadena, Calif., Bellevue Hospital Medical College, New York, 1874, aged 83, died, June 26.

Frank Ellsworth Lane, San Diego, Calif., Tufts College Medical School, Boston 1898, aged 68, died June 29.

In the article by Opie previously referred to he states that the significance of the reaction diminishes with increasing age. It is widely taught that the tuberculin test is of value in infants and young children because of its aid in detecting primary tuberculous lesions and because it may thus help to point out an infecting adult. It is of value in older children because of its aid in detecting lesions although in these children they are exceedingly benign as a rule. It is of value in adults because of its aid in excluding tuberculosis when negative, but when positive in an adult who shows no lesion on roentgen examination it is of no significance. It indicates only that at some period of life tubercle existed in the individual.

My object in writing this is not to urge that early tuberculinization of the entire population would solve all our problems but to call attention to the fallacy of the suggestion that the individual who shows a positive reaction is in danger of developing pulmonary tuberculosis. It seems to me that there is a more rational and reasonable middle path.

E. W. BILLARD, M.D., New York.

ANSWER.—There is a source of tubercle bacilli for every child or adult who reacts positively to the tuberculin test. If one makes careful observations, the positive test in a child often results in finding the open case of tuberculosis.

It is true that Edwards (*Am Rev Tuberc* 27:611 [June] 1933) found only one case of adult pulmonary tuberculosis in eighty-one families in which the first diagnosis was of a childhood form. However, he does not state how many previous deaths had occurred from tuberculosis in those families. Moreover, 45.5 per cent of the living members of those families were not examined. If all had been examined, and still only one case of open tuberculosis was found, it would have been worth the effort, since a single open case may transmit tubercle bacilli to hundreds of persons in a community. However, Edwards' group yielded a much smaller incidence of pulmonary tuberculosis than the groups studied by most other workers. For example, Rathbun (*Tr Nat Tuberc A*, 1929) made careful examinations of twenty-four families in which a school child was found to have the childhood type of tuberculosis. He found that in 54 per cent a parent was at that time ill with tuberculosis or had died of the disease, while in another 17 per cent parents had suspicious lesions.

There is no doubt that children rather often contract their disease from tuberculous patients outside their families, but even here when one seeks the source among school teachers and other associates one is quite frequently rewarded by finding it. Jordan has recently brought to light some interesting facts concerning the exposure of children by teachers. In fact, in his rural district he has found eleven teachers with frank tuberculosis, most of whom had never previously had their disease suspected. Seeking the source of the positive tuberculin reactor's lesion frequently takes the physician to the food handlers and other persons who come in contact either directly or indirectly with the public. It may also take him to the veterinarian, who sometimes finds the source among dairy cattle.

To be sure, the more recently the reaction makes its appearance, the easier it is to find the source. This is true not only of infants and children but also of adults who have been periodically negative to the tuberculin test. If the test is administered from every six to twelve months and it becomes positive, it is obvious that the exposure time is not far distant. It is much easier to trace the source in such a case than in one whose test has been positive for many years. Nevertheless a careful search should be made for the source of every positive tuberculin reactor.

Evidence is at hand to show that children who are sensitive to tuberculin are more likely to "develop tuberculosis and fare poorly" than those previously negative to the test. Myers has recently shown that among the first 1,000 children examined at the Lymanhurst School for Tuberculous Children in 1921 and 1922 of those who could be traced up to 1934, approximately one half had positive tuberculin reactions in 1921 and 1922 and the other one half reacted negatively at that time. Of the positive reactors traced, 9.65 per cent had or have since developed clinical tuberculosis, whereas only 1.08 per cent of those originally negative to the test have developed this form of disease. The average age of these children examined in 1921 and 1922 is in 1934 only 20.8 years. Therefore they have not attained the age when the greatest destruction occurs from tuberculosis.

Chadwick has found that children with positive tuberculin reactions and evidence of the first infection type of disease manifested roentgenographically provide five times as many clinical cases of tuberculosis within the next five years as those who had only positive tuberculin reactions on the original examination. It appears, therefore, that where actual observations have been made there is abundant evidence that the child with the positive tuberculin reaction, which always means a first infection type of tuberculosis, is not as good a risk as the child with a negative reaction. On the basis of what has

already been observed, it is estimated that from 10 to 20 per cent of the children with positive tuberculin reactions will be found to have or will develop clinical tuberculosis before they reach the age of 45 years.

Therefore is it decidedly objectionable to broadcast the statement that "the person who reacts positively to the test is a potential case of a reinfection type of tuberculosis"? No one has questioned the conclusions of Park, Krause, Opie, Heimbeck, Willis, Wessler and Jaches, and many others concerning the development of a relative degree of immunity in tuberculosis. In the previous communication the work of these authors was not omitted because of neglect but because it was assumed that their point of view is understood by all.

Attention was called to the work of Heimbeck, who showed that, of 185 student nurses who had negative tuberculin reactions when they entered training, fifty-three "contracted the disease," whereas among 152 classmates who were positive only three developed tuberculosis. In fact, all of the 185 who had negative reactions on admission contracted the disease before graduation, that is, they contracted the first infection type of tuberculosis, as manifested by a positive tuberculin reaction. In only fifty-three of them were there symptoms or demonstrable lesions by other phases of the examination. In fact in thirty-seven erythema nodosum was present, in twenty-two pleurisy was present, and so on. In some, more than one symptom was present. Among those who had pulmonary infiltrations demonstrated, Heimbeck called attention to their characteristics, which were for the most part those of the first infection type of tuberculosis. Thus, this group of 185 girls largely because of their exposure to tuberculosis in line of duty went through in Dr Heimbeck's presence what the 152 who entered his institution sensitive to tuberculin had gone through before they came to him. The three with positive reactions on entrance could develop only the reinfection and destructive type, which is a far more serious matter. Here the time interval comes into play also. The first infection type may be manifested within three weeks after exposure yet the reinfection type may not develop to detectable proportion for months and even years after reexposure so that the three cases in this class by no means represent the end of the story. Further follow up in the years to come will give a different outcome. This can be predicted since sufficient numbers of cases have been followed now, and the course of their tuberculosis recorded, to justify an estimate of the ultimate morbidity.

The same oversight as to type of disease developed is true in the seven cases cited by Myers (*THE JOURNAL*, Aug. 1, 1933). As for statistics on the outcome of the two classes, that is, positive and negative reactors, the best study available is by Shipman and Davis (*Am Rev Tuberc* 27:474 [May] 1933), who showed that more students who entered with positive reactions fall ill within the next ten years than those who entered with negative reactions. Since the characteristics of the first infection type of disease are the same at all age periods, it is safe to assume that the outcome of the disease in students of nursing and medicine everywhere will approximate the outcome in the children examined at the Lymanhurst School, which has been cited, that is, positive reactors had or developed clinical tuberculosis in a ratio of 9 to 1 with negative reactors over a period of eleven or twelve years.

It would appear that the first infection type of tuberculosis has been looked on as a great protection to the body when in reality the natural protective mechanism of the body deserves most of the credit. If it were not for this natural protective mechanism of the human body, most certainly tuberculosis would destroy far more people than it does. When tubercle bacilli first enter the body and find lodgment in the tissues there is no allergy present. Therefore there is no specific reaction on the part of the tissues. The focus of bacilli is met as that of a foreign body. The attempt to wall it off through the proliferation of fixed tissue cells is well under way before allergy can be detected. This attempt is so successful as to bring the tubercle bacilli under control quickly and to hold them under control in a high percentage of cases. It is difficult to see how immunity is of great importance, since the protective mechanism was at work before there was time for immunity to develop. Nor can this control of the bacilli be explained on the basis of racial immunity, since Indian, Negro and Mexican children meet the first infection with tubercle bacilli with the same defensive mechanism and control it equally well. When tubercle bacilli subsequently reach the tissues, whether from exogenous or endogenous sources a specific reaction takes place. Many of the bacilli are fixed at the site of lodgment and because of allergy, necrosis and cavitation frequently occur, as well as fibrosis.

Careful observations have revealed that in many large cities there is not an overwhelming percentage of the population

infected with tubercle bacilli. Tuberculin tests administered to children and young adults in many cities have been a revelation to physicians, for they have shown that relatively low percentages have been contaminated. To be sure, in some sections of large cities, such as Philadelphia, one may find communities where very little has been done to protect against exposure to tubercle bacilli and where 80 per cent or more of the young adults react positively to the test. In the same cities, however, one finds other sections where considerable attention has been paid to communicable diseases, including tuberculosis, and where a relatively small percentage of the young adults react positively to the test. Evidently the reduced mortality from tuberculosis has gone hand in hand with the reduced incidence of positive reactors.

The initial dose of tuberculin has been carefully studied. Most of the workers who have used 0.1 mg. of old tuberculin as the initial dose are of the opinion that it does no harm. However, some believe that 0.01 mg. should be used as the first dose. It is true that the characteristics of a positive tuberculin reaction are an area of edema at and around the site of the injection, with an area of hyperemia surrounding the edema. Without such a reaction the test is not positive. There is no reason to judge that because of this local reaction a reactivation of the tuberculous focus will occur. The chief trouble seems to be that many physicians are confusing the intracutaneous test with a very small dose of tuberculin with the old subcutaneous test, in which a large dose of tuberculin was administered and in which the positiveness of the reaction was determined largely by constitutional symptoms and even demonstrable reaction round the tuberculous focus, as manifested by the appearance of or increase in rales or collateral inflammation demonstrated by the x-ray film. The pediatrician or physician in any other phase of medicine who has done only the occasional tuberculin test or none at all might take issue with the statement that the test causes no harm, but those who have performed thousands of tests will not take issue. The new pure protein derivative will probably replace old tuberculin and a standard dose and technic will be recommended.

The statement that the positive tuberculin test in an adult who shows no lesion on roentgen examination is of no significance and "indicates only that at some period of life tubercle existed in the individual" does not suffice. In the finding of the first infection focus of tuberculosis, which practically always results in a positive tuberculin reaction, the x-ray film is of little avail. By it, 75 per cent or more of the lesions are missed as demonstrated by Miller (*Am J Roentgenol* 26 191 [Aug] 1931) and others who have carefully studied x-ray films made ante mortem and compared the observations with what has been found post mortem. In reality, the positive test at any age in life indicates tubercle formation with living tubercle bacilli present, otherwise the test would not remain positive. To state to a patient that a positive reaction "indicates only that at some period of life tubercle existed in the individual" is very misleading. One should always add that tubercle still exists. The recent pathologic observations of Robertson (*Am J Path* 9 711 [supplement] 1933) are convincing, particularly his concluding statement that "one can almost say 'Once infected, always infected'."

To argue for tuberculinization of the entire population and to bring this about would in all probability set the clock of tuberculosis back a century. When it probably was true that nearly every one had been infected with tubercle bacilli, the mortality rate from tuberculosis in this country was extremely high, for example, a century ago approximately 450 persons from each hundred thousand of population lost their lives from tuberculosis every year, whereas at present when the incidence of positive reactors among persons of high school and even university age has dwindled to 25 or 30 per cent the mortality has decreased to an almost unbelievable figure, in fact, less than 50 persons among each hundred thousand of population lose their lives from tuberculosis each year in many parts of this country. It is difficult to see "a more rational and reasonable middle path" since it is true that positive tuberculin reactors provide practically all the cases of clinical tuberculosis.

#### EFFECTIVE TREATMENT FOR BEE STINGS

To the Editor—Is there any effective treatment for bee stings other than local applications, which may aid in combating the more severe reactions that sometimes occur?

P. N. L., Chicago

ANSWER—In the June 1934 issue of *Bees and Honey*, page 117, the use of epinephrine intramuscularly or intravenously in a dosage of 1 cc. of 1:1,000 solution is recommended for the treatment of bee stings. It has been recognized for some time that there is a local and sometimes a general allergic reaction following bee stings which may be due to

pollens, formic acid or some atopic substance inoculated at the time of the sting. The general reaction is typically allergic, consisting of labored breathing, urticaria, edema, or any of the characteristic symptoms. As might be expected, epinephrine is said to provide the same relief in this sort of reaction as it does in reactions to other foreign proteins. While epinephrine is preferable for the relief of acute symptoms, for prolonged relief the oral administration of ephedrine suggests itself in a dosage of from 0.025 to 0.1 Gm. (one-half to 2 grains). This treatment may afford considerable relief if instituted as soon as any unusual or untoward symptoms appear following the stinging. Probably the treatment is equally applicable to stings or bites of a number of other insects as well.

#### EFFICACY OF RABIES VACCINE

To the Editor—Please state in what percentage of cases prevention of rabies is obtained by the administration of the Semple rabies vaccine in human beings and animals that have been bitten by a rabid dog.

M. D.

ANSWER—There is, of course, no way of determining how many deaths from rabies would have occurred without prophylaxis, but the efficacy of the Semple vaccine (phenol killed) as compared with others is indicated by the following tabulation of the latest figures available relating to mortality according to the method of treatment among Europeans given prophylaxis against rabies.

Method	Number Treated	Deaths	Mortality per Cent
1 Dried or glycerinated cords	25 600	47	0.18
2 Modified dilution methods	19 033	20	0.11
3 Killed phenol vaccines	19 196	22	0.11
4 Heated vaccines	27 967	32	0.11
5 Ether killed	31,034	32	0.10
6 Mixed treatments	28 659	36	0.13

When due consideration is given to various factors, such as position and severity of the bite and intervention of the clothing, there is no evidence beyond probable error to indicate superiority of any one of these methods of treatment (*Quart Bull Health Organization of the League of Nations* 2 553 [Dec] 1933). No figures are available as to animals bitten and subsequently given prophylactic treatment.

#### PROTEIN IN DIET IN HYPERTENSION

To the Editor—Each day I see patients who have hypertension particularly of the arteriosclerotic group. The question of diet always arises. If the function of the kidneys is not impaired as measured by the concentration test and the blood nitrogen, and if there is no edema I do not restrict the patient's protein or salt. Patients tell me that other physicians have kept them on a very strict diet and they hesitate to follow out my instructions. In fact, some of these patients have a secondary anemia from the restricted protein intake. Many patients are convinced that red meats (not white meat or fish) and salt are harmful to patients with high blood pressure. As a young internist I have been criticized for allowing my patients to have meat, eggs, fish and cheese under the conditions outlined. Medical teaching at my alma mater Washington University Medical School in St. Louis and recent literature have emphasized the necessity of at least two thirds to one gram of protein per kilogram of body weight daily. Even in cases of nephritis with albuminuria one gives a higher protein diet if the serum albumin is diminished. I am in charge of the diabetic clinic and diabetic service at the University of Tennessee Medical School and also teach dietetics to the senior medical students. Therefore I would appreciate a letter from you stating the present medical opinion regarding protein and salt in the diet of hypertension that I can read to the students. Please make a definite statement for the benefit of others regarding any difference between red and white meats.

JACOB ALPERIN M.D. Memphis Tenn

ANSWER—The present consensus regarding dietary protein in hypertensive arterial disease is exactly along the lines indicated in the query. Extravagant claims have been made for the value of rigid protein restriction but equally convincing data are presented with liberal protein feeding. If the body does not obtain from two thirds to one gram of protein per kilogram of body weight daily the tissues are broken down to give this protein yield, the protein catabolism is not significantly depressed by protein starvation. Mosenthal has emphasized that restriction of carbohydrates and fats, particularly in obese hypertensive patients, is far more important than protein restriction. Liberal protein feeding does not appreciably alter the arterial tension. Long continued radical restriction of protein may do great harm by the depletion of the tissue reserves, exacerbation of anemia (common in arterial hypertension) and diminution of the resistance to infection. The recent work of Castle has reemphasized the necessity for adequate protein intake to prevent anemia. Although radical dietary restrictions are sometimes warranted for a short period, it must be constantly reiterated that unbalanced diets should not be per-



sisted in over a long period. In the management of hypertensive disease the dietary advice must be such that it can be safely followed over many months and perhaps years. This problem, then, is entirely different from the dietary management of an acute and transient illness.

In the presence of edema, and particularly when a profuse proteinuria occurs, liberal protein feeding to aid in replacing the depleted serum proteins is desirable. The early work of Epstein in this field has been repeatedly confirmed. The role of salt (NaCl) as an etiologic factor in hypertensive disease is as yet uncertain. There are some emphatic advocates of extreme salt restriction, but even more convincing contrary data have been presented indicating that moderate amounts of sodium chloride have no detectable influence on the course of arterial hypertension.

It is essentially immaterial whether the source of protein is meat, eggs, milk or cheese. There is no appreciable difference between the metabolic effects of "red and white meats."

The question is discussed in the following articles:

- Mosenthal H O. The Treatment of Essential Hypertension. *THE JOURNAL* Sept 8, 1928 p 698.  
 Strouse Solomon and Kelmman S R. Protein Feeding and High Blood Pressure. *Arch Int Med* 31 151 (Feb) 1923.  
 Mosenthal H O. Influence of Protein Food on Increased Blood Pressure. *Am J M Sc* 160 808 (Dec) 1920.  
 Lieb C W. The Effects of an Exclusive Long Continued Meat Diet. *THE JOURNAL*, July 3, 1926, p 25.  
 Thomas W A. Health of a Carnivorous Race. *THE JOURNAL* May 14, 1927 p 1559.  
 Dominguez R. Experimental Atherosclerosis and Blood Pressure in Rabbit. *J Exper Med* 46 463 (Sept) 1927.  
 Anderson Hilding. Experimental Renal Insufficiency. *Arch Int Med* 37 297 (March) 1926.  
 Jackson Henry Jr and Riggs Margaret D. The Effects of High Protein Diets on the Kidneys of Rats. *J Biol Chem* 67 101 (Jan) 1926.  
 Du Bois E F. Control of Protein in Diet. *J Am Dietet A* 4 53 (Sept) 1928.  
 Steiglitz E J. Arterial Hypertension. New York, Paul B Hoeber Inc 1930.  
 Allen F M and Sherrill J W. Treatment of Arterial Hypertension. *J Metabolic Research* 2 429 (Oct) 1922.  
 Allen F M. Comments on Some Recent Publications on Hypertension. *Boston M & S J* 189 810 (Nov 22) 1923.  
 Fontaine B W. High Blood Pressure. *South M J* 15 987 (Dec) 1922.  
 McLester J S. *Proc Am Soc Clin Investigation* 1921 p 6.  
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#### HYDROCHLORIC ACID IN HAY FEVER

To the Editor—I have read an article on the use of nitrohydrochloric acid in the treatment of hay fever. It says in this article that the relief obtained from the acid treatment is to be compared favorably with the pollen desensitization method. What is your opinion? I should like to know what dangers and contraindications this might give if used in the following prescription:

R. Nitrohydrochloric acid 4 1/2 fluidrachms  
 Distilled water q s ad 4 fluidounces  
 Sig. One teaspoonful in two thirds glass of water followed by glass of water four times a day.  
 Please omit name. M D Massachusetts

ANSWER—This prescription is similar to that advocated by Beckman (*J Allergy* 1 496 [Sept] 1930, Treatment in General Practice, Philadelphia, W B Saunders Company, 1934) for the treatment of hay fever, it is not dangerous. Beckman reported 67 per cent of complete or marked relief in 237 hay fever cases by the oral administration of nitrohydrochloric acid, this figure was about equal to that obtained by leading allergists with the usual desensitization method of injections of specific pollen extracts. Many other workers have argued this point both before and after Beckman's article and the consensus, especially among the leading allergists, is about as follows:

1 No one has proved that hay fever or other allergic disease is due to a lack of acid (i e., an alkalosis), even though there is evidence that many allergic individuals do have less hydrochloric acid in the stomach contents than normal persons.

2 Although the method has been tried by many allergists, in general it has not been successful in alleviating the symptoms of hay fever. One commonly overlooked point is that hay fever symptoms are directly proportional to the pollen count. On days when there is little or no pollen in the air any method

of treatment is excellent and is apt to be called "curative", but when the pollen count is high, symptoms will be greater—that is the time to evaluate the method of treatment.

The intravenous injection of dilute hydrochloric acid recently advocated in allergic conditions is not without danger, its usefulness in these disorders is quite questionable.

#### TREATMENT OF SYPHILIS

To the Editor—A man aged 38 first came to me in August 1933 complaining of a discharging mass on the lower right mandible. Roentgen examination gave negative results. The Wassermann reaction was 4 plus. The spinal fluid Wassermann reaction also was negative. I started off by giving him ten injections of iodobismutol biweekly, at the end of which time the lesion on the mandible had entirely cleared up. I continued to give him one injection of iodobismutol and one of nearsphenamine weekly for six weeks and the one injection of nearsphenamine weekly for four more weeks. This brought me to the end of the year 1933 and the Wassermann reaction was 4 plus at this time. I continued to give one injection of nearsphenamine and one of iodobismutol weekly but at the end of two weeks the urine showed a very faint trace of albumin from 10 to 20 red blood corpuscles per high power field, an occasional white blood corpuscle and occasional hyaline and granular casts. I stopped the nearsphenamine injections but continued the iodobismutol for four more weeks. The urine cleared up by the end of this period and I continued to give one nearsphenamine and one bismuth injection weekly for six weeks. But at the end of two weeks the urine was as before and I stopped the nearsphenamine giving only iodobismutol twice a week up to the present. The Wassermann reaction is still 4 plus. Only once at the end of the first ten weekly bismuth injections was the Wassermann reaction 3 plus. Clinically he shows no signs and gives no symptoms. His general condition is good. His weight has increased about 10 pounds (4.5 kg.) since I first saw him. The total amount of nearsphenamine that the patient has received thus far is 10 Gm. covering seventeen injections and twenty-eight injections of iodobismutol all within a period of seven months. His longest rest period was five weeks. On and off during this continuous treatment he received iodides by mouth. Is this treatment too concentrated? Is another lumbar puncture indicated? Shall I continue with these drugs or can you suggest any others? Can I consider this a case of Wassermann fast syphilis? Only since the last six weeks have I allowed him to have protected coitus with his wife (his wife's and daughter's Wassermann reactions are negative). Is this safe? Do you consider the urine picture bad enough to discontinue nearsphenamine? Please omit name. M D, New York

ANSWER—The treatment given this patient is not too concentrated for the average individual in early middle age with late syphilis. For this particular patient the signs of kidney irritation suggest that in this instance it may be too much. Renal irritation is definitely more frequent when the arsphenamines and heavy metals are given simultaneously than when they are given in alternate courses. Bismuth is somewhat more likely to produce renal irritation than nearsphenamine. With the urinary condition found here it would be wise to discontinue all treatment for a time in order to observe the effect of a prolonged rest period on the kidneys. At the same time it would be desirable to have information as to the patient's blood pressure, the presence or absence of edema, the state of the eyegrounds and the results of such tests for renal function as the phenolsulphonphthalein excretion, the ability of the urine to concentrate solids (Mosenthal test), and the degree of nitrogen retention in the blood, if any. If there are no alterations of renal function and no constitutional symptoms of nephritis or nephrosis, and if the urinary abnormalities clear up promptly as soon as treatment is stopped, it may be assumed that these abnormalities are due to renal irritation from anti-syphilitic drugs. It would be desirable to allow a rest period of at least a month after the urinary changes have disappeared and to start treatment then with nearsphenamine alone in small dosage, from 0.2 to 0.3 Gm., increasing by small increments of 0.1 Gm. each, with frequent examinations of the urine. If renal irritation does not appear again with a dosage of 0.6 Gm. of nearsphenamine, it will be safe to continue with this level. After eight or ten injections of nearsphenamine this drug should be discontinued and a bismuth compound started, with the same careful control of the urine. In a patient with previously undamaged kidneys, it is unlikely that either nearsphenamine or a bismuth compound in the dosage employed will produce any serious or permanent kidney injury and it is probable that continued treatment with alternate courses of nearsphenamine and a bismuth compound can be carried out without further difficulty.

Since the patient's blood Wassermann reaction has been persistently positive for eight months, it is reasonable to assume that he is Wassermann fast. Under these circumstances his treatment should be continued for an arbitrary minimum of two years if possible, during which he receives the equivalent of six or eight courses each of an arsphenamine and a heavy metal, without reference to the response of the blood Wassermann reaction. It is not necessary to do another lumbar puncture.

If the indication given in the query that the patient has late syphilis is correct, if he has been married for some years and if his wife is not already infected, there is no reason why unrestricted sexual intercourse with or without protection should not be permitted. The chief danger of infection under such circumstances is seminal, and the possibility of this has been either abolished or largely minimized by the treatment already given.

#### ARCUS SENILIS IN COLORED RACE

*To the Editor*—A Negro aged 59, presents a marginal opacity of the cornea about 1 mm in width (arcus senilis). While the condition is ordinarily attributed to senile degeneration of the corneal tissue the history of exposure of the face to intense heat covering a period of about fifteen years brings up the question of causal relationship. Is it possible that heat may be considered an etiologic factor or is it true that arcus senilis appears at an earlier age in the Negro? Please omit name.

M D, Wisconsin

**ANSWER**—Although there have been no publications dealing with this question, it is perfectly true that arcus senilis appears frequently at an earlier age in the colored than in the white race. This statement is made on personal observation and on verbal communications from several ophthalmologists who have had the opportunity of seeing large numbers of colored patients. The investigations of Versee and Rohrschneider, Vogt, Guido Meyer and others have shown that an arcus senilis is the result of lipid infiltration of the periphery of the cornea that it begins histologically before a clinical diagnosis is possible, and that it may appear in arcuate or complete ring form. If the former, the regions of the upper and the lower limbus are more apt to be involved than the lateral regions. Thus the involved areas are those covered by the lids and consequently protected against extremes of heat and cold. The etiologic factors are entirely unknown but it is fairly certain that heat has no part. A rather complete discussion may be found in the Kurzes Handbuch der Ophthalmologie by Schieck-Bruckner, volume 4, page 375.

#### DERMATITIS IN SILK INDUSTRY

*To the Editor*—A patient of mine operates a ladies underwear factory in which 'weighted silk' is used. He thinks that the silk is weighted with either tin or lead. He has noticed that some of his employees have developed a fine papular itching rash of the hands especially the tips of the fingers. The silks are dyed but the dyers state that no such skin irritations have occurred among their own employees. Can you suggest the possible cause of this rash or possibly let me know whether you have had any similar communications from like industries?

JACOB KINCOV, M D, Easton Pa

**ANSWER**—From time to time items are published attributing a dermatitis among silk workers to various causes. Among possible causes are tin tetrachloride, formic acid, dyes, sodium silicate, barium salts, dextrin, glues, linseed oil, Japan wax, sodium toluene-parasulphonchloramide, vegetable mucilages, liquid petrolatum and rubber solutions. These substances, together with others, many of which constitute secret formulas, may be used in the weighing, finishing, plumping, sizing, lustering, delustering and dyeing of silks, natural or artificial. Little warrant exists for the picking out from this list of any one or two substances and placing on them greater blame as the source of the dermatitis. However, when tin tetrachloride or formic acid is used, some suspicion is possibly justified. Rarely an individual case may be traced to the dye, sensitization having taken place. Whatever hazards exist are greater for the silk worker than for the silk wearer, since the first laundering often sadly changes the appearance of silken garments which apparently are sometimes chemically dressed up for sales appeal. While the creation of systemic lead poisoning by lead originating in the wearing of lead weighted garments remains unproved, injury to the skin from various agents placed on the silk or artificial silk fiber may be more of a reality, especially among silk garment makers daily handling unlaundered washable articles.

#### FISSURES OF LIPS

*To the Editor*—What is the best treatment for a persistent fissure on the lower lip of the mouth? This fissure occurs each winter. The patient is a young married woman apparently in the best of health.

C E JOHNSON, M D St Paul

**ANSWER**—Fissures usually occur in skin that has lost its elasticity and extensibility through infiltration and thickening. They are found frequently about the mucocutaneous orifices, especially in eczema, syphilis, intertrigo and keratoderma. In persons using false teeth they are common at the outer angles of the mouth.

When they are associated with a seborrheic dermatitis, a sulphur ointment with a resorcinol lotion has been reported as helpful.

When it is closely allied to chapped lips, a red pomade consisting of tannic acid, 0.2 Gm., and cerate of red spermaceti, 10 Gm., to be used as a lip pomade, has been highly recommended. This is not visible and renders the lips more resistant to irritation.

Sulphonated bitumen, 2 per cent in hydrous wool fat, has been found helpful. Inunction with pure white hydrous wool fat may be sufficient.

It is important to avoid irritating washes, soap and water, tobacco and moistening the lips with saliva.

Fissures of the lip are sometimes rebellious and excision may be necessary with removal of a wedge shaped area including the infiltrated portion of the lip followed by accurate suture. No deformity should result.

Under expert hands, roentgen irradiations and diathermy might also be considered, but ordinarily skilful excision would be preferable.

#### REACTION TO IMMUNOGENS

*To the Editor*—A little girl 7 years of age presenting a chronic low grade infection of the accessory sinuses (as evidenced by general haziness of antrums and anterior ethmoids in roentgenograms postnasal and prenasal drainage and coughing when in the recumbent position) was given what might be considered subreaction doses of catarrhal immunogen (Parke Davis) on biweekly visits. The doses given were 2 3 4 6 and 8 minims (0.12 0.18 0.24 0.36 and 0.5 cc) five doses in all. No complaints were registered until the fourth dose was administered when there followed slight general malaise for about thirty six hours with moderate local reaction, no elevation of temperature was detected. Following the last dose some general malaise and impairment of appetite were noted. This continued and on the fourth day following the last injection the temperature rose to 102 F. There followed several loose bowel movements and some vomiting with the onset of this fever. These symptoms rapidly disappeared and did not return. The elevation of temperature continued for eight days ranging from 100 to 103.5. Some shifting headaches were complained of and some slight stuffiness of the right side of the nose. The child seemed bright during the entire illness without stupor prostration neurologic signs cough or nasal discharge in fact the physical examination was entirely negative except for slight general redness of the pharynx and tonsils noted when the temperature was high. No swelling of these organs at any time and no palpable glands were noted. Repeated urine specimens were negative. The blood count on the fourth day of fever revealed 3650 white cells, 26 per cent lymphocytes, 11 per cent large mononuclears, 1 per cent basophils, 3 per cent myelocytes and 59 per cent polymorphonuclears. On the sixth day of fever the white count was 6450 cells with approximately the same differential count. Blood culture proved negative. The temperature fell by lysis on or about the ninth day. The absence of symptoms other than fever in this case prompted me to a consideration of the possibility of the accumulation of toxins from these injections. Could there be a slow constant liberation of neutralized toxins from a preparation of this sort? What local reactions the child had at the site of the injections disappeared rapidly. The symptoms for which the child was treated with the immunogen cleared up quickly and were entirely gone before the onset of the fever. A single injection of 4 minims (0.24 cc) of this preparation was given three months previously but a reaction occurred of fever nausea vomiting and a severe sneezing fit with a severe local reaction and the parents preferred to forego further inoculation until the reported series was attempted. The late appearance of the fever and its continuation for nine days made this case of unusual interest. There is no allergy in the family background. Please omit name.

M D, California

**ANSWER**—Immunogen (Parke, Davis & Co) may be a mixture of antigenic substances. It is not on the accepted list of New and Nonofficial Remedies. Its use as a remedy rests on empirical grounds supported by advertising propaganda. Whether it caused, directly or indirectly, any or all of the symptoms described in the 7 year old girl cannot possibly be determined.

#### RESIDENCE FOR PATIENT WITH PANSINUSITIS

*To the Editor*—What region do you consider the most favorable as a residence for one afflicted with chronic pansinusitis?

N J WEILL M D Pittsburgh

**ANSWER**—Places that have sudden and marked variations in temperature or a great deal of cold damp weather are usually considered unfavorable for sufferers from sinus infection. The ideal spot would be one where the temperatures vary but little and where it is quite warm and reasonably dry. Southern Arizona in the region of Tucson or Phoenix is good for these patients, especially during the winter. It must be said, however, that there is a rather sudden drop in temperature in the evenings, and in the summer the heat may be intense. For people who enjoy and thrive on hot weather, southern Arizona has proved favorable. The region of San Diego in southern California is good, for the temperature is warm, mild and equable. San Antonio, Texas, is also favorably located but is of course hot in summer. Sinus infections may occur anywhere, especially where sudden changes in the weather occur.

A person who lives in one of the regions mentioned is less likely to have frequent or severe exacerbations of the trouble. With this diminution in the frequency of the attacks, together with the beneficial effect of warm, balmy air, the mucous membranes of the nose and of the sinuses have a better chance to recuperate and to resist the infection. Besides the favorable climate, proper drainage of the sinuses should be instituted in chronic cases.

#### FUNCTION OF EPIGLOTTIS

*To the Editor*—A question has arisen in my speech courses as to the function of the epiglottis. Will you please state what is conceded to be the function of this structure in deglutition? I would appreciate your giving me some references on this subject. Please omit name.

M D, Brooklyn

**ANSWER**—The precise role of the epiglottis in deglutition is still somewhat obscure. It is generally held that the epiglottis, by being pulled or pushed down and backward in the act of swallowing, forms a lid on the glottis. But the glottis is closed by other mechanisms. This probably explains the fact that the swallowing of foods or liquids, without any of them entering the larynx, can go on in the absence of the epiglottis. On the other hand, observers have described actual back folding of the epiglottis in the swallowing act. The thyro-epiglottic and the aryepiglottic muscles will tend to place the epiglottis in this position, if they contract during swallowing. The pulling backward of the base of the tongue (due mainly to contractions of the hypoglossal and geniohyoid muscles) also tends to press the epiglottis back so that its free tip extends beyond the glottis, which, by another series of muscles, has not only been closed but also pulled up and forward so as to be partly covered by part of the tongue. Textbooks on anatomy that may be consulted are those by Gray and by Cunningham and, on physiology by Howell, by Starling and by Tigerstedt.

#### ARSENIC AND OPTIC INFLAMMATION

*To the Editor*—I have a patient who is getting intensive neosarsphena mine treatment for syphilis. He receives 0.9 Gm every week. In addition he gives himself injections of mercury. The treatment was started in the primary stage and has been going on now for eighteen months. He had a relapse six months ago, with a return of the secondary skin eruption. Ever since the inception of treatment he has had an injected conjunctiva in both eyes. There is no lacrimation, purulent discharge or photophobia. His eyesight is as good as ever and he has no ocular pain. Does this symptom mean that he is getting too much arsenic? And if treatment is kept up would it affect his eyes in any way? Please omit name.

M D Michigan

**ANSWER**—It is possible that the injection of the conjunctiva is due to the long continued use of arsenic. Such cases have been reported (Simon, Krauss, Kleeburg, all cited in the Kurzes Handbuch der Ophthalmologie 7 173). An idiosyncrasy is undoubtedly present in such cases and the conjunctival hyperemia is merely a local manifestation of what elsewhere would be a skin exanthem. However, it is equally possible that the patient is suffering from a chronic conjunctivitis of other source. The indefinite use of arsenic has caused not infrequently an optic neuritis.

#### ARTIFICIAL INSEMINATION

*To the Editor*—I was much interested in the answer to the question on artificial insemination in *Queries and Minor Notes* (THE JOURNAL, August 11, p 432). As I was probably the first to make these experiments on a large scale having performed more than 100 attempts I would like to add a few additional comments to the answer given with which I in the main agree. In the first place one should in every case first examine the female after coitus (Huhner test) to see whether the spermatozoa during normal coitus do or do not reach the uterine cervix and remain alive there. It is therefore obvious that artificial impregnation is not at all indicated if it is found that the spermatozoa get there by themselves during coitus. The second point which I deem important and which is the only objection I find in the answer is the amount of semen that is injected into the uterine cavity. There is no objection to injecting any amount of semen provided it is injected only into the cervix and about the cervical os but I consider it dangerous to inject 1 or 2 cc into the uterine cavity itself. No matter how gently or slowly this quantity is injected there is the danger of some of it being forced into the tubes and infection is possible. It must be appreciated that there is no known practical method to sterilize semen surgically without killing the spermatozoa. I have often advanced the theory that during normal intercourse there is some property in the genital secretions which allows the spermatozoa to pass into the uterine cavity and upward but holds back or kills the ordinary bacteria that may accompany the semen. When it is considered that during ordinary marital life intercourse is performed without any antiseptic or aseptic precautions without infection following one must believe in the aforementioned provisions of nature. As another practical point it is advisable to apply the tenaculum to the lower cervical lip so that if any bleeding occurs either in the putting on or taking off it will not run over the cervical os and contaminate the semen.

MAX HUHNER M D New York

## Council on Medical Education and Hospitals

### COMING EXAMINATIONS

**AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY** *Written (Group B candidates)* The examination will be held in various cities throughout the country Oct 1 *Oral (Group A and Group B candidates)* San Antonio Texas Nov 13 16 Sec Dr C Guy Lane 416 Marlborough St Boston

**AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY** *Written (Group B candidates)* The examination will be held in various cities of the United States and Canada Nov 3 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh

**AMERICAN BOARD OF OPHTHALMOLOGY** San Antonio Texas Nov 13 Philadelphia June 10 Sec Dr William H Wilder 122 S Michigan Bld Chicago

**AMERICAN BOARD OF OTOLARYNGOLOGY** San Antonio Texas Nov 16 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

**ARIZONA** Phoenix Oct 2 3 Sec Dr J H Patterson 320 Security Bldg Phoenix

**ARKANSAS** *Basic Science* Little Rock Nov 5 Sec Mr Louis E Gebauer 701 Main St Little Rock

**CALIFORNIA** Sacramento Oct 15 18 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

**COLORADO** Denver Oct 2 Sec Dr Wm Whitridge Williams 422 State Office Bldg Denver

**CONNECTICUT** *Basic Science* New Haven Oct 13 *Prerequisite to license examination* Address State Board of Healing Arts 1895 Yale Station New Haven

**GEORGIA** Atlanta Oct 9 10 Joint Secretary State Examining Boards Mr R C Coleman 111 State Capitol Atlanta

**IDAHO** Boise Oct 2 Commissioner of Law Enforcement Hon Emmett Pfost 205 State House Boise

**ILLINOIS** Chicago Oct 16 18 Superintendent of Registration Department of Registration and Education Mr Eugene R Schwartz Springfield

**IOWA** Des Moines Oct 8 10 Dir Division of Licensure and Registration Mr H W Grefe Capitol Bldg Des Moines

**MICHIGAN** Lansing Oct 9 11 Sec Board of Registration in Medicine Dr J Earl McIntyre 202 3 4 Hollister Bldg Lansing

**MINNESOTA** *Basic Science* Minneapolis Oct 23 Sec Dr J Charney McKinley 126 Millard Hall University of Minnesota Minneapolis *Medical* Minneapolis Oct 16 18 Sec Dr E J Engberg 350 St Peter St St Paul

**MISSOURI** Kansas City Oct 24 State Health Commissioner Dr E T McLaugh State Capitol Bldg Jefferson City

**MONTANA** Helena Oct 2 Sec Dr S A Cooney 7 W 6th Ave Helena

**NEBRASKA** *Basic Science* Lincoln Oct 23 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln

**NEVADA** Carson City Nov 5 Sec Dr Edward E Hamer Carson City

**NEW JERSEY** Trenton Oct 16 17 Sec Dr James J McGuire 28 W State St Trenton

**NEW MEXICO** Santa Fe Oct 8 9 Sec Dr P G Cornish Jr 221 W Central Ave Albuquerque

**NEW YORK** Albany Buffalo Syracuse and New York Sept 24 27 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany

**RHODE ISLAND** Providence Oct 4 5 Dir Public Health Commission Dr Lester A Round 319 State Office Bldg Providence

**TENNESSEE** Memphis Oct 12 Sec Dr H W Qualls 130 Madison Ave Memphis

**WYOMING** Cheyenne Oct 1 Sec Dr W H Hassel Capitol Bldg Cheyenne

### Minnesota June Examination

Dr E J Engberg, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held in Minneapolis, June 19-21, 1934. The examination covered 12 subjects and included 60 written questions. An average of 75 per cent was required to pass. Thirty-three candidates were examined, all of whom passed. One physician was licensed by reciprocity and 2 physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year	
		Grad	Per Cent
Northwestern University Medical School	(1934)		89 1
Rush Medical College	(1934)		85 5
University of Minnesota Medical School	(1931)		89 5
(1932) 91 5 * (1933) 85 4 88 * 88 2 90 1 90 6 *			
92 6 * 93 (1934) 83 3 * 85 * 86 2 86 4 * 87 4 88 2			
88 6 89 6 * 90 * 90 * 90 1 * 90 1 * 90 1 * 90 2 90 3 *			
90 6 * 93 2 *			
University of Nebraska College of Medicine (1932) 90 1	(1933)		85 5
Syracuse University College of Medicine	(1929)		89 6
University of Pennsylvania School of Medicine	(1933)		93 5
Marquette University School of Medicine	(1934)		89 6
School	LICENSED BY RECIPROCITY	Year	
		Grad	Reciprocity with
Rush Medical College	(1930)		Illinois
School	LICENSED BY ENDORSEMENT	Year	
		Grad	Endorsement of
University of Minnesota Medical School	(1933)	(1934)	N B M Ex

\* This applicant has received an M B degree and will receive an M D degree on completion of internship

### Oklahoma June Examination

Dr J M Byrum, secretary, Board of Medical Examiners, reports the written examination held in Oklahoma City, June 6-7, 1934. Sixty-five candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad
Northwestern University Medical School		(1934 2)*
Washington University School of Medicine	(1930, 2),	(1932)
University of Nebraska College of Medicine		(1930)
University of Oklahoma School of Medicine		(1934 58)†
University of Pennsylvania School of Medicine		(1933)

\* One of these applicants has received an M B degree and will receive an M D degree on completion of internship

† Licenses withheld pending completion of internship

## Book Notices

**Recent Advances in Sex and Reproductive Physiology** By J M Robson MD BSc FRSE Belt Memorial Research Fellow Institute of Animal Genetics With foreword by Professor F A E Cren MD DSc FRSE Director of the Institute of Animal Genetics Edinburgh Cloth Price \$4 Pp 249 with 47 illustrations Philadelphia P Blakiston's Son & Company, Inc, 1934

This addition to the Recent Advances Series will be welcomed by many who want a brief discussion of some of the newer contributions to the physiology of the reproductive organs. Although the title does not indicate the limitation, this work is practically confined to a consideration of effects in the female. In this it cannot be said to attain completeness, which is not surprising in view of its brevity, and it may not be compared with such monumental volumes as *Sex and Internal Secretions*, edited by Edgar Allen. Such is the celerity of development in the field covered, indeed, that many of the discussions in the book are already out of date. Nevertheless, for a basic knowledge of the subject, Dr Robson's summary may be recommended to those who cannot or will not wade through weightier tomes.

In general the author has maintained an admirable attitude of skepticism and conservatism and, unlike many recent authors in endocrinology, he has analyzed the subject matter critically. Even in the section on therapeutic applications he points out the necessity for an adequate understanding of the hormone disturbances underlying a given clinical syndrome before endocrine therapy is attempted, although the methods of arriving at such an understanding, such as the tests advocated chiefly by Frank, are not properly emphasized. One serious criticism that may be made (and this applies equally to many other recent books) is that the nomenclature employed has not been edited with a view to preventing confusion. The multiplicity of active principles, the alleged identity of factors from various sources and the interests of commercial firms have led to the coming of a tremendous number of names. Many of these are synonymous or seem to be, others apply to two different principles once thought identical and more recently demonstrated otherwise or to two or more factors thought to be identical but not proved so. Thus has confusion been compounded. Unfortunately, authors of modern textbooks pay little heed to the necessity for rigid adherence to a nomenclature that provides not only for past contributions but for future developments as well. In this, writers might consider the report of the Council on Pharmacy and Chemistry on Estrogenic Substances (*THE JOURNAL*, April 29, 1933, p 1331), which demonstrates how adequate terminology may be applied in this fashion.

**Allgemeine Konstitutionslehre in naturwissenschaftlicher und medizinischer Betrachtung** Von O Naegeli Dr med Dr Jur H C Dr der Naturwissenschaften H C Second edition Paper Price 15 marks Pp 190 with 32 illustrations Berlin Julius Springer 1934

The problems of constitution in its relation to medical problems have expanded greatly since the first edition of this monograph appeared. It was the original purpose of the author to correlate information touching on problems of biology and medicine and the book was enthusiastically received by the profession. The style and purpose of the first edition have been maintained in this revision. The only change has been in bringing the material down to the present. It is concise and practical and the reader is not confused by a mass of conflict-

ing data. Because of the author's background in biology and clinical medicine he is able to present this subject to the physician in an authoritative manner. Some readers, especially those primarily interested in biology, may deplore the paucity of bibliographic references or discussion of the work of other investigators in the field. This, however, has undoubtedly been a purposeful omission to conform with simplicity in presentation. The monograph is carefully organized. In the first part the reader is given a comprehensive historical outline of constitution and disease. In the next part the author discusses some of the fundamental facts on variation, mutation, and modification of the species. The last part of the book is devoted to clinical application of these facts in the study of human disease and anomalies. Almost every phase of medicine has been touched on. Mutation problems in malignant tumors, mutation and its significance in bacteriology, constitutional factors in the various types of blood dyscrasias, and psychoneuroses from the standpoint of their constitutional background are concisely treated in a comprehensive manner. Few physicians who read this monograph will fail to be stimulated. It is a work that can be well recommended to both the biologist and the practitioner of medicine, for their interests merge on this important subject.

**Midwifery for Nurses** By Henry Russell Andrews MD BSc FRCP Consulting Obstetric Physician London Hospital and Victor Lack MB BSc FRCP Assistant Obstetric and Gynecological Surgeon London Hospital Seventh edition Cloth Price \$2.50 Pp 268 with 70 illustrations Baltimore William Wood & Company 1934

This well known book has been ably revised by Victor Lack. The chief alterations are in the chapters on antenatal care, infection in labor, aseptic technic, puerperal sepsis and infant feeding. Data have been added concerning maternal mortality, stillbirths and anesthetics. The book is intended for nurses and nurse-midwives, and the subject matter is presented in a masterly way. It is unfortunate that rectal examinations are not even mentioned in the book. Nurses are instructed as to the proper way of making vaginal examinations during labor, but rectal examinations are certainly easier and usually less dangerous than vaginal examinations. In cases in which the cervix is fully dilated and the membranes are intact, the nurse is advised to rupture the membranes by scratching through them with the finger-tip while they are made tense by a pain. "This procedure may not be easy with the gloved finger. Furthermore, the nurse should be cautioned not to rupture the membranes during a pain if the head is high up because the umbilical cord may prolapse. The authors recommend the use of castor oil on the second day after delivery. Most American obstetricians have given up the use of this laxative except for the induction of labor. In speaking of the treatment of placenta praevia the authors maintain that a nurse ought not to perform a version. Even in the hands of a physician, version in cases of placenta praevia is often a dangerous procedure. The popularity of the book is attested by the fact that it has been translated into three foreign languages, and this popularity will undoubtedly be retained in the British Isles and British dominions.

**Atlas of Selected Cases of Pathological Anatomy** By W M de Vries Professor of Pathological Anatomy at the University of Amsterdam Cloth Price 25 Dutch guilders Pp 73 with 73 plates Amsterdam J H De Bussy Ltd 1933

This atlas was dedicated by the author to the University of Amsterdam on the day of its tercentenary. The specimens used for illustration were chosen for various reasons—some because they were wanted for a publication, others because the pathologic condition was rare or characteristic, others again because the author could not find in the literature a good drawing of the condition. Most of the illustrations are in colors, but the artist has avoided using an excess of color, a fault that impairs the value of many atlases. There was no intention of composing a complete atlas of pathology but rather to select specimens for drawing that would have some value for clinicians and pathologists.

The drawings are grouped according to organs involved. Nineteen illustrations exhibit lesions of the heart and blood vessels. In this group are illustrated various forms of endocarditis, syphilitic aortitis, malformations of the heart, canali-

zation of a thrombus, and a most unusual sarcoma of the veins of the leg. There are twelve illustrations of lesions of the lungs. The pictures of "the lung in Spanish influenza" are the only ones in the book that are too highly colored. Especially worthy of mention in this group are the drawings of two aneurysms in a tuberculous cavity, and the "so called lymphangitis carcinomatosa of the lung and pleura." Fifteen drawings are devoted to lesions of the liver and gallbladder. Of especial interest to surgeons is the picture of "necrosis (anemic infarction) in the right lobe of the liver after ligation of the right branch of the hepatic artery" during a difficult operation on the gallbladder. Eight drawings each illustrate lesions of the kidneys and of the brain and spinal cord. Special mention should also be made of the gross and microscopic illustrations of the spleen in Gaucher's disease, hemorrhagic necrosis of the mucosa of the rectum following the use of an enema that accidentally contained too much alcohol, chorioepithelioma in the male, and three remarkable illustrations of the head and skull in a case of generalized osteitis fibrosa in a chimpanzee.

Most of the illustrations are accompanied by a brief clinical history, a description of the specimen illustrated and the important items in the anatomic diagnosis of the case from which it was obtained. In many instances there are one or more references to pertinent literature. The text is in English. The typography and reproduction of drawings are excellent. This volume can be heartily recommended to clinicians and pathologists as a group of fine illustrations of significant pathologic conditions.

**Diagnostic clinique Examens et symptômes** Par le Dr A. Martinet. Avec la collaboration des Docteurs Desfosses, Georges Laurens, L. Con Meunier, Lutier, Saint Côme et Terson. Sixième édition. Cloth. Price 145 francs. Pp 1138 with 875 illustrations. Paris: Masson & Cie 1934.

This book has established itself as a classic in the French medical literature. It presents a detailed description of the whole field of medical diagnostic science, written by the best known French authority on this subject. This edition has been completely revised by the collaborators of the deceased author. The work is divided into three parts. The first is devoted to general remarks, description of the evolution and present status of the diagnostic science and discussion of common causes of diagnostic errors, such as ignorance, incomplete examination or errors of judgment. History writing and physical examinations are described in an exhaustive and yet simple manner. The second part deals with the technique of examination of the respiratory, digestive, circulatory, genito-urinary and nervous systems. Special chapters are devoted to descriptions of bacteriologic technique, biologic tests, anthropobiometry, basal metabolism, interferometry, and acid-base equilibrium. The third part deals with symptomatology, separate chapters are devoted to the differential diagnosis of albuminurias, anemias, ascites, convulsions, hematurias, lumbago and jaundice. Newer laboratory and clinical methods, such as gastroscopy, interferometry, roentgenography of the spleen and liver, ventriculography and determination of venous pressure, receive a due consideration. The printing and paper are excellent, the style fluent, the text is amply illustrated by colored plates and numerous charts. The book may be considered a valuable and authoritative contribution to the French medical literature and can be heartily recommended to all general practitioners who read French.

**Manuel de radiodiagnostic clinique** Par R. Ledoux Lebard chargé de cours de radiologie clinique à la Faculté de médecine de Paris. Fascicules I et II. Cloth. Price 260 francs. Pp 1075 with 1143 illustrations. Paris: Masson & Cie 1933.

Especially to his numerous friends among the radiologists of the United States these two volumes serve as a pleasant reminder of the loyal and generous war-time service rendered by the author to the medical department of the American Expeditionary Forces. A subsequent lecture trip to this country a few years after the war served further to cement the warm friendship accorded him by a host of friends in America. These volumes constitute a notable contribution to radiology and stand easily as the foremost French publication of this sort. In the author's characteristic easy style the text offers no difficulty and much attraction to readers of French. The

pages devoted to physics are ample, and it is gratifying to see the generous space devoted to the various methods of localization of foreign bodies, a field in which the author excelled during the great war. It is often disappointing to note a surgeon seeking long and blindly in the glaring light of the operating room, interrupting his work at frequent intervals to study some roentgenograms on the side wall, in attempting to find and remove a foreign body that could be located and delivered in a short time by the aid of the fluoroscope, a training that was given to many American surgeons during the war but little taught and less practiced by the newer generation of physicians taking up surgery. In turning through the pages of these two volumes, chapter by chapter, one is impressed with the thoroughness with which the various subjects are discussed. If some disappointment is felt on account of the small size of the illustrations and the rather less than best reproduction of the roentgenograms, this feeling is pretty well offset by satisfaction in the completeness of the text and its general readability.

**Electrokinetic Phenomena and Their Application to Biology and Medicine** By Harold A. Abramson, M.D. American Chemical Society Monograph Series No. 66. Cloth. Price \$7.50. Pp 331 with 107 illustrations. New York: Chemical Catalog Company, Inc. 1934.

Many of the reactions characteristic of living cells are probably due to the fact that the molecules in the liquid-liquid and solid-liquid interfaces encountered in such cells are oriented in a specific manner. Because of this molecular orientation surfaces acquire specific properties that are of fundamental importance in the consideration and interpretation of all types of biologic phenomena. Some ideas concerning the structure of such interfaces may be derived from a study of the differences in electrical potential observed when there is tangential movement of one phase relative to the other. This potential is known as the electrokinetic potential and may be estimated by observing the mobilities of particles in an electrical field, as in electrophoresis, or the motion of the whole body of liquid, as in electro-osmosis. In the first chapter the author discusses the historical development of the subject. Chapters II and IV, on theory, will be found more useful and interesting by chemists and physicists who have had an adequate mathematical training than by the average biologist. In chapter III the author describes various methods available for the study of such electrokinetic phenomena as electrophoresis, electro-osmosis and streaming potentials. The reader interested in the application of these phenomena to medical and biologic problems will find interesting and suggestive material in chapters V, on proteins and related compounds, VIII, on organic surfaces, X, on blood cells, spermatozoa and tissues, and XI, on bacteria, antibodies, viruses and related systems. The average medical reader would probably find this book more useful if it were more descriptive and less mathematical. In its present form it requires special study, which will, however, repay the reader who is interested in the further development of this important field and the application of the results obtained to medical problems.

**Le phosphore Techniques chimiques physiologie pathologie thérapeutique** Par M. Labbe professeur de clinique médicale à la Faculté de médecine de Paris et M. Fabrykant assistant à la clinique médicale de la Pitié. Paper. Price 55 francs. Pp 395. Paris: Masson & Cie 1933.

This work represents, in a well organized form, a compilation of numerous observations on the distribution of different forms of phosphorus in tissues, organs and body fluids under various conditions of health and disease. Although an attempt is made to emphasize the chemical aspects of the methods used, it is quite obvious that this is by no means critical from biochemical or analytic points of view. The data accumulated in some cases are necessarily of doubtful value because of the analytic methods used. Such important forms as phosphoproteins are ignored almost entirely, and nucleotides are stated to be hydrolyzed by phosphatases to phosphoric acid and "hydrocarbone purique ou pyrimidique." The various physiologic and pathologic aspects of phosphorus metabolism are reviewed under the following titles: experimental variations in blood phosphorus, variations in blood phosphorus as a result of the influence of substances influencing carbohydrate metabolism.

excretion of phosphorus, phosphorus in rickets, in hypervitaminosis D, in tetany, in acromegaly, in arthritis, in anemias, in leukemias, in diabetes, in liver diseases, in kidney diseases, in phosphaturia, and the therapeutic use of phosphorus. Here again is evidence of the lack of quantitative evaluation of the rather limited amount of experimental work on the different forms of phosphorus and their distribution. Thus, it is stated as a fact that, no matter what form of phosphate is fed, the phosphate is always absorbed in a relatively simple form and above all as inorganic phosphate. On the whole the compilations on pathologic and physiologic variations in phosphorus metabolism are valuable, but in the present state of knowledge, largely because of lack of adequate quantitative data on different forms of phosphorus, sweeping generalizations should be reserved until a future time. Each chapter is followed by an excellent list of references to original papers.

*Homosexualismo creador* Por A. Nin Frlas. Paper. Price 25 pesetas. Pp. 383 with 36 illustrations. Madrid: Javier Morata, 1933.

The author adopts the biologic and social aspects of homosexuality that for some years have been current in German and other publications; he has been greatly influenced by the "Psychopathia Sexualis" of Krafft-Ebbing, Havelock Ellis's "Sexual Inversion," and "Los Estados Intersexuales en la Especie Humana" by Gregario Maraño. He classifies the human race into two types, the so-called normal venereal men and women, with subspecies of urnings (male and female) and the types between these and the venereal class. The condition of homosexuality apparently is considered by the author as beginning in the uterus as a variant of the germ plasm. The author seemingly prefers to consider the pure urning rather as afemine in feeling and emotions than as a sex aberration or as a sex inversion. It is a distinct biologic state.

The disdain of medieval and modern society for homosexual individuals has been responsible for their shunning sexual life altogether in many instances and sublimating their so-called abnormal sex life so that they are enabled to devote themselves without abstraction to the higher paths of human culture. They have been of aid to the feminist movement in that they have respected women though not attracted to them sexually, allowing them or helping them to attain sex emancipation. It is in this aspect that the author regards homosexuality as a creative force.

While there is nothing essentially new in reference to the biologic or social aspects of homosexuality as given by the author, his really valuable contribution to the subject is his study of the literary and other work by this rather extensive sex minority throughout the ages. These he illustrates by citations giving the names of the authors. The bibliography at the end will also be of value to those interested in this subject. The author spent many years traveling in Europe and elsewhere and personally verified all the incidents and works that he cites. Many of these are of the greatest interest.

One point which the author incidentally brings out should be mentioned, namely, that he considers the love between homosexuals to be on a higher plane emotionally and otherwise than that between heterosexuals.

*Formes chirurgicales de la tuberculose intestinale* Par L. Bérard, professeur de clinique chirurgicale à la Faculté de médecine de Lyon et N. Patel, professeur à la Faculté de médecine de Lyon. Paper. Price 50 francs. Pp. 264 with 69 illustrations. Paris: Masson & Cie, 1933.

Intestinal tuberculosis is so common particularly among patients suffering from pulmonary tuberculosis, that it is fortunate that Bérard and Patel have presented in this volume the results of their wide experience as well as the experience of many other workers. The book is unusually well prepared. It is concise and at the same time contains all the practical value that is known concerning this subject. The book is divided into ten main divisions, in which are discussed etiology, and pathogenesis, general anatomy and pathology, tuberculosis of the small intestine of the cecum of the appendix and ileocecal region and of the large intestine, intestinal tuberculosis as a complication with pulmonary tuberculosis, methods of diagnosis, treatment with indications and technic, and complications. Under the heading of diagnosis all phases of the examination are discussed, beginning with the search for tubercle bacilli in

the fecal material. Here the authors call attention to views held by different authors, one that the presence of tubercle bacilli in the feces is indicative of intestinal tuberculosis, another that practically all patients with pulmonary tuberculosis have tubercle bacilli in the feces. They emphasize the importance of special technic to recover tubercle bacilli, and guinea-pig inoculation. They assign considerable importance to the finding of blood in the stool, as well as pus. The authors consider the reaction of Triboulet of great value and call attention to recent work with this reaction. Considerable space is given to the roentgen examination and this section is well illustrated. Under treatment they consider all operative procedures, first, those which are palliative and, secondly, those which are radical. Here they deal with the various indications and contraindications for surgery and present several tables showing their results. This section contains good illustrations. Complications, such as fistulas, occlusion and peritonitis through intestinal perforation, are thoroughly discussed as to diagnosis and treatment. The book contains a large bibliography, which includes the studies of several North American authors, such as E. W. Archibald, Lawrason Brown and H. L. Sampson, and D. A. Stewart. The book is to be recommended not only to those particularly interested in intestinal tuberculosis and surgical procedures but also to those with more general interest in tuberculosis.

*Röntgenologische Studien über die traumatischen und habituellen Schultergelenkverrenkungen nach Vorn und nach Unten* Von Ivan Hermodsson. Acta radiologica Supplementum XX. Paper. Price 9 Swedish crowns. Pp. 171 with illustrations. Stockholm: P. A. Norstedt & Soner, 1934.

This monograph contains the roentgenologic study of traumatic and recurrent dislocation of the shoulder, both forward and inferior or subcoracoid. The author reports ninety-two cases and offers a bibliography. Unfortunately, he has overlooked the work of Heymanowitsch and Nicola.

*Cours élémentaire de dessin d'anatomie du squelette* Par A. Moreaux. Paper. Price 10 francs. Pp. 34 with illustrations. Paris: Masson & Cie, 1934.

This booklet presents the elementary points in sketching the anatomy of the skeleton. It is interesting and simple. It was written for medical students, candidates for professorial degrees and students of the school of fine arts.

*Rheumaprobleme* Band III. Gesammelte Vorträge gehalten auf dem III. Arztekursus des Rheuma-Forschungs-Instituts am Landesbad der Rheinprovinz in Aachen vom 22. bis 24. März 1934. Von Geheimrat Prof. Dr. Aschoff und anderen. Herausgegeben von Dr. Walter Krebs, Chefarzt des Landesbades und Leiter des Rheuma-Forschungs-Instituts zu Aachen. Boards. Price 5.40 marks. Pp. 95 with 21 illustrations. Leipzig: Georg Thieme, 1934.

The problem of rheumatic diseases has become such an important one that in many countries, as in the United States, special committees have been formed to organize and correlate researches and to foster conferences presenting the results. This volume contains the proceedings of the third German conference, held at the Rheuma-Forschungs-Institut in Aachen, March 22 to 24, and is a sequel to the proceedings of the first and second conferences of 1928 and 1930, published in 1929 and 1931 respectively. It is edited by Dr. Walter Krebs, chief of the government spa and of the Rheuma-Forschungs-Institut, and contains the following papers by its distinguished contributors: investigations on the causes of rheumatic myocarditis, Ludwig Aschoff, Freiburg; the significance of bodily constitution in the disease picture of rheumatism, Ernst Edens, Düsseldorf; roentgen therapy for diseases of joints, Rudolf Grashey, Cologne; a contribution on the relationship of periosteum and fibrous tissue to rheumatic diseases, Walter Krebs, Aachen; functional point of view and measures in the management of arthritis and arthrosis, Lothar Kreuz, Berlin; preliminary survey of advancements in the domain of rheuma research in later years, Franz Külsb, Cologne; present conceptions on our knowledge of the etiology of specific rheumatism, Paul Manteluf, Düsseldorf; a clinic on rheumatic infections with considerations on etiology and treatment, Hugo Schottmüller, Hamburg; medicinal and physical methods of treatment of "rheumatic" arthritis and arthrosis, Heinz Gehlen, Aachen; the management of myalgia and neuralgia, Hermann Hennes,



Aachen, the treatment of so called rheumatic diseases of the vertebral column, Oskar Vontz, Aachen

These publications on "Rheumaprobleme" should not be confused with another annual German review, *Rheuma-Jahrbuch* (Leo Alterthum, Berlin)

## Medicolegal

**Hospitals Liability for Injuries Notwithstanding Release from Liability of Person Responsible for Original Injuries**—The plaintiff received an injury to her vertebra in an automobile collision. She was taken to the defendant hospital and was attended by her own physician. After giving her a sleep-producing drug, the physician instructed a nurse employed by the hospital to apply an electric pad to the patient's spine in a manner directed by him. In the absence of the physician, the nurse applied the pad in a different manner and as a result the patient was badly burned. Subsequently, the patient, for a consideration, released the person responsible for the automobile collision from "all claims on account of injuries resulting, or to result, from" said automobile accident. She then sued the hospital solely for damages for the burns resulting from the negligence of the nurse. Judgment was given for the patient. From the trial court's denial of a motion for a new trial, the defendant hospital appealed to the court of appeals of Georgia, division no. 2.

The hospital contended that the release given by the patient to the person responsible for the automobile accident operated to release the hospital from any damages for which it might be liable as a result of the burns. The court of appeals conceded that a release might have that effect if the patient's claim was based on the aggravation of the injuries sustained in the automobile accident. But because the patient sued because of injuries that resulted from negligence of the hospital employee that caused an injury separate and distinct from the original injury, the hospital was still liable, notwithstanding the release. The fact that the original injuries furnished the condition and gave rise to the occasion by which the injuries resulting from the hospital's negligence were made possible the court regarded as immaterial. The judgment in favor of the patient was therefore affirmed.—*Piedmont Hospital v. Truitt (Ga.)*, 172 S. E. 237.

**Workmen's Compensation Acts Thumb Bruise Following Use of Paint Spray Gun**—In the course of his employment, the workman bruised his thumb by constant pressure on the button of a spray gun used in painting furniture. A physician lanced the thumb and subsequently a felon developed. To recover for the resulting disability, the workman instituted proceedings under the Virginia workmen's compensation act. The industrial commission denied compensation and the workman appealed to the Supreme Court of Appeals of Virginia.

For a disability, said the Supreme Court of Appeals, to be compensable under the Virginia compensation act it must be the result of an "injury by accident." The meaning of this term was recently construed by the Virginia court in *Big Jack Overall Co. v. Bray (Va.)*, 171 S. E. 686 where, quoting from *McCauley v. Imperial Woolen Co.*, 261 Pa. 312, 104 A. 617, it was said:

If the incident which gives rise to the injurious results complained of can be classed properly as a mishap or fortuitous happening—an untoward event which is not expected or designed—it is an accident within the meaning of the Workmen's Compensation Act.

In this case there was no sudden unlooked for mishap. Some two hours before stopping work, the workman noticed that his thumb was somewhat red from the continuous pressure on the button. He continued to use the thumb in the same manner, with increased soreness and discomfort. The slightly bruised thumb was the origin or beginning, of the sequence of events that ended in its partial loss of use. The bruise was received while the workman was performing his duty in the usual and ordinary manner—a result, under the circumstance, ordinarily and naturally flowing from the conduct of the workman. It

cannot be held to be an "injury by accident" within the meaning of the compensation act. The judgment of the industrial commission denying compensation to the workman was affirmed.—*Hurd v. Hesse & Hurt (Va.)*, 172 S. E. 289.

**City Hospitals Liability of City for Hot Water Bottle Burn**—The city of Owatonna, Minn., owns and operates a general hospital. Only pay patients are admitted to the hospital. Profits from the operation of the hospital are placed in a hospital fund and are not used for other city purposes. Following an appendectomy performed on the plaintiff at the hospital and while he was still under the anesthetic, his leg was burned by a hot water bottle, placed in his bed by a hospital nurse. He brought suit against the city of Owatonna. There was a judgment for the plaintiff and the city appealed to the Supreme Court of Minnesota.

The liability of the city, said the Supreme Court of Minnesota, depends on whether the city in operating the hospital was exercising a proprietary or a governmental function. If it was exercising a proprietary function, it is liable, if it was exercising a governmental function, it is not liable. In concluding that in operating the hospital the city was exercising its corporate proprietary powers, the court said that the hospital was not such a one the operation of which could properly come within the governmental function for the protection of health and suppression of disease. It was a general hospital operated for the private advantage and convenience of the inhabitants of the city. That its operation might incidentally to some extent protect society from sickness and death the court thought to be immaterial. When a city engages in activities which are of a nature ordinarily engaged in by private persons and which subject private persons to liability for negligence, the city is likewise liable for negligence. In Minnesota, owners of hospitals are liable for the negligence of their servants whether the hospital be maintained for profit or for charitable purposes. *Mulliner v. Evangelischer Diakonissenverein of Minn. Dist.*, 144 Minn. 392, 175 N. W. 699. The judgment in favor of the plaintiff was accordingly affirmed.—*Borvege v. City of Owatonna (Minn.)*, 251 N. W. 915.

## Society Proceedings

### COMING MEETINGS

- American College of Surgeons Boston Oct. 15-19 Dr. Franklin H. Martin 40 East Erie Street Chicago Director General
- American Hospital Association Philadelphia Sept. 24-28 Dr. Bert W. Caldwell 18 East Division Street Chicago Executive Secretary
- American Roentgen Ray Society Pittsburgh Sept. 25-28 Dr. Eugene P. Pendergrass 3400 Spruce Street Philadelphia Secretary
- American Society of Tropical Medicine San Antonio Texas November 14-16 Dr. Henry E. Meleney Vanderbilt University School of Medicine Nashville Tenn. Secretary
- Associated Anesthetists of the United States and Canada Boston Oct. 15-19 Dr. F. H. McMechan 318 Hotel Westlake Rocky River Ohio Secretary
- Association of Military Surgeons of the United States Carlisle Barracks Pa. Oct. 8-10 Dr. J. R. Kean Army Medical Museum Washington D. C. Secretary
- Delaware Medical Society of Dover Oct. 9-10 Dr. William H. Speer, 917 Washington Street Wilmington Secretary
- Indiana State Medical Association Indianapolis Oct. 9-11 Mr. T. A. Hendricks 23 East Ohio Street Indianapolis Executive Secretary
- Inter State Postgraduate Medical Association of North America Philadelphia November 5-9 Dr. W. B. Peck 27 East Stephenson Street, Freeport Ill. Managing Director
- Kansas City Southwest Clinical Society Kansas City Mo. Oct. 1-4 Dr. Hugh Wilkinson, 750 Minnesota Avenue Kansas City Kan. Secretary
- Kentucky State Medical Association Harlan Oct. 1-4 Dr. A. T. McCormack 532 West Main Street Louisville Secretary
- New England Surgical Society Burlington Vt. Sept. 28-29 Dr. J. M. Birnie 14 Chestnut Street Springfield Mass. Secretary
- Ohio State Medical Association Columbus Oct. 4-6 Mr. Don K. Martin 1005 Hartman Theatre Building Columbus Secretary
- Omaha Mid West Clinical Society Omaha Oct. 29-Nov. 2 Dr. Joseph D. McCarthy 107 South 17th Street Omaha Secretary
- Oregon State Medical Society Corvallis Sept. 27-29 Dr. L. Howard Smith Medical Arts Building Portland Secretary
- Pennsylvania Medical Society of the State of Wilkes Barre Oct. 1-4 Dr. Walter F. Donaldson 500 Penn. Avenue Pittsburgh Secretary
- Southern Medical Association San Antonio Texas November 13-16 Mr. C. P. Loran Empire Building Birmingham Ala. Secretary
- Vermont State Medical Society Burlington Oct. 4-5 Dr. W. G. Ricker 33 Main St. St. Johnsbury Secretary
- Virginia Medical Society of Alexandria Oct. 9-11 Miss Agnes V. Edwards 1200 East Clay Street Richmond Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### Alabama Medical Association Journal, Montgomery

4 41 96 (Aug.) 1934

- Pathology of Anemias of Early Infancy G S Graham Birmingham —p 41  
Etiology and Symptomatology of Anemias of Early Infancy H Kennedy Birmingham —p 47  
Treatment of Anemias of Early Infancy C E Abbott Tuscaloosa —p 51  
Cryptorchidism and Acute Gonorrheal Epididymitis Report of Case in Ten Year Old Boy J P Robertson Birmingham —p 53

#### American J Digestive Diseases and Nutrition, Chicago

1 289 350 (July) 1934

- History of Gallbladder Disease Resume of Symptoms M E Rehfuss Philadelphia —p 289  
Practical Etiologic Pathologic and Clinical Consideration of Intestinal Ulceration with Especial Reference to Amebic Dysentery Bacillary Dysentery and Idiopathic Ulcerative Colitis J Felsen New York —p 297  
Insanity Equivalents and the Gastro Enterologist W C Alvarez Rochester Minn —p 305  
Intravenous Galactose Liver Function Test Preliminary Report I R Jankelson and H H Lerner Boston —p 310  
Unusual Clinical Syndromes Associated with Stone in the Common Bile Duct A M Snell and M W Comfort, Rochester Minn —p 312  
Composition of Pure Gastric Juice F Hollander New York —p 319  
Recent Investigations Permitting a New Interpretation of the Results of the Conventional Titration of Gastric Juice L Martin Baltimore —p 330  
Dissociation of the Functional Properties of the Gastric Glands Under the Influence of Fat Armine Alley D W MacKenzie Jr and D R Webster Montreal —p 333  
\*Intensified Oral Cholecystography Preliminary Report W H Stewart and H E Illick New York —p 337  
Treatment of Peptic Ulcer with Bacterial Vaccines (Foreign Protein) Review of the Literature with Report of Results Observed in the Treatment of Thirty Three Patients D J Sandweiss and S G Meyers Detroit —p 338  
Treatment of Carcinoma of the Colon W W Babcock Philadelphia —p 342

**Intravenous Galactose Liver Function Test**—Jankelson and Lerner introduced galactose intravenously to test, indirectly, the extent of parenchymatous hepatic destruction if any was present. The patient is in a fasting state (overnight). In the morning a venous blood sample is taken and oxalated. Without removing the needle from the vein, a syringe containing 50 cc of a 50 per cent solution of galactose is attached and the solution is injected slowly over a period of from eight to ten minutes. Half-hourly, venous blood samples are taken for the next two hours. The authors employed the test in seven normal persons and eight patients having some pathologic condition of the liver. The results indicate that persons having a normal liver metabolize 25 Gm of intravenously injected galactose within sixty minutes. In pathologic conditions the same amount of galactose may or may not be metabolized during a like period. The delay in its utilization depends on the degree of damage to the liver. When the degree of damage is minimal, the rate of utilization may be normal. With increasing damage the utilization of galactose takes longer. The authors emphasize the fact that whereas the galactose liver function test of Bauer has no place in the diagnosis of liver disease in the absence of jaundice the intravenous galactose test may show a variable amount of sugar retention within the venous blood in liver disease not accompanied by jaundice as well as that with jaundice. In the small number of cases of jaundice observed by them the intravenous galactose liver function test was positive in all, whether the cause was within the liver or in the extrahepatic bile ducts. The intrahepatic type of jaundice, however, presented the highest retention of galactose and therefore if any differentiation by this test is possible at all it must rest on the degree of retention and not the absence or presence

of it. Negative intravenous galactose liver function tests do not exclude minimal liver damage but probably indicate a normal liver function.

**Intensified Oral Cholecystography**—Stewart and Illick outline a method of intensified cholecystography, combining the methods of Antonucci and Sandstrom, in which the patient is given several cups of tea with extra sugar during the afternoon. The regular evening meal is allowed at 6 p m and the first dose of tetraiodophenolphthalein is given at 7 o'clock. More tea with sugar is given later in the evening. No breakfast is given on the morning of the following day. Roentgen studies are made at twelve and sixteen hours after the first dose of the dye. The noon meal consists of fruit juices, jello, fruit salad and tea. Another dose of the opaque substance is given after this. In the afternoon more tea with excess sugar is taken, and in the evening a meal similar to the luncheon. The third dose is given in the evening, and the thirty-six hour examination is made the following morning. These thirty-six hour films demonstrate remarkable concentration of the opaque bile in the gallbladder, the opacity equaling that of a barium-filled stomach. Study then may be made following the usual fatty meal to determine how well and rapidly the gallbladder empties. A one-half second exposure time, with 100 milliamperes through a fine focus tube, is used. A special speed Bucky is employed. The diagnostic detail of the thirty-six hour roentgenograms demonstrates nonopaque gallstones well. The shadow intensity obtained at thirty-six hours is far more uniform than that formerly possible with the sixteen hour method. Faint gallbladder shadows are no longer a problem but conclusive evidence of dysfunction of the mucosa. "No shadow" cases do not need the customary check-up, as the observations are now much more dependable.

#### American Journal of Diseases of Children, Chicago

48 243 480 (Aug.) 1934

- Congenital Hypertrophy of Muscles Extrapyramidal Motor Disturbances and Mental Deficiency Clinical Entity Cornelia de Lange, Amsterdam the Netherlands —p 243  
\*New Auxiliary Treatment for Impetigo Contagiosa L Hollander and J J Hecht Pittsburgh —p 269  
Acetarsone in Treatment of Congenital Syphilis Comparison with Bismuth Therapy J T Coppolino Philadelphia —p 272  
Vioosterol in Prophylaxis of Rickets in Premature Infants Clinical Chemical and Roentgenologic Observations L T Davidson and Katharine K Merritt New York —p 281  
\*Lipoid Cell Pneumonia T C Goodwin Baltimore —p 309  
Grasp Reflex of the New Born Infant C P Richter Baltimore —p 327  
Eczema Vaccinatum E S Platou Minneapolis —p 333

**Auxiliary Treatment for Impetigo Contagiosa**—Hollander and Hecht used metaphen 1 500 incorporated in flexible collodion in the treatment of 234 cases of impetigo contagiosa, ten cases of ecthyma and twenty cases of infectious eczematoid dermatitis. The surface of the skin surrounding the infected area was washed with soap and water and dried thoroughly with absorbent tissue. The lesion was painted with several layers of metaphen 1 500 in collodion, which was permitted to dry layer by layer. In twenty-four hours the easily removable layers of the metaphen-collodion mixture were removed with a tissue forceps. The adherent part was left on, and the mixture was reapplied in several layers. The procedure was repeated on the third day. On the fourth day all the metaphen-collodion preparation, which by that time had curled up at the edges, was removed and with it the underlying encrustation. If the underlying skin was dry, light anointing with 2 per cent ammoniated mercury was carried out. If, however, the surface was still moist, the metaphen collodion mixture was applied for another period of three days. Of the impetigo contagiosa cases 85 per cent were cured after an average of eight days of treatment, 75 per cent of the ecthyma cases after an average of fourteen days of treatment and all the cases of infectious eczematoid dermatitis after an average of twenty days of treatment.

**Lipoid Cell Pneumonia**—Goodwin observed twenty-five cases of lipoid cell pneumonia during the past ten years. In three of these the diagnosis was established clinically, in the others at necropsy. The ages of the children ranged between 6 months and 5 years. Various oils were responsible. Milk fat was perhaps the most frequent kind found. The children were weak or comatose and were fed by gavage, or vomited frequently, and the regurgitation of the milk was the cause of

the aspiration. Cod liver oil was present in the lungs in a number of infants, and in almost all there was the history of cough, vomiting or struggling against the administration of the oil. In four of the cases in which the amount of pulmonary involvement was the greatest, a clear history of the instillation of liquid petrolatum in the nose, or its ingestion, was obtained. The oil was identified in the lung in two instances. Rapid respiration without dyspnea and a persistent hacking cough stand out as the two most frequent complaints. A single roentgenogram is scarcely ever typical enough to do more than suggest lipid cell pneumonia. The course of the disease is in most cases determined by the condition associated with it. There is as great a difference in the pathologic picture found at necropsy in cases of lipid cell pneumonia as there is in the clinical picture. The author's observations confirm those of Laughlen and Pinkerton. Uncomplicated lipid cell pneumonia offers a good prognosis. It should be suspected in small, debilitated infants who fail to gain weight and who have a chronic cough or rapid respiration. These symptoms, in the absence of fever, suggest lipid cell pneumonia. Tuberculosis must be ruled out. The blood picture is normal in uncomplicated instances and is in conformity with the picture of coincident infections. The roentgenogram is of the greatest help. The consolidation is central, bilateral, more extensive on the right and apt to be posterior. The roentgen shadow is always more extensive than the amount of consolidation suggested by physical examination. Roentgenograms taken weeks apart may show scarcely any difference in the appearance of the lungs. The author has never seen cavitation in lipid cell pneumonia or calcification in the bronchial lymph nodes. The tendency for the lesion to disappear gradually makes the picture unlike that of a neoplasm or congenital malformation, and the physical signs are rarely those of atelectasis. Good nursing with a frequent change of position and the avoidance of infection of the upper respiratory tract is the only treatment. It is unwise to use drops of oil in the nose of any small or weak infant, and liquid petrolatum as a cathartic should not be given. When cod liver oil is taken poorly, it is best to substitute one of the more concentrated vitamin D preparations. Care in feeding and gavage done only by experienced persons will decrease the incidence of pneumonia from the aspiration of foodstuffs.

### American Journal of Hygiene, Baltimore

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- Morphology, Periodicity and Course of Infection of *Plasmodium Brasili-  
anum* in Panamanian Monkeys. W. H. Taliaferro and Lucy Graves  
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- Alteration in Time of Sporulation of *Plasmodium Brasili-  
anum* by Reversal of Light and Dark. W. H. Taliaferro and Lucy  
Graves Taliaferro—p. 50
- Superinfection and Protective Experiments with *Plasmodium Brasili-  
anum* in Monkeys. W. H. Taliaferro and Lucy Graves Taliaferro  
—p. 60
- Adult Size in Relation to Reproduction of Avian Malaria Parasite  
*Plasmodium Cathemerium*. G. H. Boyd and L. H. Allen Augusta,  
Ga.—p. 73
- Studies of Endamoeba Histolytica and Other Intestinal Protozoa in  
Tennessee. VII. Histopathology of Intestinal Amebiasis in the  
Kitten and in Man. H. E. Meloney Nashville Tenn. and W. W.  
Frye—p. 84
- Observations and Experiments on Conjugation of *Balanitidium* from the  
Chimpanzee. E. C. Nelson Baltimore—p. 106
- Experimental Trypanosoma Brucei Infection and Immunity in Various  
Species of Peromyscus (American Deer Mice). A. Packchianian, Ann  
Arbor Mich.—p. 135
- Serologic Specificity of Bacterial Carbohydrates with Especial Reference  
to Type II Pneumococcus and Heterophile Strain of Bacterium Lep-  
tosepticum. J. H. Dingle Baltimore—p. 148
- Effect of Vitamin A Deficiency on Resistance of Rats to Infection with  
*Trichinella Spiralis*. O. R. McCoy Rochester N. Y.—p. 169
- Studies of Acute Respiratory Infections. IV. Filter Passing Anaerobic  
Bacteria from Cases of Epidemic Influenza in New York City in  
1928-1929. W. C. Noble Jr. and D. H. Brainard New York—p. 181
- Suggested Etiologic Relationship of Certain Strains of Green Strepto-  
cocci to Epidemic Influenza. Note. W. C. Noble Jr. and D. H.  
Brainard New York—p. 191
- Influence of Heat and Light on Nasal Obstruction. C. E. A. Winslow,  
L. Greenburg and L. P. Herrington New Haven Conn.—p. 195
- Simple Technic for Ultrafiltration. J. J. Quigley Albany N. Y.—  
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- Studies on Purification of Diphtheria Toxin by Ultrafiltration. A.  
Wadsworth and J. J. Quigley Albany N. Y.—p. 225
- Some American Species of Phlebotomus with Short Terminal Palpal  
Segments. F. M. Root Baltimore—p. 233
- Comparative Susceptibility of Anopheles Quadrimaculatus Say and  
Anopheles crucians Wied. (Inland Variety) to the Parasites of  
Human Malaria. M. F. Boyd and K. K. Stratman Thomas Tallahassee Fla.—p. 247

### Am J Roentgenol & Rad Therapy, Springfield, Ill.

32 1144 (July) 1934

- \*Agnesis of Corpus Callosum Its Diagnosis by Encephalography  
Report of Three Cases. L. M. Davidoff and C. G. Dyke, New York  
—p. 1
- Roentgenologic Diagnosis of Chronic Pulmonary Emphysema. W. W.  
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- Mediastinitis. K. Kornblum and L. H. Osmond Philadelphia—p. 23
- Roentgen Diagnosis of Carcinoma at the Cardia. W. H. Stewart and  
H. E. Illick, New York—p. 43
- \*Osteopoikilosis Report of Unusual Case. B. H. Nichols and E. L.  
Shifflett, Cleveland—p. 52
- Technical Considerations in Arteriography of the Extremities with  
Thorotrast. J. R. Veal and Elizabeth M. McTetridge New Orleans  
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- Roentgen Therapy of Hyperparathyroidism. E. A. Merritt and E. M.  
McPeal Washington D. C.—p. 72
- \*Irradiation in Treatment of Psoriasis. R. Rosh New York—p. 82
- Clinical Observations on Carcinoma of the Uterine Cervix After Radi-  
ation Therapy. H. Schmitz Chicago—p. 87
- Thicknesses of Aluminum to Be Used in Addition to Copper Filters. A.  
Mutscheller New York—p. 92

**Defective Development of Corpus Callosum**—Davidoff and Dyke describe two cases of agnesis of the corpus callosum diagnosed during life. The diagnosis was based on the encephalographic observations and was confirmed by necropsy in a third case. The cardinal changes noted in the encephalograms of all three cases are (1) marked separation of the lateral ventricles, (2) angular dorsal margins of the lateral ventricles, (3) concave mesial borders of the lateral ventricles, (4) dilatation of the caudal portions of the lateral ventricles, (5) elongation of the interventricular foramina, (6) dorsal extension and dilatation of the third ventricle and (7) radial arrangement of the mesial cerebral sulci round the roof of the third ventricle and their extension through the zone usually occupied by the corpus callosum.

**Osteopoikilosis**—Nichols and Shifflett present a case of osteopoikilosis with pituitary disturbances, which has been observed for seventeen years. The symptoms led to a diagnosis of hypopituitarism and osteomas and numerous calcium deposits in bone and later of hypopituitarism (although roentgenograms of the skull showed a small, apparently normal, sella), hypothyroidism and osteopoikilosis. The onset of the patient's illness dates to early adolescence and has continued with few variations to the present. Roentgenograms show multiple osteochondromas with at least one lesion resembling a cyst, multiple disseminated areas of bone density characteristic of osteopoikilosis and apparently a definite and marked proliferative periostitis of the long bones and of the bones of the hands and feet, which at the present time is severe. The authors cannot make a definite statement regarding the type of pituitary involvement, but clinically the patient is suffering from hypopituitarism. They believe that the lesions of osteopoikilosis are within the spongy part of the bone and not exostoses originating in the cortex, and that the lesions are probably formed early in life and do not show progression either in number or size. They have no reason to infer that the exostoses and the periosteal proliferation are a result of extensions of the lesions described as osteopoikilosis. It would appear that they are of separate origin and that the periostitis and exostoses have been progressive while the areas within the spongiosa have been stationary. Since only bones formed in membrane have not been reported as involved it would seem logical to infer that osteopoikilosis in some way, is related to enchondral bone formation and that it results from an abnormal functional relationship between the osteoblastic and osteoclastic activity of cells during the period of growth but the histopathologic study made by Schmorl does not support this hypothesis. The inference of endochondral relationship also is supported by the fact that the diaphyses metaphyses and epiphyses are involved indicating that the process is associated with the period of growth and continues until the epiphyses are united. Bearing out the theory of Ledoux-Lebord, Chabaneix and Dessane that typhoid might be an etiologic factor, the authors' patient had had typhoid.

**Irradiation in Treatment of Psoriasis**—The method of Rosh in the roentgen treatment of psoriasis consists in the application of high voltage roentgen rays to the spine at those levels which correspond with the nerve supply to the affected

areas of the body. During the period of nine years he has treated forty six cases of generalized psoriasis. Twenty-two were treated locally with superficial roentgen therapy, and twenty four, since 1928, were treated with high voltage roentgen therapy over the upper and lower thoracic spine. In the latter cases the disease had existed for periods varying from six to twenty years. None of the patients were hospitalized and they were able to follow their usual mode of life. No effects attributable to the season of the year or climate were observed. In most cases, following treatment, patients noticed at first an increase in itching, which was soon followed by a complete cessation of this symptom. About three weeks after treatment it was noted that the color faded from the center of the affected areas, the scales became loosened and the surrounding infiltration in the skin was diminished. In most cases a second series of treatments was given after a period of from six to eight weeks, during which time the majority of the areas were replaced by a brownish pigmentation. Complete disappearance of the lesions occurred only in from three to six months after the administration of the last treatment. In some persistent cases a year elapsed before the body was freed from the psoriasis.

### American Journal of Tropical Medicine, Baltimore

- 14 299 362 (July) 1934  
Development of Tropical Medicine in the United States E B Mc Kinley Washington D C—p 299  
Atabrine in the Treatment of Malaria in the Philippine Islands P E McNabb and S C Schwartz Manila P I—p 309  
Transmission of Malaria in Drug Addicts by Intravenous Use of Narcotics J A Bradley New Orleans—p 319  
Plasmodium Falciparum Welch 1897 Does Direct Division of the Parasite Precede Schizogony? H E Hingst Columbia S C—p 325  
Field Experiment in Quinine Treatment R A Collins Paris France—p 329  
Neglected Early Reference to the Malarial Vector in the Philippines P F Russell New York—p 339  
\*Attempts to Determine Amount of Yellow Fever Virus Injected by the Bite of a Single Infected Stegomyia Mosquito N C Davis Bahia Brazil—p 343  
Intestinal Acariasis Due to Tyroglyphus Longior Gervais E H Hinman and R H Kampmeier New Orleans—p 355

### Amount of Yellow Fever Virus Injected by Mosquito Bite

—Davis induced stegomyia mosquitoes infected with yellow fever virus to feed on new-born white mice. The latter were killed immediately and extracts were made. The extracts were injected in graded doses into rhesus monkeys. In two experiments the titrations indicated that each mosquito injected at least 100 infective doses of virus during the act of feeding. Mosquitoes from one lot, which was later used in a feeding experiment on a mouse, were titrated immediately following the infective blood meal and again after ten days. A decrease in titer during the interval confirmed previous observations. Yellow fever virus within the body of the mosquito appears not to increase but rather to diminish in quantity. From a comparison of the amounts of virus in the whole insects and in the baby mouse after being fed on by mosquitoes from the same lot it is shown that probably about 1 per cent of the total virus content was injected at the time of biting.

### Archives of Neurology and Psychiatry, Chicago

- 32 257 464 (Aug) 1934  
\*Cerebral Blood Flow Preceding and Accompanying Epileptic Seizures in Man F A Gibbs W G Lennox and E L Gibbs Boston—p 257  
Galvanic Skin Reflex and Blood Pressure Reactions in Psychotic States Reactions to Sensory Indifferent Ideational and Crucial Ideational Stimuli C W Darrow and A P Solomon Chicago—p 273  
Chordomas of the Cranium and Cervical Portion of the Spine Review of the Literature with Report of Case G M Hass Boston—p 300  
Depressions with Tension Their Relation to General Problem of Tension W Muncie Baltimore—p 328  
Handwriting of Criminals Experimental Study C Quinn San Francisco—p 330  
Historical Notes on Constitution and Individuality S E Jelliffe New York—p 359  
History of Peripheral Neuritis as a Clinical Entity H R Viets Boston—p 377

**Cerebral Blood Flow in Epileptic Seizures**—By means of a thermo-electric blood flow recorder inserted through a hollow needle into the internal jugular vein of persons subject to epilepsy, Gibbs and his co workers recorded changes in blood flow through the brain with reference to grand and petit

mal seizures. In none of the ten patients studied was there evidence of a significant reduction in blood flow immediately preceding the onset of the seizures. During severe convulsions there was a great increase in blood flow. The changes that accompanied the seizures were the result rather than the cause of the seizures. This evidence is against the theory of acute widespread anemia of the brain as an immediate cause of epileptic seizures.

**Chordomas of the Cranium and the Spine**—Hass reviews a collected series of fifty-six chordomas and presents an example of a diffuse type of sphenoid-occipital chordoma, which produced symptoms because of involvement of various cranial nerves and of the brain stem. The forward bulging of the epipharyngeal wall and the destruction of the basilar process of the occipital bone the anterior arch of the atlas and the tip of the dens epistrophei (as shown by roentgenograms) were fairly characteristic of a malignant chordoma. Necropsy disclosed a tumor of relatively slow growth, which projected upward from the floor of the posterior fossa anterior to the foramen magnum. The asymmetry of the skull and the anomalous vertebral artery lend strength to the theory that chordomas rise from rests of notochordal tissue displaced during the period of embryonic development.

### Archives of Otolaryngology, Chicago

- 20 139 296 (Aug) 1934  
Treatment of Labyrinthitis I Friesner and H Rosenwasser New York—p 139  
Tuberculosis of Larynx G M Van Poole Honolulu Hawaii—p 152  
Modern Surgery in Diphtheria Observations on Six Thousand and Eleven Cases C W Bailey Rocky Mount, N C—p 162  
\*Conservative Treatment of Petrositis Report of Two Cases with Recovery Without Operation S D Greenfield Brooklyn—p 172  
\*Use of Extract of Suprarenal Cortex in Pyogenic Infections W F Wenner and A J Cone St Louis—p 178  
Visualization of Accessory Sinuses by Proetz Method J C Dickson Houston Texas and W J Marquis Newark N J—p 188  
Anatomic Studies of Petrous Portion of Temporal Bone M C Myerson H Rubin and J G Gilbert New York—p 195

### Conservative Treatment of Petrositis

—Greenfield believes that in view of the fact that the discharge in petrositis does not originate in the tympanum but comes through the latter from the cells situated in the petrous pyramid, one should regard the presence of a profusely discharging ear in a case of petrositis as a most favorable therapeutic phenomenon. He raises the question as to whether or not this perforating channel through the tympanum, spontaneously created, may not in some instances be sufficient to accomplish a cure without operative intervention. If such is the case it may be advisable to postpone operation in patients in whom the aural discharge is profuse and in whom invasion of the intracranial structures does not appear imminent. That spontaneous cure does take place is confirmed by the fact that the vast majority of patients with the so-called Gradenigo syndrome recover without operation. Etiologically the two conditions are identical. Anatomically they both represent involvement along certain groups of cells leading to the region of the apex of the petrous pyramid. Pathologically, however, petrositis represents a more advanced, a more widespread and a more prolonged process. It has a tendency to involve the deeper cellular structures rather than the superficial. Therefore it is reasonable to expect that a similar termination may be effected in the cases of petrositis in which the aural discharge is profuse. In many instances there is no reason why the drainage from this route may not be sufficient to cause spontaneous resolution. The author reports two cases of petrositis in which no operation was performed because of the profuse aural discharge. Both patients recovered.

**Suprarenal Cortex Extract in Pyogenic Infections**—The experimental results in the treatment, with suprarenal cortex extract, of rabbits that had experimental maxillary sinusitis supplied sufficient grounds to Wenner and Cone to warrant the clinical use of cortical extract in pyogenic infections. The extract used was prepared from whole beef adrenals according to the method of Zwemer, Agate and Schroeder and of Zwemer, Agate and Sullivan. The dosage varied from 2 to 7 cc given intramuscularly at intervals of two or more days. The clinical results indicate that cortical

extract was effective in bringing about improvement. The extract tends to reduce the temperature when it is elevated. The patients feel better generally. They are less easily fatigued and can withstand operative procedures much better. No direct effect of the extract on the total and Schilling differential white cell counts could be determined. The blood picture improved with the clinical improvement of the patient. No significant changes were observed in patients presenting normal white cell counts. In cases of acute suppurative otitis with osseous involvement, cortical extract did not alter the necessity for surgical intervention. However, when cortical extract was used preoperatively the postoperative course was better. The extract was effective in infections limited to the mucous membrane of the nose, sinuses, larynx and nasopharynx and in cases of cellulitis. In patients with a well developed inflammatory reaction in the mucous membranes and in whom the resistance to infection was decidedly poor, the best results were obtained when the extract was given at intervals not longer than forty-eight hours. The response to pyogenic infections is probably due, in part, to an increased activity of the leukocytes. The opsonic power of the serum of both suprarenalectomized and normal animals is increased by injections of cortical extract (Blanchard). The authors confirmed Blanchard's observations on normal animals. Cortical extract injected intramuscularly increases the phagocytic activity of the leukocytes, but applied directly to suspensions of white cells it produces no noticeable change.

### Arkansas Medical Society Journal, Fort Smith

31 41 54 (Aug.) 1934

Some Suggestions in Examinations of the Chest O W Bethea New Orleans—p 41  
Progress in Obstetrics S B Hinkle, Little Rock—p 46

### Canadian Medical Association Journal, Montreal

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Growth Innocent and Malignant W Boyd Winnipeg Manit—p 124  
Staphylococcus Antitoxic Serum in Treatment of Acute Staphylococcal Infections and Toxemias C E Dolman Toronto—p 130  
Histologic Demonstration of Siliceous Material by Micro-Incineration D A Irwin Toronto—p 135  
\*Micro Incineration as Aid in Diagnosis of Silicosis D A Irwin Toronto—p 140  
Riedel's Struma Report of Seven Cases D Eisen Toronto—p 144  
Relationship Between Riedel's Struma and Struma Lymphomatosa (Hashimoto) D Eisen, Toronto—p 147  
Medico-surgical Aspects of Genito Urinary Tuberculosis J L Wiseman Winnipeg Manit—p 151  
Cyclopropane Anesthesia Clinical Record of Three Hundred and Fifty Administrations H R Griffith Montreal—p 157  
Tuberculosis an Insidious Disease Analysis of One Hundred Consecutive Case Histories of Men Thirty Five Years of Age or Over D A Stewart and E L Ross Ninette Manit—p 160  
Early Diagnosis of Cancer in the Bladder Prostate and Kidney J C McClelland Toronto—p 165  
\*Intravenous Injections of Animal Charcoal in Treatment of Varied Infections Clinical and Experimental Study E St Jacques Montreal—p 168  
Some Clinical Features of Complete Heart Block K Gordon, Montreal—p 171  
Notes on One Hundred Obstetric Cases in Rural Practice A F McKenzie Monkton Ont—p 175  
Huntington's Chorea Report of Case C A Buck Toronto—p 178

**Micro-Incineration as Aid in Diagnosis of Silicosis**—Irwin studied lung tissues from various types of pneumoconioses in order that the amount and relation of siliceous material present in the tissues to the histologic structure in which it was contained might be determined. This was accomplished by the micro-incineration of paraffin sections and the treatment of the ash with concentrated hydrochloric acid to remove the nonsiliceous material. By the use of serial sections the tissue ash can be related definitely to histologic structure. The lung tissues from ten gold miners, a coal miner, an iron miner, a Scotch stonecutter, a sandblaster, an abrasive soap worker and twelve rabbits with silicotic lesions produced by experimental dusting with silica were examined. In the human lungs the chemical assay for siliceous material was relatively high, and microscopically there was much nodular fibrosis, shown by micro-incineration to be associated with a high content of siliceous material. In most of the human cases there was an accompanying tuberculous infection. The ash content of the areas of fibrosis seen in this series of lungs was appar-

ently indicative of the pathogenesis of those lesions. The experimental lesions in the rabbit were not complicated by tuberculous infection. An examination of the incinerated acid treated sections of these lungs clearly demonstrated all areas which in the corresponding stained sections revealed fibrosis that had the appearance of being siliceous in origin. Areas of obvious tuberculous fibrosis presented an ash much less dense than the ash of siliceous nodules. This ash when treated with acid disappeared either entirely or partially, leaving a few scattered siliceous particles. The ash pattern of definite silicotic nodules is so typical and constant that the author infers that, if an ash is present, it represents a silicotic nodule, even if the corresponding area in the stained section has degenerated beyond recognition. If an area of ash does not contain any siliceous particles or contains only a few scattered siliceous particles, he also infers that such an ash represents an area of nonsiliceous fibrosis.

**Intravenous Injections of Animal Charcoal in Infections**—St Jacques has given more than 300 intravenous injections of animal charcoal in more than 150 patients having various infections (metrosalpingitis, puerperal infection, phlebitis, perineal laceration, lung infection, cholecystitis, furunculosis, gonorrheal arthritis, gonococcal epididymitis, nephrosis and nephrosis consecutive to puerperal infection), with not one untoward sequel. In some cases a slight rise of temperature occurred in the hour following the injection. The general circulation was unaffected in any way. Of the first 100 admissions only three were not cured of their infectious process. In the 200 later admissions the results were equally good. The preparation used was a 2 per cent suspension of animal charcoal in distilled water. The piston, syringe barrel and needle must be paraffined beforehand to prevent clogging by the particles of carbon. How charcoal acts is not known biologically, but it does stimulate phagocytosis as well as the endothelial cells of the spleen, liver and bone marrow.

### Georgia Medical Association Journal, Atlanta

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Endocrine Aspects of Gynecology E Novak Baltimore—p 245  
Medical Economics as Related to Patients of Low Income Group L M Gaines Atlanta—p 250  
Irritable Colon J D Grav Augusta—p 259  
Hydrochloric Acid Treatment in Monoxide Poison Case Report H L Barker Carrollton—p 264  
Some General Considerations in Treating Accessory Sinuses of Nose G H Lang Savannah—p 265  
Some Observations with Intravenous Cholecystography L Fort, Atlanta—p 269  
\*Blinding Filaria of Guatemala (*Onchocerca Coecutiens*) Report of Case Which Occurred in Georgia W D Mixson R L Johnson and G E Atwood Waycross—p 272

### Illinois Medical Journal, Chicago

66 101 200 (Aug.) 1934

Historical Development of Diagnosis of Heart Disease W L Biering Des Moines Iowa—p 115  
Experiences in Treatment of Hypertension with the \ Ray J H Hutton Chicago—p 120  
Prognosis in Heart Disease O P J Falk St Louis—p 126  
Symptoms and Treatment of the Rheumatic Child R A Black Chicago—p 133  
New Aspects of the Public Health Situation F J Jirka Springfield—p 139  
Osteomyelitis of the Skull in Frontal Sinusitis M A Glatt Chicago—p 146  
Moses Gunn Pioneer Chicago Surgeon N Flaxman Chicago—p 157  
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Hemorrhagic Infarction of the Greater Omentum L E Hines, Chicago—p 166  
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Some Remarks Concerning Cephalopelvic Disproportion W C Stude, St Louis—p 171  
Problems in the Diagnosis and Management of Pulmonary Tuberculosis H O Deuss Chicago—p 175  
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Human Breast Milk in Treatment of Endocrine Obesity C A Lapin, Chicago—p 179  
Difference in Reactions of Alcoholics B Lemchen Dunning—p 180  
Sodium Salicylate Calcium Gluconate Parathormone Basic Medicines in the Acute Inflammatory Diseases Act as Specific Remedy in Treatment of Lobar Pneumonia H O Nyvall Chicago—p 181  
Ectopic Pregnancy Its Recognition W R Young Geneseo—p 189  
Increase in Mental Disorders Special Remarks on Manic Depressive Groups F W Sokolowski Alton—p 194  
Quackery in Treatment of Cataract T D Allen Chicago—p 196

# Iowa State Medical Society Journal, Des Moines

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- Oration in Surgery Animating Factors in Surgical History E M Myers Boone—p 313  
Shall Organized Medicine Survive? O J Fry Des Moines—p 318  
Leukocyte Blood Pictures in Acute Infections M P Neal Columbia Mo—p 321  
Primary Carcinoma of Lung and Its Differential Diagnosis R A Berger Iowa City—p 327  
Newer Treatment of Gonorrhea in the Immature Female J Brown Des Moines—p 331  
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# Kentucky Medical Journal, Bowling Green

32 389 442 (Aug) 1934

- Sympathetic Nervous System as a Causative Factor in Atypical Neuralgia Review S B Marks, Lexington—p 393  
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One Hundred Intracapsular Cataract Extractions by the Knapp Method C D Townes Louisville—p 399  
Vasomotor Rhinitis Rhinologist's Point of View K N Victor Louisville—p 403  
Vasomotor Rhinitis from an Allergist's Point of View A E Cohen Louisville—p 405  
Newer Medical Treatment of Glaucoma F Pirkey Louisville—p 409  
Successful Treatment of Dacryocystitis with Less Radical Surgery J D Williams, Ashland—p 412  
Practical Consideration of Alterations of the Voice W R Pryor, Louisville—p 415  
Primary Carcinoma of Tube Report of Case L W Frank Louisville—p 419  
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Plans and Policies of the City Health Department H R Leavell, Louisville—p 429  
Plans and Policies of the Jefferson County Health Department J D Trawick Louisville—p 431  
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More Common Gastro Intestinal Symptoms or Diseases Resulting from Focal Infection F M Stites Jr Louisville—p 438

# Maine Medical Journal, Portland

25 141 158 (July) 1934

- Preoperative and Postoperative Treatment P P Thompson Portland—p 143  
Tetanus Followed by Agranulocytic Angina Case Report J Reed Bridgton—p 150

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- Sterility M F Ridlon Bangor—p 160  
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# New England Journal of Medicine, Boston

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- Social Conditioning of Visceral Activities A Myerson Boston—p 189  
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Chronicity of Rheumatic Fever H F Swift New York—p 197  
Tuberculosis as It Affects the Physician's Practice H D Chadwick Newtonville Mass—p 204  
Rupture of Intervertebral Disk with Involvement of Spinal Canal W J Myer and J S Barr Boston—p 210  
Teaching Medical Students the Social Implications of Sickness Ida M Cannon Boston—p 216  
Management of Gonorrhea II Clinical Diagnosis of Gonorrhea The Neisserian Medical Society of Massachusetts—p 221

**Chronicity of Rheumatic Fever**—Swift states that, while the symptoms and signs of rheumatic fever are often acute and severe, there occur in most cases additional features pointing to chronicity. The manifestations indicative of chronicity are the granulomatous nature of the typical pathologic lesions, a familial or inherited background, prolonged low grade fever and high pulse rate an apparent instability of the heat regulating center, persisting or recurring arthritis, subcutaneous fibroid nodules erythema marginatum and progressive and persistent valvulitis. Additional signs of chronicity may be obtained from such laboratory evidence as abnormal electrocardiograms persisting leukocytosis and accelerated erythrocyte sedimentation rates. A long persisting tendency to recurrences or to new attacks of rheumatic fever is found in persons who have once suffered from the disease, and infections of the upper respiratory tract in such patients are much more likely to be followed by rheumatic fever than is the case in normal persons. Because chronicity in a disease or in suscep-

tibility to that disease indicates chronic measures for its treatment or prevention, it is necessary to be on the lookout in each case for manifestations indicating chronicity so that, when they occur, suitable prolonged therapy can be applied

# Oklahoma State Medical Assn Journal, McAlester

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- Diagnosis and Treatment of Rabies W F Keller, Oklahoma City—p 239  
The Treatment of Early Syphilis C L Brundage Oklahoma City—p 243  
Acute Surgical Abdomen in Everyday Practice F H McGregor Mangum—p 247  
Anal Abscess and Anal Fistula N D Smith, Rochester, Minn—p 249  
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# Pennsylvania Medical Journal, Harrisburg

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- Sterility in the Male F R Hagner Washington D C—p 795  
Biliary Tract Disease End Results of Operations I S Raydn, Philadelphia—p 799  
Dental Conditions and the Otolaryngologist W Ersner, Philadelphia—p 804  
Purpura Hemorrhagica Intravenous Gold as Etiologic Factor H W Jones L M Tocantins and E F Corson Philadelphia—p 809  
Importance of Accurate Medical Histories and Careful Physical Examinations in Lowering the Cost of Medical Service A Stengel, Philadelphia—p 811  
Evils Associated with Mistaken Pessimistic Prognoses E J G Beardsley Philadelphia—p 814  
Acute Lymphatic Aleukemic Leukemia J M Higgins, Sayre—p 818  
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Is Cancer Education Effective? J M Wainwright Scranton—p 831  
The Medical Profession Meets a Crisis R L Anderson, Pittsburgh—p 835

# Philippine Journal of Science, Manila

53 379 516 (April) 1934 Partial Index

- Vitamin Content of Philippine Foods II Vitamin C in Various Fruits and Vegetables A J Hermano and G Sepulveda Jr, Manila—p 379  
Automatic Distributing Machine for Paris Green Mixtures P F Russell, New York and L S Eaton Manila—p 497

# Psychoanalytic Quarterly, Albany, N Y

3 339 500 (July) 1934

- Problem of Constitution in Psychopathology G Zilboorg New York—p 339  
Clinical Fragments D Feigenbaum, New York—p 363  
The Voice as (Female) Phallus H A Bunker Jr, New York—p 391  
Body Symbolization and Development of Language L S Kubie New York—p 430  
Critical Consideration of Bernfeld and Fettelberg's Theory of Psychic Energy W J Spring, New York—p 445

# Surgery, Gynecology and Obstetrics, Chicago

59 149 276 (Aug) 1934

- Behavior of Transplanted Bone Clinical Consideration M Harbin and K E Liber Cleveland—p 149  
Method for Determining Time of Catgut Digestion in Vitro C J Kraissl and F L Meleny New York—p 161  
Mesentericoparietal Hernia Duodenal Hernias of Treitz J J Long acre, Cincinnati—p 165  
Study of Various Kidney Function Tests in Relation to Toxemias of Pregnancy J F Cadden and C M McLane New York—p 177  
Friedman Test in Hydatic Mole M I Dabney and Eugenia B Dabney Birmingham Ala—p 185  
Lowered Mortality in Acute Appendicitis and Basis Therefor E E Arnheim and H Neubof New York—p 189  
Abdominal Incision in Lesions of Rectum and Rectosigmoid as Related to Colostomy R R Best Omaha—p 194  
Peptic Ulcer of Meckel's Diverticulum Report of Two Cases and Review of Literature L B Johnston and G Renner Jr, Cincinnati—p 198  
Urinary Calculi Associated with Parathyroid Disease F H Colby, Boston—p 210  
\*Extrapleural Pneumolysis with Paraffin Pack in Treatment of Pulmonary Tuberculosis J R Head Chicago—p 215  
Intra Uterine Diagnosis of Monstrosities G W Gustafson Indianapolis—p 223  
\*Treatment of Suppurative Osteomyelitis of Mandible L J Miltnier and J J Wolfe Peiping China—p 226  
Explanation of Prolonged Labor in Cases of Occipitoposterior Position. C Burger Budapest Hungary—p 236

**Extrapleural Pneumolysis with Paraffin Pack**—Head believes that extrapleural pneumolysis with the paraffin pack



has a definite place in surgical treatment of pulmonary tuberculosis. The complications caused by the foreign body, which have deterred many from using it, have been largely eliminated. It has the advantages of being simpler, safer and less deforming than thoracoplasty and of making a strictly localized collapse of diseased lung without sacrificing vital capacity. It has increased the number of patients amenable to collapse therapy. Sauerbruch and Brauer have changed their ideas recently and now believe it the operation of choice for small apical cavities. It has been the author's experience that in cases in which the cavity does not extend lower than the fourth rib at the spine it is reasonably certain of producing the desired result. For larger cavities, thoracoplasty is more certain. When the indications are doubtful, one may be influenced by the consideration that the lesser operation may suffice and that, if it does not, a later thoracoplasty will be more certainly effective for the partial collapse already provided. He reports the results that he obtained in twenty-eight cases, which have been so satisfactory that at present, when confronted with large apical cavities, he uses a paraffin pack as a preliminary operation.

**Treatment of Osteomyelitis of Mandible**—Miltner and Wolfe describe a method for treating the chronic stage of suppurative osteomyelitis of the mandible, which incorporates the following steps: 1. Removal of the necrotic outer plate of the mandible as soon as possible during the early chronic stage (i. e., twenty-one days after the onset). The necrotic bone is removed through a wide external approach and may be excised before it has separated spontaneously in the form of a sequestrum. In case of massive necrosis of both plates of the mandible, sequestrectomy is delayed until an involucrum has formed. 2. Removal of teeth over the area of osteomyelitis. These teeth are always loose and bathed in pus, and in most instances their pulp tissue is necrotic. 3. Exteriorization of the tooth sockets and partial resection of the alveolar process with complete closure of the gum margins to prevent further drainage of purulent material into the oral cavity. 4. Immobilization of the jaw. The authors present eight cases that were treated successfully by this method of management. The results have been encouraging and, they believe, superior to those which have been obtained by more conservative methods of treatment.

### Tennessee State Medical Assn. Journal, Nashville

27 235-282 (July) 1934

- Present Day Diagnosis and Management of Cancer of Rectum. Notes F. W. Rankin, Lexington, Ky.—p. 235  
Problems of Tuberculous Infection in Childhood. G. D. LeQuire, Maryville.—p. 241  
Gas Gangrene. P. A. Perkins, Memphis.—p. 246  
Use of Unna's Paste Bandage in Treatment of Pathologic Conditions of the Lower Extremities. E. R. Campbell, Chattanooga.—p. 252  
Factors That Influence Neonatal Mortality. M. S. Lewis, Nashville.—p. 257  
Intra Ocular Foreign Bodies. E. C. Ellett and R. O. Rychener, Memphis.—p. 262

### Yale Journal of Biology and Medicine, New Haven

6 571-636 (July) 1934

- Bedside Diagnosis. Some Discursive Remarks. G. Blumer, New Haven Conn.—p. 571  
Retrolbulbar Neuritis Due to Thallium Poisoning. Further Notes. W. Mahoney, New Haven Conn.—p. 583  
\*Pneumonia in Children Following Aspiration of Oil and Fat. Clinical and Pathologic Report of Two Cases. D. M. Grayzel and J. J. DuMortier, New Haven Conn.—p. 599  
Psychology in Relation to Medicine. W. R. Miles, New Haven Conn.—p. 603  
Rehabilitation of Health Work in United States. I. V. Hiscock, New Haven Conn.—p. 609

**Pneumonia Following Aspiration of Oil**—Grayzel and DuMortier report two cases of pneumonia in children following the aspiration of oil or fat. Pinkerton studied the lesions produced experimentally in animals by intratracheal injections of various oils of animal, vegetable or mineral origin, and found that the resulting lesions varied with the type of oil used. The animal and mineral oils called forth a marked proliferative response on the part of the tissue, whereas practically no response resulted from the intratracheal injection of vegetable oils.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

2 153-192 (July 28) 1934

- Climate and Health. S. W. Smith.—p. 153  
Local Infection as Problem for the Laryngologist. A. J. M. Wright.—p. 158  
Electrotherapy in Treatment of Diseases of Genito-Urinary System. W. J. Turrell.—p. 160  
\*Nonspecific Colitis in Relation to Deficiency Disorders and Anemia. Dorothy C. Hare.—p. 162  
Late Tendon Suture. E. I. Lloyd.—p. 165  
\*Second Attack of Acute Poliomyelitis. T. Moore.—p. 166

**Nonspecific Colitis and Deficiency Disorders**—Hare points out the resemblances of colitis to a deficiency disorder and urges treatment with high vitamin diets and massive doses of iron or liver. The temporary increase in diarrhea or of other symptoms, which often follows at the outset, is no contraindication to continuing the treatment. Improvement in the intestinal symptoms may be slow, especially at the beginning of an acute relapse, and perseverance is required. It is urged that all local treatment and sigmoidoscopic examination should be avoided if possible, as the intestinal wall is highly susceptible to trauma. If colon lavage is continued, it may keep up the diarrhea and bleeding and cause apparent failure of other treatments.

**Second Attack of Acute Poliomyelitis**—Moore reports a case of a second attack of acute poliomyelitis in which the observations indicate that the child had an attack of acute anterior poliomyelitis at an early age. This left him with some weakness of the lower limbs, but he was able to walk remarkably well in supports and lived as a normal boy until nearly 7 years of age. Then, following two rather indefinite febrile illnesses the muscular weakness became much more widespread. The weakness of the lower limbs increased in severity, and the hands and recti abdominis were affected in addition. In consequence the child was left in a helpless condition. While he has been in the hospital the condition of the limbs has not improved, but the recti abdominis are recovering slowly. The author believes that the explanation of this observation leaves no doubt that a second attack of acute anterior poliomyelitis had occurred.

### Edinburgh Medical Journal

41 465-512 (Aug.) 1934

- Constancy of Day to Day Leukocyte Blood Count. Medicostatistical Study. W. F. Harvey and T. D. Hamilton.—p. 465  
Problem of Stuttering. Present Position. G. Seth.—p. 497

### Indian Medical Gazette, Calcutta

69 361-420 (July) 1934

- Granuloma Genito Inguinale. V. G. Nair and N. G. Pandalar.—p. 361  
Treatment of Infective Granuloma with Fucidin. Note. R. V. Rajam.—p. 372  
Carbamezone in Intestinal Amebiasis. Part II. R. N. Chopra and S. Sen.—p. 375  
Value of Sanocrysin Treatment in Pulmonary Tuberculosis. P. V. Benjamin.—p. 380  
Oleothorax. Y. G. Shrikhande.—p. 384  
Isospora Infection in Indian Cats. R. Knowles and B. M. Das Gupta.—p. 387  
Some Observations on Balantidium Coli and Endamoeba Histolytica of Macaques. R. Knowles and B. M. Das Gupta.—p. 390

### Irish Journal of Medical Science, Dublin

No. 103 289-330 (July) 1934

- Vital Statistics of the Irish Free State 1923-1932. L. S. Smith.—p. 289  
Amyloid Nephrosis with Some Observations on Edema. Case. G. Bewley.—p. 299  
Report on Tuberculin Skin Tests in Children. Dorothy Price.—p. 302  
Interpretation of Chest Radiographs with Particular Reference to Tuberculosis. Notes. T. G. Hardman.—p. 305  
Pharyngeal Hemorrhage. Revealed and Concealed. T. G. Wilson.—p. 307  
Gradenigo's Syndrome. T. O. Graham.—p. 309  
Otic Brain Abscess. T. O. Graham.—p. 310  
Value of Intravenous Pyelogram in Treatment of Some Cases of Ureteral Stones. Note. T. J. D. Lane.—p. 312  
Dedifferentiated Tumor of the Ovary Associated with Continuous Vaginal Bleeding. D. J. Cannon.—p. 314

# Journal of Physiology, London

81 409 480 (July 31) 1934

- Choline and Dietary Production of Fatty Livers C H Best, H J Channon and Jessie H Ridout—p 409  
Action of Some Amines Related to Adrenalin Methoxyphenyl Methoxyethylamines G K Elphick and J A Gunn—p 422  
Effects of Respiration on Venae Cavae of Certain Mammals as Studied by Means of X-Ray Cinematography K J Franklin and R Janke—p 434  
Interpretation of Potential Waves in Cortex E D Adrian and B H C Matthews—p 440  
Formation of Corpus Luteum Is Dependent on Anterior Pituitary Follicle and Not on the Maturing Ovum Fertilized Ovum and Hormones B Zondek—p 472

## Lancet, London

2 177 232 (July 28) 1934

- Climate and Health S W Smith—p 177  
Glandular Fever and Infectious Mononucleosis H I Tidy—p 180  
New Antigen of Bacillus Typhosus Its Relation to Virulence and to Active and Passive Immunization A Felix and R Margaret Pitt—p 186  
Administration of Paraldehyde by Rectum as Preliminary to General Anesthesia J R M Whigham—p 191  
Intestinal Obstruction Caused by Impacted Gallstone Diagnosis Before Operation E Rosenthal—p 192  
Stone in the Lower Urinary Tract in India Examples of Multiple Calculi R C Thomas—p 193  
Enterogenous Cyst of the Ileum in an Infant A L d Abreu—p 194

**New Antigen of Bacillus Typhosus**—Felix and Pitt state that the factor present in virulent strains of Bacillus typhosus and responsible for their virulence and magglutinability is an antigen. This antigen is separate and distinct from the O and H antigens of B typhosus and renders the O antigen resistant to the action of the O antibody. The authors suggest the symbol Vi (referring to virulence) for this antigen and the corresponding antibody. The Vi antibody is demonstrable by agglutination and absorption tests, its in vitro titer is comparatively low. Active and passive immunization disclose the powerful protective action of the Vi antibody. The O antibody, which is known to exert bactericidal and opsonizing effects, also neutralizes the endotoxin of B typhosus, whereas the Vi and H antibodies are incapable of this action. The bearing of these facts on the theory and practice of antityphoid inoculation and of the serum therapy of typhoid is discussed.

**Paraldehyde by Rectum as Preliminary to General Anesthesia**—Whigham, in using paraldehyde as a preliminary to general anesthesia, gives 1 drachm (4 cc) of paraldehyde in 12 ounces (350 cc) of saline solution for every 14 pounds of weight (6.4 Kg). The solution is given at body temperature, slowly by the rectum from one and a half to two hours before operation. The patient lies on the left side with the buttocks slightly raised. The administration takes from thirty to forty minutes. In from twenty-five to forty-five minutes, the patient is sleeping. It has been the author's practice to continue anesthesia with gas and oxygen and, if necessary, a minimal amount of ether. When relaxation has been obtained, ether can usually be discontinued. Deoxygenation can be brought about at the end of the operation by the use of 5 or 10 per cent carbon dioxide-oxygen inhalations. The color of the patient is sometimes sallow after the paraldehyde has been given but improves quickly when gas and oxygen are administered and then usually remains good throughout the operation. On return to the ward the patient recovers consciousness in from one-half to two hours. A rectal washout is not necessary. Postanesthetic vomiting is slight or absent. Hiccups occur sometimes but are well controlled by the inhalation of 5 or 10 per cent carbon dioxide.

## Medical Journal of Australia, Sydney

2 136 (July 7) 1934

- Radiocarcinoma Clinical Study R K Scott—p 1  
Pathologic Manifestations in Radiocarcinoma R D Wright—p 8  
Necrosis Following Radium Treatment Preliminary Report H A McCoy—p 14  
X-Ray Necrosis E H Molesworth—p 16

**Necrosis Following Radium Treatment**—In an endeavor to estimate the factors that may contribute to the development of necrosis following radium treatment, McCoy studied the cases so affected. The factors appearing to contribute to the development of necrosis are unsuitable filtration and concen-

tration, large tumors adjacent to or involving the bone or the cartilage, radium buried in or near infected tissue and unfavorable sites for interstitial treatment. The author cites cases in which these contributing elements have been fairly constant. It appears that 0.5 mm of platinum should be the minimal filtration for the treatment of squamous cell epithelioma. In the treatment of lesions adjacent to or involving the bone, it is probable that an increase of filtration to 1 mm of platinum would be desirable if interstitial treatment should be contemplated. A surface technic, in the form of molds, appears to possess advantages over interstitial methods in lesions involving the bone or the cartilage. An attempt should be made to eliminate infection before radium treatment is commenced. Concurrent syphilis should be treated before and during the progress of radium treatment. It appears that in certain lesions (particularly those involving the bone) necrosis is inevitable if radium treatment is to be effective in destroying the neoplasm.

## Quarterly Journal of Medicine, Oxford

3 293 522 (July) 1934

- Calcinosis W D W Brooks—p 293  
Statistical Analysis of Three Hundred and Eighty Nine Fractional Test Meals with Especial Reference to Duodenal Regurgitation N F MacLagan—p 321  
Hematopoietic Activity of the Normal and Abnormal Human Liver with Especial Reference to Pernicious Anemia J F Wilkinson and L Klein—p 341  
Alleged Pituitary Origin of Eclamptic and Preeclamptic 'Toxemias' of Pregnancy F B Byrom and C Wilson—p 361  
Respiratory Exchange During Exercise in Heart Disease III M Campbell—p 369  
Effects of Bodily Rest Muscular Activity and Induced Pyrexia on Ventricular Rate in Complete Heart Block A R Gilchrist—p 381  
Massive Atelectatic Bronchiectasis W P Warner—p 401  
Treatment of Muscular Dystrophy with Glycine D P Cuthbertson and T K MacLachlan—p 411  
Prolonged Residence in High Oxygen Atmospheres Effects on Normal Individuals and on Patients with Chronic Cardiac and Pulmonary Insufficiency D W Richards Jr and A L Barach—p 437  
Lung Abscess, with Especial Reference to Causation and Treatment J Maxwell—p 467

**Hematopoietic Activity of Human Liver in Pernicious Anemia**—Wilkinson and Klein examined extracts of the liver from ten normal and abnormal human subjects for their hematopoietic potencies as judged by clinical trial in cases of pernicious anemia. The results show definitely that the antianemic 'liver principle' is present in normal human liver and in treated cases of pernicious anemia in active remission but is absent from the liver in untreated cases of pernicious anemia. The liver from a patient with polycythemia rubra was found to be more potent than normal human or calf's liver. These results show that the liver acts as a storehouse for an anti-anemic factor (the 'liver active principle'), which is produced in the stomach as a result of enzyme action between hemopoietin (the 'stomach active principle') and an unknown constituent of a normal diet.

**High Oxygen Atmospheres and Chronic Cardiac Insufficiency**—Richards and Barach observed two normal men and twenty-eight patients suffering from cardiac insufficiency who resided in atmospheres of from 40 to 50 per cent of oxygen for continuous periods ranging in length from five days to seven months. Studies have been made in these subjects of the effects of high oxygen atmospheres on circulatory and pulmonary functions and in certain instances on their water and electrolyte balances. The study showed that prolonged, continuous oxygen therapy will frequently restore to limited compensation a patient suffering from arteriosclerotic heart disease and insufficiency (not complicated by chronic nephritis), that it may increase the comfort and relieve dyspnea in a case of decompensated rheumatic heart failure and that it will usually relieve symptoms in chronic pulmonary fibrosis with cardiorespiratory failure and may, if sufficiently prolonged, restore such a person to limited ambulatory activity. The tissue oxygen deficit is probably the best criterion of the need for increased oxygen in the respired air. Arterial oxygen saturation is not a certain index of oxygen want, but, if the arterial oxygen saturation is depressed below normal, oxygen therapy is definitely indicated. Symptoms of oxygen want exist even when arterial oxygen saturation is within normal

limits may be relieved when the patient is placed in an atmosphere of 50 per cent oxygen. Arterial oxygen saturation in such cases usually rises to 97 per cent or more. Clinical cyanosis is a poor criterion of the degree of oxygen want. Marked arterial oxygen unsaturation may exist when clinically cyanosis appears slight. Conversely, deep cutaneous cyanosis may be present with normal arterial oxygen saturation and without general symptoms of oxygen want. In such cases, response to oxygen therapy may be poor. In chronic cardiac or pulmonary insufficiency dyspnea, restlessness, cardiac pain, arterial oxygen unsaturation, cyanosis and cough are the symptoms and signs, in the order of their importance, that establish the need for increased oxygen in the respired air. The two normal subjects, residing for a week in 45 per cent oxygen, showed a fall in pulse rate, a slight rise in the carbon dioxide blood levels, and no appreciable change in respiratory metabolism, in cardiac output or in the excretion of electrolytes or water.

### South African Medical Journal, Cape Town

S 473 508 (July 14) 1934

- Erratic Worm Parasites in Man H O Monnig—p 475  
The Nervous Breakdown M J Cohen—p 477  
Pathogenesis of Anemia H L Heimann—p 479  
Modern Methods in Treatment of Sterility C Kark—p 483  
Home Treatment of Consumptives S S Hewitt—p 484  
Observations from the Work of a Birth Control Clinic I J Block—p 490

### Presse Medicale, Paris

42 1169 1184 (July 21) 1934

- \*Contrast of Myxoleukocytic and Chlorhydropeptic Reactions of Stomach M Loeper and R Fau—p 1169  
Antitetanic Vaccination L Bazy—p 1171

**Myxoleukocytic and Chlorhydropeptic Reactions of Stomach**—Loeper and Fau investigated the comparative mucoleukocytic stomach secretion and the peptic hydrochloride secretion. As a result of numerous examinations, they concluded that the normal empty stomach contains no mucus. The pathologic empty stomach contains mucus only when it is hypochlorhydric. Myxogenic foods are those which do not stimulate the hydrochloride secretion. Cancer of the stomach produces mucus, while ulcer does not produce it. The same antagonism exists between the simple hypochlorhydrias and the hyperchlorhydrias, the first being myxocytic and the second not. The antagonism is not so evident or constant in the different kinds of gastritis, and especially in alcoholic gastritis, doubtless because of the different stimulation of the elements of the lining. The presence or abundance of mucus in hyperchlorhydria or its absence in hypochlorhydria is a sign of diffuse gastric lesion, an inflammatory process rather than neoplasm or ulcer. Drugs stimulating the vagus decrease the secretion of mucus, as inhibitors of the vagus increase it. Gastric leukopedesis parallels the production of mucus and inversely the chlorhydropeptic secretion. Myxogenic foods and drugs can be used in case of heartburn and especially in hyperchlorhydric gastritis or ulcer. Atropine, which paralyzes the vagus, has simultaneously an antispasmodic, antichlorhydric, leukopedic and myxorrhic action, and this explains its quieting and reparative action in ulcer and hyperchlorhydria.

### Progrès Medical, Paris

July 28 1934 (No 30) pp 1201 1232

- \*Some Biologic Modifications in Gold Fever Therapy of Psychoses Their Prognostic Value H Claude J Dublneau and Kerfridin—p 1209

**Gold-Fever Therapy of Psychoses**—Claude and his collaborators describe the results of treating patients suffering from dementia praecox with injections of sulphur and gold. The technic involved the injection of sulphurated oil in progressively increasing doses of from 1 to 10 cc at intervals of five or six days. In the intervals a soluble or insoluble gold salt was injected intravenously or intramuscularly in increasing doses, the total dose being generally about 0.15 or 0.16 Gm of the metal. In cases responding unfavorably a second series of the same kind was employed after several weeks rest. In a series of twenty cases treated in this manner, nine apparent remissions or cures were obtained. The febrile reaction varied,

but an average moderate febrile reaction occurred following most of the injections. One of the most important biologic modifications was the variation in intensity of the flocculation with resorcinol. This appeared to be partly dependent on the degree of fever during the day of examination. In any case an elevated index seemed to be of favorable prognostic import. The erythrocyte sedimentation appeared to give curves generally paralleling the curve of flocculation. Fever therapy also caused a leukocytic reaction with neutrophilia, but this did not affect the general prognosis. There is some possibility of the treatment activating a local pleural or pulmonary tuberculosis, which must be considered both before and after the treatment, but even when this occurs it is usually not a serious complication.

### Minerva Medica, Turin

2 113 152 (July 28) 1934

- Syndrome of Pseudoperitonitis in Purpura of Schonlein Henoch G Zampa—p 119  
\*Fibricula and Thyroid Function G Macchioro—p 127  
Intratracheal Injections in Diagnosis and Therapy Various Techniques and Recent Transnasal Method M Mazzetti—p 136

**Fibricula and Thyroid Function**—Macchioro states that slight attacks of fever, persisting for long periods and resisting all treatments find their origin in a disharmony between the endocrine and the sympathetic systems and in increased thyroid function. These attacks of fever occur infrequently. In a large amount of clinical material the author found only five cases in which the lack of equilibrium was regarded as the causal factor of the thermic disturbance. It is difficult to decide whether slight fever during hyperthyreosis is due to increased thyroid function or to toxemia of incipient tuberculosis. Of nine patients presenting slight tuberculous manifestations and temperatures of approximately 37 C (98.6 F), five were given intravenous injections containing 5 cc of a 2 per cent solution of sodium fluoride every other day. Five cases showed forms of glandular localization, while four showed parenchymal changes in the lung. The fever curve in all patients descended after treatment but never came to apyrexia. If sodium fluoride does not make the fever disappear, it demonstrates nevertheless to what degree the thyroid participates in its occurrence.

### Policlinico, Rome

41 445 504 (Aug 1) 1934 Medical Section

- Renal Syndrome in Hepatic Cirrhosis A Ferrannini—p 445  
Clinical Research on Hypoglycemic Action of Vegetal Secretin D Beggi and L Dettori—p 463  
Autohemolysis Due to Cold in Dementia Paralytica G Rabboni—p 470  
\*Parathyroids and Osteitis Fibrosa Cystica L Ficacci—p 489

**Parathyroids and Osteitis Fibrosa Cystica**—Ficacci describes three cases of recurrent polyarthritis presenting local lesions and multiple cysts the size of an average coin in the lower metaphyses. In a fourth case, of hypertrophic osteoarthritis with effusion into the knee joint and into the tibioastragalic articulations, the lesion, cystic in type was found in the right internal malleolus. In one case the lesion gradually disappeared after several months of treatment. A biopsy made in one case showed the cystic reabsorption of the bone and the fibrous transformation of the marrow as in osteitis fibrosa cystica. The author found many zones of rarefaction in the intercondylar regions of a patient having arthritis of the knee and many such zones in the fibula of a patient who had had typhoid a year before with foci of periostitis on the right tibia and on the first left middle phalanx. The diagnosis in this case was confirmed by the reaction of Widal and the isolation of the typhoid bacillus from the biopsy material of the focus of tibial periostitis. The calcemia remained normal in the first four cases, while it varied from 0.015 to 0.018 Gm per hundred cubic centimeters of serum in the last two. An epiphyseal alteration of vacuolar aspect was present in two cases of hemophilic arthropathy. The author maintains that in these cases this alteration is due to the fundamental lesion and that the parathyroids participate in the process only as secondary factors producing the changes in the calcium metabolism. He states that circumscribed fibrous osteitis must be distinguished from von Recklinghausen's disease, the result of primary hyperparathyroidism.

Riforma Medica, Naples

CURRENT MEDICAL LITERATURE

Deutsche Zeitschrift für Chirurgie, Berlin

Left Strangulated Inguinal Hernia Containing Cecum with Inflamed Appendix and Loop of Colon G Montemartini—p 679  
\*Behavior of Glycemia Due to Introduction of Duodenal or Gastric Tube G Cozzutti—p 684  
Technical Observations I Cantani—p 695

\*Inflammatory Tumors of Large Intestine of Nonspecific Nature G Anschütz—p 377  
\*Isohemo Agglutination Subgroups A<sub>1</sub> and A and Their Practical Significance in Blood Transfusion N Blinov—p 400  
Operative Treatment of Dislocation of Patella H Strube—p 412  
Retention of Lymphocytes and Tissue Reaction in Experimental Stasis Edema I Löffler—p 420  
Injuries of the Elbow in Childhood Epiphysiolysis of Proximal End of Radius Its Origin and Treatment R R Oppolzer—p 427  
\*Bile Peritonitis Without Visible Perforation E Melchior—p 458  
Contribution to the Knowledge of Loose Bodies in Elbow Joint K Kammiker—p 464  
Formation of Ketone Bodies Before and After Operation H Fuss and G Degen—p 471  
Penetrating Injury of Heart and Infection with Fraenkel Welch Bacillus E Just—p 478

**Behavior of Glycemia Due to Introduction of Stomach Tube**—Cozzutti describes changes in the glycemia occasioned by introducing any substance in fifteen patients suffering from various diseases. He found that the introduction of a duodenal catheter frequently lowers the glycemia and that the passage of a stomach tube likewise has the same effect and almost to the same degree. He interprets the phenomenon on the basis of the existence of a humoral reflex (secretin) in addition to the mechanical reflex (duodeno-insular). The author states that there is a close functional relation between the stomach and the pancreas, this relation involves not only the external secretion of the pancreas but its endocrine activity as well. The pancreas, in addition to the response to nervous stimuli, was found to react to gastric stimuli of a probable mechanical humoral type by both endocrine and exocrine functional response. The digestive tract is not only served by the process of digestion but is likewise assisted by the endocrine activity. There is a close functional circulation between the insular pancreas and the digestive tube. The author has demonstrated the possibility of eliciting a pancreatico-insular response through a mechanical-humoral stimulus, and the influence of the gastric juice on the insulin confirms it. The acinous and insular pancreatic secretions are mutually dependent in their functional activity. In the pathology of the digestive tract the secondary changes in the external pancreatic secretion due to the absence or the abnormality of gastro-intestinal stimuli must be taken into consideration as well as those of the internal pancreatic secretion. In the pathology of the insular pancreas there is always a secondary alteration of the gastro-intestinal function.

**Nonspecific Inflammatory Tumors of Large Intestine**—The clinical picture of a nonspecific inflammatory tumor of the large intestine, according to Anschütz, falls into one of three groups. 1 Tumors operated on as real or specific tumors. 2 Cases considered appendicitis or appendiceal abscess. 3 Cases recognized from history and clinical behavior as nonspecific inflammatory tumors. Their gross appearance at operation resembles closely that of carcinoma or tuberculosis. Microscopic studies reveal the etiological factors one must consider foreign bodies, circulatory disturbances, parasites, appendicitis, diverticulitis, all forms of colitis, typhus and dysentery. The particular pathogenesis is due to an attenuated infection on the one hand, and an impaired local resistance on the other. In the diagnosis one must always think of the possibility of carcinoma. The treatment should always be radical, with particular regard for the inflammatory nature of the process.

Archivos de Medicina Cirugia y Espec, Madrid

37 837 864 (Aug 4) 1934  
Treatment of Surgical Tuberculosis by Practical Method F P Dueño—p 837  
Elimination of Iodine in Urine of Normal Individuals Given Iodide Salt F Carrasco Cadenas F Jimenez A Bootello and C Alvarado—p 843  
\*New Method of Treatment of Pulmonary Tuberculosis L Girones—p 846  
Significance of Anomaly of Right Branch of Hepatic Artery in Biliary Surgery R Saldaña—p 847  
Hemorrhagic Purpura and Erythrodermia During Treatment with Gold Salts A Luelmo F Vizcaino and T Casanueva—p 850

**Treatment of Pulmonary Tuberculosis**—Girones obtained partial immobilization of the left side of the thorax of a tuberculous patient by means of a plaster-of-paris cast provided with a large window over the healthy side. The patient had a history of a previous inflammatory condition and pulmonary adhesions accompanied by hemoptysis and severe diarrhea. Roentgen examination demonstrated a cavity 6 by 38 cm, in the left upper lobe below the clavicle. The right lung appeared normal. The patient's condition did not improve during the first weeks of observation. The expectoration increased to 55 cc while the erythrocyte sedimentation speed was high. Another roentgen examination showed the cavity to have increased to 68 by 45 cm. The author placed a plaster-of-paris cast over the thorax and after two days cut a large window on the right side. At the end of a month the expectoration was reduced to half its former amount and the erythrocyte sedimentation speed to 31 and the weight had increased 4½ pounds (2 Kg). The cavity had retracted considerably. The pulmonary tissue in the region of the anterior aspect of the second rib showed marked retraction on the roentgenogram. Another cast was applied at a later date. The therapeutic result was satisfactory and warranted further application of casts to patients having unilateral and bilateral cavities in which pleural adhesions made pneumothorax impossible.

**Significance for Blood Transfusion of Isohemo-Agglutination Subgroups A<sub>1</sub> and A**—In his study of determination of blood groups Blinov found that factor A does not represent a definitely separate group but that it may exist in two variants designated by A<sub>1</sub> and A. As a result, each of the groups A and AB is divided into two subgroups A<sub>1</sub> and A<sub>2</sub>, A<sub>1</sub>B and A<sub>2</sub>B. These groups are recognized qualitatively through definite serologic characteristics. The difference in the properties of these subgroups explains the so called exceptions in the classic four-group scheme and the transitions of one group into another as described by various authors. In the author's experience A<sub>1</sub> is three times as frequent as A, while A<sub>2</sub>B is about as frequent as A<sub>1</sub>B. A<sub>1</sub> and A<sub>2</sub> are hereditary characteristics. They are transmitted to the offspring according to the mendelian law, A<sub>1</sub> being the dominant and A the recessive factor. This fact may be of considerable value in medicolegal questions. In the preparation of the standard serum of group A, one should use the blood of only the subgroup A<sub>1</sub>. The standard erythrocytes must likewise be taken from the subgroup A<sub>1</sub>. There were no cases of death in the author's material from the use of incompatible subgroups, although severe reactions were observed.

**Bile Peritonitis Without Visible Perforation**—The finding at the time of operation of bile in the peritoneal cavity without a visible perforation of the gallbladder or the bile tracts suggests, according to Melchior, three possibilities: 1 Actual absence of a perforation. 2 A perforation that has taken place but became sealed and could not be detected as such. 3 An existing perforation not noticed because of the difficulty of exposure, its true character being revealed, as a rule, at necropsy. A distinction, therefore, must be made between the clinical concept of bile peritonitis without visible perforation and its narrower anatomopathologic concept. To the latter group belong the cases that are the result of a simultaneous effect of an infection and stasis of the walls of the gallbladder and of the biliary tracts. Under such conditions the bile may diffuse through the gallbladder wall without the existence of an actual perforation. There is clinical and experimental proof that regurgitation of the pancreatic secretion into the bile tract may likewise bring about an abnormal transudation of bile. Under certain pathologic conditions, such as obstruction of the cystic or the common duct and acute inflammation

of the wall of the gallbladder, the latter was seen by the author and other surgeons to "sweat" bile. A laparotomy sponge applied to the wall of the gallbladder with moderate pressure becomes tinged with bile. The author reports two cases in both of which there was found at operation a severe bile peritonitis without visible perforation. Both were instances of chronic choledocholithiasis with acutely supervening partial necrosis of the liver. Transfusion of bile took place from massive foci of liver necrosis. The author believes that, besides the element of infection, the toxic effect of free bile within the peritoneal cavity plays an important part in the fatal outcome. This toxic effect is due to the rapid absorption of the bile salts, which are toxic for the organism. They become bound up with the red cells and with the muscle cells, among other those of the heart. In the presence of a considerable effusion, lethal concentration may be reached in twenty-four hours. The clinical picture of cholemic poisoning is characterized by pronounced adynamia, cardiac weakness and vasomotor paralysis.

### Medizinische Klinik, Berlin

30 953 984 (July 20) 1934 Partial Index

- Local Anesthesia T O Mayer—p 953  
Morphinism O Wuth—p 956  
\*Two Little Known Forms of Gastritis Membranous Gastritis and Aphthous Gastritis R Korsch—p 965  
Syphilis of Hypophysis Case F Winkler—p 967  
Almost Total Pyloric Stenosis in a Girl Aged 15 J Becker—p 968  
\*Oral Bismuth Poisoning S Serefs—p 968

**Two Forms of Gastritis**—Korsch describes a case of membranous and a case of aphthous gastritis. Both had ulcer-like aspects, the membranous gastritis presenting the symptoms of a duodenal ulcer, the aphthous gastritis those of a ventricular ulcer. In the first case gastroscopy revealed an inflamed, red mucous membrane that was strewn with glistening white crystal shaped formations of mucus. Following irrigation treatment, most of the exudations of white mucus disappeared, but they persisted in the region of Waldeyer's stomach tract and became flatter and membrane-like. In the patient with aphthous gastritis, gastroscopy revealed in the lower portion of the body of the stomach a large number of lentil-sized aphthous tumors, most of which were circular, oval or bean shaped. Some appeared slightly lacerated. In the region of the cardiac sphincter there were small erosions. Ten days later a control gastroscopy after irrigation treatment disclosed in the region of the angle several already deepened ulcers, the size of pepper grains. The formerly observed ulcers on the posterior wall had largely disappeared. Because of the danger of a niche forming ulcer, feeding with the jejunal tube was instituted. But a new gastroscopy several weeks later revealed a new exacerbation of the aphthous gastritis, in that a large number of small erosions covered the reddened mucous membrane, particularly around the cardiac sphincter. The author states that he observed such aphthoid ulcers also in several other patients. They sometimes persisted for months and even led to niche formation. However, these ulcers with rather large niches as a rule yield within a comparatively short time to treatment with the jejunal tube or even to a simple milk gruel diet and rest in bed. Intramuscular injections of blood and other measures are helpful. Why these hemorrhagic erosions, which are probably also responsible for the majority of gastric hemorrhages, occur only in some of the gastritides is a histologic problem, the solution of which has been begun by O Muller's capillaroscopic studies.

**Oral Bismuth Poisoning**—A review of the literature convinced Serefs that opinions differ widely about the mechanism of oral bismuth poisoning. Many investigators nevertheless agree that a strong acid reaction of the gastric juice is essential. Some believe that an excess of lactic acid is necessary, while others consider an increased hydrochloric acid content essential. The author based his own tests on the intestinal resorption of bismuth on the assumption that probably only the bismuth salts that are in solution become absorbed. Accordingly he investigated the requirements for the solubility of bismuth in the gastro-intestinal tract and studied the behavior of bismuth subnitrate in contact with the acids of the gastric juice in vitro as well as in the animal experiment. Tests with hydrochloric acid and with lactic acid revealed that the presence of lactic acid is a promoting factor but not an absolutely essen-

tial one in the solution of bismuth in the stomach. Other test tube experiments revealed that bismuth subnitrate is changed into bismuth chloride not only by free hydrochloric acid but also by the chlorides of the mineral salts, such as sodium chloride. Since the latter is taken in with the food, bismuth chloride can be formed even in the absence of hydrochloric acid. For the resorption of bismuth chloride it is important that it have a tendency to form complex compounds, such as with organic acids and their salts, with polyvalent alcohols and with various types of sugar. If, for instance, sodium citrate or sodium lactate is added to the acid bismuth chloride solution, it is possible to dilute this solution greatly without precipitation taking place. If in addition to that a polyvalent alcohol or a sugar is added, the solution can be rendered alkaline without causing precipitation. The bismuth reaches the small intestine in the compound form, and here resorption takes place. After discussing factors that play a part in the resorption in the small intestine, the author states that his test tube experiments were corroborated by animal experiments. He concludes that, since the resorption requirements of orally administered bismuth are now known, there remains only the problem of the correct dosage to permit the oral bismuth therapy of syphilis. His studies on the dosage problem will be reported soon.

### Zentralblatt für Chirurgie, Leipzig

61 1681 1744 (July 21) 1934

- Arterial Spasms in An Acute Massive Thrombosis of Femoral Vein A Lawen—p 1681  
\*Cod Liver Oil Salve Treatment of Fresh Wounds Burns and Phlegmonous Wounds W Lohr—p 1686  
Experiences with Cod Liver Oil Salve Dressings With and Without a Cast in Certain Surgical Disorders W Zuelzer—p 1695  
Peculiar Course of Left Recurrent Nerve G Hromada—p 1699  
Gastric Lipoma and Peptic Ulcer E Melchior—p 1701  
Clinical and Experimental Spinal Anesthesia Two Hundred and Fifty Cases of Nupercaine Spinal Anesthesia after Jones H Franken—p 1703  
Operative Treatment of Comminuted Fractures of Distal End of Humerus T Felsenreich—p 1713  
Method of Hand Grasp in Anesthesia Remarks on Evipan Sodium Anesthesia in Tropics N Grzywa—p 1720  
Injury of Heart Two Cases F F Von Remetei—p 1723  
Technic of Ambulatory Plaster of Paris Cast W Thomsen—p 1726  
New Method of Epididymectomy S Heinatz—p 1729  
Extirpation of a Duodenal Myoma S Kondo—p 1732

**Cod Liver Oil Salve Treatment of Fresh Wounds and Burns**—In a bacteriologic study of various fats and oils, Lohr found that they are usually bacteria free even when not sterilized. Bacteria ordinarily encountered in infected wounds, streptococci, staphylococci and *Bacillus coli*, perish when introduced into cod liver oil. It has not been determined whether they die because the cod liver oil contains no nourishment for them or because of the surface tension of the oil. It was further demonstrated that large amounts of the cod liver oil used in the treatment of extensive wounds did not cause toxic manifestations of any kind. The oil was used in combination with indifferent substances to give it the consistency of a paste. The oil in this salve permeates the tissues and causes a rapid liquefaction of the necrotic tissues, followed by a powerful stimulation of the growth, which affects all tissues, including the epithelium. Large areas fill with granulation tissue and these become covered with regenerated epithelium. The author did not resort once to skin transplantation during the last three and one-half years in which he has used this form of treatment. The inhibiting effect on the bacterial flora of wounds was likewise striking. The technic of treatment of fresh industrial wounds consists of the usual toilet of the wound with omission of suturing. A thick layer of the cod liver oil salve is laid on the wound surfaces and in the case of an extremity a plaster-of-paris cast is applied over it. The cast is removed at the end of fourteen days and the lesion is usually found to be healed. This treatment is not applicable to wounds badly soiled with earth or highly infected, to paronychia or to gas bacillus infections. Such wounds are treated by excision and application of disinfecting agents. The cod liver oil treatment is resorted to only after the infection has been overcome in order to obtain good regeneration. On the other hand, the treatment finds its application in chronic wounds, even if infected. Its effect is particularly striking in burns. The author has treated with this method 122 cases of second and

third degree burns The treatment was no more effective in preventing the early fatalities of burns than any other method. However, the late fatalities due to secondary infection were markedly reduced, more so than with the tannic acid method, because it is applicable in difficult localizations, such as the face, the buttocks and the anus. The regenerative effect on the epithelium was seen most strikingly in burns. Thus the author observed epithelization of an area of third degree burn 45 cm square. The change of dressings is not painful, because the salve is removed in thick layers leaving the new granulation tissue intact. The author is of the opinion that the effects enumerated are due to the vitamin A and D content of the cod liver oil.

the cells, while in case of melanotic pigmentation the pigment is within the cells, and the intercellular spaces are free from it. The differentiation of silver and melanotic pigment is possible also by means of histochemical methods.

### Sovetskaya Vrachebnaya Gazeta, Leningrad

- June 30 1934 (No 12) pp 889-968 Partial Index  
Genesis and Treatment of Enuresis in Children M I Iogikhes — p 889  
Question of Neurotropic Character of Diabetes Y A Lovitskiy, L S Shwarts and M N Egorov — p 894  
Pyloric Stenosis in Nurslings S V Bogorad and N M Ostrovskiy — p 898  
Clinical Standardization of Digitalis D M Rappoport and L S Shwarts — p 904  
Action of Camphorated Oil Extracted from *Ocimum Canum* One Year Old Clinical Studies D M Rappoport — p 906  
Functional Diagnosis of Diseases of Pancreas by Determination of Lipase and Amylase Content of Blood A A Zelikson — p 908

**Functional Diagnosis of Diseases of the Pancreas** — Zelikson found in a study of thirty-five cases that determination of ferments obtained with the aid of the Einhorn duodenal tube is entirely unreliable. Determination of amylase in the urine in thirty-three cases likewise proved to be of little diagnostic value. The author examined the lipase and amylase blood content in ninety-two cases. Determination of blood lipase after the method of Rhon depends on the fact that in patients with pancreatic disease the atoxyl fails to activate the lipase, while in the normal organism its effect is to activate the ferment. The reliability of the Rhon test for lipase and of three cases either at an operation or at necropsy. In a group of eight cases with proved pancreatic lesions there were four instances of a negative Rhon test. The study of blood amylase led the author to believe that the latter reflects not so much the condition of the pancreatic function as the patient's general fermentative ability. The author concludes that the reaction of Rhon is comparatively of the greatest value in functional diagnosis of pancreatic disease, particularly in the early stages of the reaction may be negative even in extensive involvement of the organ shortly before death. It may be negative in cystic disease of the pancreas. In view of the simplicity of the technique and apparatus, the author feels that the test should be made a part of the general clinical routine. The test should be applied not only in suspected cases of primary pancreatic lesion but also in cases in which the pancreas may be secondarily involved. Determination of blood amylase is of significance only in the presence of a positive Rhon test.

### Varachebnoe Delo, Kharkov

- 16 146-239 (No 3) 1934 Partial Index  
Psychology in Medical System of Education M S Lebedinskiy — p 145  
Neurosomatic and Psychosomatic Relationships in Neuroses Y A Ratner — p 151  
Vegetative Nervous System and Psychoses V V Brailovskiy and V B Shostakovich — p 155  
Somatopsychic Relationships in Syndrome of Causalgia M T Astvaturov — p 161  
Hemialgesic Phenomenon and Its Clinicobiologic Significance G D Leshchenko — p 167  
Vasosensory Spinal Cerebral Paths Z T Geymanovich — p 169  
Surgical Treatment of Pain A L Polenov and T S Babchin — p 177

**Surgical Treatment of Pain** — Polenov and Babchin report forty cases in which chordotomy was performed for intractable pain of inoperable cancer or for meningoradiculitis and in which they have obtained either a complete alleviation of pain or at least a marked diminution. The advantages of the operation are that 1 It is capable of producing anesthesia of a large area, insignificant traumatism consisting of a laminectomy of only two vertebrae and of an incision into the spinal cord for a depth of 3 mm. 2 It destroys pain and temperature sense but leaves undisturbed all forms of deep sensibility, muscle tone and function, reflexes and trophic influences. 3 It is applicable to the lesions of the spinal cord itself. A bilateral chordotomy is justified for the relief of pain in a bilateral lesion. Among the disadvantages the authors point out the possibility of injury to the pyramidal tract with paresis of the lower extremity and recurrence of pain due to insufficient sectioning. Among the general causes of failure to relieve pain by the surgical methods the authors stress insufficient knowledge of the pathways of pains and their individual variations in peripheral

- 61 1793 1856 (Aug 4) 1934 Partial Index  
Significance of Intracranial Pressure in Question of Blood Vessel Distribution as Determined in Arteriographs W Lohr and W Jacoby — p 1793  
Effect of Cod Liver Oil and of Cod Liver Oil Salve on Pyogenic Bacteria W Lohr and K Treusch — p 1807  
Treatment of Poorly Healing Ulcerating Stumps with Large Tissue Defects By Cod Liver Oil and Plaster-of-Paris Casts W Lohr — p 1815  
Intravenous Urography and Pelvirenal Reflux A Hendrick — p 1822  
Contribution to Pathogenesis of Diabetes Insipidus W Krieg — p 1827

**Effect of Cod Liver Oil on Pyogenic Bacteria** — Lohr and Treusch point out that theoretically it would be better to use the natural cod liver oil in the treatment of wounds, because that would bring the greatest possible amount of vitamins A and D in direct contact with the wound tissues, constituting a parenteral vitamin therapy. Bacteriologic tests proved that cod liver oil is free from bacteria and that organisms introduced into it perish. This is true for the ordinary pyogenic bacteria and for *Bacillus tuberculosis*. However, the use of pure cod liver oil in bone cavities and other situations is not advantageous because it dries rapidly and because a good deal of it is lost. It was therefore necessary to combine it with some inert substance that would not affect the rather sensitive vitamins A and D. The authors found petrolatum suitable for the purpose. As a result of their extensive clinical studies they conclude that cod liver oil therapy has a definite curative effect. The treatment should be looked on as a means of increasing the defense powers of the tissues. The addition of petrolatum reduces the bactericidal power of cod liver oil and calls for a careful examination of it as regards its sterility.

### Zentralblatt fur Gynakologie, Leipzig

- 58 1681 1744 (July 21) 1934 Partial Index  
Menstruation in Castrated Woman Following Treatment with Ovarian Hormone P N Damm — p 1682  
Irregular Birth in Dorso Anterior Frontal Presentation E Coester — p 1687  
Aspects of Local Argyrosis of Vaginal Portion of Uterine Cervix and of Cervical Polyps H Dworzak — p 1691  
Congenital Tumor of Dental Lamina and Absence of Palate Case B Szendi — p 1697

**Local Argyrosis of Uterine Cervix** — Dworzak states that general argyrosis is today a rare disorder because of greater precaution in the therapeutic application of the silver salts. However, local argyrosis resulting from the application of silver solutions is still a comparatively frequent occurrence. The dermatologist is familiar with the condition, but, if the literature is any indication, the gynecologist has not given it attention. Since silver solutions are employed by the gynecologist, the occasional occurrence of a local argyrosis of the vagina and the cervix seems likely. The author relates the clinical history of a woman, aged 39, whose cervix had been repeatedly treated with silver solutions. The later removal of a cervical polyp revealed a dark brown pigmentation. The pigment gave no iron reaction but other tests revealed that the pigmentation consisted of silver. This observation induced the author to investigate the problem further. He found brownish pigmentation on the vaginal mucous membrane of a number of women whose cervix had been treated with silver solutions. After citing several experiments, he compares the genuine melanin pigmentations that have been observed on the cervix and the cervical polyps with the dark pigmentations caused by deposits of silver in the tissues. He emphasizes that the silver granules are found primarily in the intercellular spaces, rarely within



nerves and in the spinal cord, mistakes in operative technic, such as the choice of the wrong place or level or incomplete interruption, the individual regenerative power of the peripheral nerves, and the existence of collateral innervation

### Bibliotek for Læger, Copenhagen

126 273 326 (July) 1934

- \*Chronic Peritonitis Incapsulans (Lubimow) Ccn S Hindse Nielsen —p 273
- Experimental Investigations on Problems Regarding Sexual Hormones with Especial Regard to Feminizing Substances H Seemann —p 310
- Studies on Relation of Simple Glaucoma to Internal Secretion V Larsen —p 318

**Chronic Peritonitis Incapsulans**—Hindse-Nielsen presents the case of a girl, aged 15, of tuberculous family, who for seven or eight months had periodic attacks of ileus, which always yielded to atropine. Laparotomy, done under the diagnosis of probable mesenteric cyst, revealed a peritonitis incapsulans containing about 1 meter of ileum. Ileocecal resection was done, the patient has been followed for three years and continues well. The author reviews peritonitis incapsulans on the basis of fifty cases from the literature. He says that it occurs most often in the second and third decades of life, in which the proportion between men and women is 93:142, in the entire material the proportion is 20:30. He regards the disorder as clinically and pathophysiologically a substrate for several different disorders: it is a localized, adhesive, fibrohyaline or fibrous peritonitis, which represents an organized remnant exudate after a diffuse peritonitis has originated about a focus in the intestine or mesentery, or is a link in a more diffuse, chronic serositis. Etiologically the disorder is related to specific infections (tuberculosis, syphilis) and nonspecific infections (pneumococcal infections) and also to traumas and cancer. The symptoms are constipation, pain, recurring subileus and palpable abdominal tumor. Treatment consists in laparotomy, with dissection or extirpation of the capsule, otherwise anastomosis around the pseudocyst or resection, if it is evident that enough intestine will be left. In cases in which for some reason removal of the capsule is not attempted or has been abandoned, roentgen treatment may be tried. Atropine is recommended in attacks of pain.

### Hospitalstidende, Copenhagen

77 793 820 (July 3) 1934

- Has Mammalian Organism in Recent Years Lost Its Ability by Non-specific Action to Increase Its Defense Against Toxin Poisoning and Attack of Pathogenic Microbes? L E Walbum —p 793
- \*Investigations on Influence of Hormone of Posterior Lobe of Pituitary Body on Urea Clearance T Bjerring —p 808

**Influence of Hormone of Posterior Pituitary on Urea Clearance**—Bjerring states that after the injection of this hormone the creatinine and the urea clearance were reduced, the urea clearance relatively more, both in patients with sound kidneys and in those having nephritis, but especially in the former. The hormone decreases the filtration of urea and promotes resorption back into the tubuli. This increased resorption occurs independent of changes in the creatinine concentration index, and the ability of the tubuli actively to resorb is assumed to be changed after injection of the hormone.

### Ugeskrift for Læger, Copenhagen

96 759 822 (July 19) 1934

- \*Clinical and Serotherapeutic Studies on Preparalytic Stage of Poliomyelitis on Basis of Experiences During Epidemic in Skiveegnen in 1933 S Baastrup —p 759
- Remarks on Diagnosis of Infantile Paralysis P V Tuxen —p 778
- \*Poliomyelitis. Review of Cases Observed at Blegdam Hospital and Contribution to Recognition of Aparalytic Picture of Poliomyelitis N I Nissen —p 781
- \*Observations from Infantile Paralysis Epidemic in Sukkertoppen Greenland K Hrolv —p 804
- Experiences from Infantile Paralysis Epidemic in Godthaab South Greenland K V Christensen —p 814
- Application of Respirator in Acute Anterior Poliomyelitis F Wulff —p 814
- Distribution and Application of Poliomyelitis Convalescent Serum (P C S) State Serum Institute —p 817

**Studies on Preparalytic Stage of Poliomyelitis**—Of Baastrup's 120 cases, 105 (87 per cent) presented pathologic spinal fluid, ninety-one (76 per cent) increased globulin, eighty (67 per cent) pleocytosis and sixty (50 per cent) increased

albumin. Meningeal symptoms were present in all cases. He asserts that for the clinical diagnosis of preparalytic poliomyelitis the presence of three cardinal symptoms is necessary: spinal stiffness with pain on bending forward, typical appearance and fever, spinal rigidity being the most decisive. With regard to the differential diagnosis, the meningeal symptoms are the exception in influenza, while they are the rule without exception in preparalytic poliomyelitis. In cases of preparalytic poliomyelitis showing stiffness of the neck and milder positive Kernig-Brudzinski symptoms, and especially in the rare cases showing, in addition, somewhat dulled sensory apparatus and suggestion of spasms, clinical differentiation between encephalitis and preparalytic poliomyelitis is hardly possible on a single examination, immediate clinical differential diagnosis between preparalytic poliomyelitis and tuberculous meningitis may also be impossible if tubercle bacilli in the spinal fluid or certain tuberculous manifestations elsewhere cannot be established. In these cases the author advises the administration of convalescent serum on suspicion, if sufficient serum is available. Human convalescent serum was given in twenty-two cases: in five cases of the paralytic stage, because of the grave general condition, and in seventeen moderately grave or grave cases of the preparalytic stage. The serum had no prohibitive effect in the three preparalytic cases in which tremor, ataxia and patellar reflexes were already present on administration, showing insult to the spinal cord, the other fourteen cases remained aparalytic. Marked improvement of the general condition was seen in sixteen cases. Administration of convalescent serum is advised only in the preparalytic stage, preferably at the beginning of the first twenty-four hours, and only when there are no symptoms of the spinal cord, intravenously (intramuscularly if intravenous injection is unsuccessful), in a single large dose, the minimum dosage being approximately from 20 to 30 cc for children about 1 year old and increasing according to age and weight to from 50 to 70 cc for adults.

**Recognition of Aparalytic Cases of Poliomyelitis**—Nissen classifies poliomyelitis into three forms, the fulminating, the cases with slow course and accentuation of the symptoms until paresis occurs including the cases with diphasic course, and the meningeal aparalytic form, with or without slight disturbances of reflex. He tabulates his cases: thirty-three paralytic and twenty-one aparalytic, from the summer of 1933 to the spring of 1934. The aparalytic cases were diagnosed as poliomyelitis on the basis of simultaneous occurrence of paralysis cases, occurrence of aparalytic and paralytic cases among brothers and sisters, assumed contact infection, and results of examination of spinal fluid and other laboratory investigations. While the paralytic cases mainly appeared in the first four years of life, the aparalytic cases dominated in the school age.

**Infantile Paralysis Epidemic in Sukkertoppen, Greenland**—Hrolv reports eighty-three manifest cases and a large number of abortive cases of acute anterior poliomyelitis of an epidemic in the summer of 1932. He concludes that immunity is conferred on all who have had the disease including abortive cases, no one living during the epidemic of 1914 was affected in 1932. There is violent and rapid spread of the disease, causing high morbidity, mostly abortive, and epidemics of short duration. The virus lives for years, leading to epidemics when favorable conditions arise, perhaps with increase of virulence on repeated transplantation from person to person. The danger of infection from manifest patients is slight. The infection spreads from well carriers, from the abortive cases and from patients in the incubation stage, presumably by droplet infection. The incubation period varies from one to from fourteen to twenty days. In the main, the shorter the incubation period the graver the disorder, and the longer the incubation period, the milder the disorder. Infantile paralysis is also endemic in South Greenland.

### CORRECTION

**Transverse Fractures of Neck of Radius**—In the abstract of the article by Patterson in THE JOURNAL, September 1, page 713, the first line should read 'Patterson describes a closed method of reduction' instead of 'operative removal'.

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## THE CANCER PROBLEM TODAY

CHAIRMAN'S ADDRESS

WILLIAM CARPENTER MACCARTY, M.D.  
ROCHESTER, MINN.

From time to time for many centuries it has been the duty of observers to appraise the status of the problem of cancer and point out means of promoting its solution. Each stresses quite naturally the field in which he has been most active. It would be unusual to find any one who could do justice to all phases with perfect equanimity. I shall not take the time or detract from my specific purpose by presenting a historical review of existing knowledge, this has been done frequently and is to be found at easily available sources.

The cancer problem, as I see it, has five distinct parts, which I shall enumerate in their probable order of practical importance.

1 The recognition or diagnosis of this disease or complex of diseases by laymen, general physicians, general pathologists, surgical pathologists, surgeons, and teachers of medicine. Each has its own limitations.

2 The statistical frequency of the disease and its relation to human welfare and possibly to that of other forms of life.

3 The application of empirical methods of treatment, there being, as yet, no known infallible specific method.

4 The education of active members of the medical profession, medical students and all those who are or might be affected by this disease.

5 Endowment and execution of pure scientific experimental research which has for its function the study of the biologic nature of the disease.

For fear of being considered unappreciative of pure experimental research, which I have placed fifth in importance, may I say that I have participated in experimental research most of my life and am somewhat familiar with what is being done throughout the civilized world. There should be nothing but the highest praise for the experimenters, their work and their financial benefactors. They have contributed much to general knowledge, their activities involve diverse, painstaking and time-consuming methods of approach. I know of no branch of scientific knowledge or procedure that has not contributed positively or negatively to the study of this problem.

The search for the distribution of cancer in all forms of life has revealed much to suggest that it is a biologic phenomenon not dependent on any single specific

factor and that it is a cellular defensive reaction to a local abnormal environment which is not efficiently eliminated by multicellular organization. The wide range of the disease suggests further that the many very different specific causes vary perhaps with species, habits, geography, organs, tissues and portals of entry. Although possibly quite different, they produce tissue destruction with consequent attempts at regeneration, during the partial failure of which the cells take on a migratory and individualistic phase which eventually destroys the whole organism of which they have been a part. This is of course not an unheard of phenomenon of life and is not characteristic alone of cells but of much larger units such as human beings.

The pure experimentalists have confirmed the old empirical ideas that chronic irritation and heredity play parts although the mechanism of heredity may still be under discussion. Despite this progress, a specific cause of human cancer has not been discovered, no means of producing immunity has been established, there is no means of making the diagnosis early other than with a microscope, there is no specific method of treatment and no immediate practical means of preventing the disease through knowledge of genetics. In my opinion one of their greatest functions is censorship of the many "cancer cures" that too readily gain publicity, I have seen excellent physicians and surgeons become prematurely enthusiastic and sincerely advocate immature spectacular ideas relative to the cause, diagnosis and treatment of cancer.

Despite the things the pure researchers have not done I still believe their experiments should be continued, increased, and even more abundantly endowed, they will undoubtedly discover the true biologic nature of this disease, which is now one of the greatest destroyers of mankind.

As to the recognition or diagnosis of cancer the layman cannot be expected to differentiate it from other diseases but he can and should be taught the specific things that might arouse enough suspicion to send him to a properly trained physician. The general physician also cannot be expected to recognize it in its early stages as he is being educated today. The general pathologist who spends his time performing autopsies on those dead of cancer cannot be expected to recognize the early stages of the disease, because the early stages do not kill and rarely come to autopsy, he rarely, therefore, has the opportunity to see them.

Thus, each of these diagnosticians has his limitations dependent on his opportunity actually to see the disease in its early stages. So far as seeing early cancers is concerned, dermatologists, endoscopists, roentgenologists, surgeons and surgical pathologists are the only physicians who have this opportunity. Perhaps this sounds like professional heresy, but the following fig-

ures substantiate the statement I have recently studied more than 1,200 cancers the size of a quarter (24 mm) or smaller found surgically in the breast, stomach and large intestine. None of these gave positive characteristic signs or symptoms of cancer but all gave signs and symptoms of conditions that are sometimes, but not always, associated with cancer. There are only two reasons why these relatively small cancers were discovered. They were suspected in spite of the absence of textbook signs and symptoms and the patients were explored endoscopically, roentgenologically, surgically and microscopically while they were alive. They therefore received immediate complete and thorough examinations, an attempt being made to rule out cancer before it reached the stages of clinical recognition.

What constitutes a small or early cancer might be a question. I have arbitrarily chosen 2.5 cm in diameter, because this is much smaller than the average size of operable cancers in the organs I have mentioned. In a series of 7,750 surgically removed cancers that I have measured, the average diameters were for the breast 3.2 cm, the stomach 6.1 cm, the rectum, rectosigmoid and sigmoid 5.7 cm, and the rest of the large intestine 6.9 cm. Such averages do not represent the average size of cancers as they are actually being recognized by general physicians, because only 50 per cent of all cancers of the breast, 25 per cent of the stomach, 58 per cent of the large intestine, 65 per cent of the body of the uterus, 85 per cent of the cervix, and 75 per cent of the lip are operable when first seen by the surgeon. These percentages of operability suggest that the disease is not early when discovered by the medical profession as a whole. Of those operable, 62 per cent of the cancers of the breast, 53 per cent of the stomach and 38 per cent of the large intestine have glandular involvement. In general it may be said that cancer is certainly not being diagnosed early despite the repeated pleas of surgeons and the campaigns of the American Medical Association, the American College of Surgeons and the American Society for the Control of Cancer, each of which has thoroughly propagandized the country from end to end, spent thousands of dollars, and has been generously assisted and supported by a very willing press. I have not the slightest doubt, however, that their efforts have rendered a most valuable service so far as popular education is concerned, but the job is far from finished, the problem is not yet solved so far as early diagnosis and early treatment are concerned.

The second part of the problem, namely, the statistical frequency of the disease, has been abundantly studied. The figures, although perhaps not absolutely accurate, are sufficiently correct to awaken interest and suggest serious consideration. Cancer is a very common disease. Whether 100,000 or 150,000 die this year or next is very tragic, but nothing can be done about those who are dead or those who are going to die next year. The latter might be made comfortable but they will not be cured. The important group to consider is the one now unconsciously waiting to die five, ten and fifteen years hence. Cancer does not have a life history of just a few months or one year, it is a disease that usually takes several years to run its full course. Those who have studied the clinical histories of a large series of cancer patients must be aware of the fact that most of them have a longer story than appears on a superficially taken history. Despite the

fact that this disease does occasionally slip up on its possessor unawares, this is far from being the general rule. I myself am not interested in the 100,000 or 150,000 that will die this year, I am certain their cancers are much larger than the average sizes I happen to know are being operated on. It is the patient with a lesion smaller than a quarter that I think the general practitioner must consider seriously if he is to continue his duty in relation to the problem.

The third part—the application of empirical methods of treatment—has a history that is a medical epic equal in greatness to any social epic in any land. Time forbids its complete review, one must be satisfied with a mere suggestion. By way of illustration, the history of surgery may be considered in its relation to the treatment of gastric cancer, which happens to be the most frequent form. In view of the fact that pure medical treatment of cancer has always had a 100 per cent mortality preceded by suffering and slow death, it was the object of early surgeons to relieve the suffering first by some sort of gastro-enterostomy or pyloric plastic operation and later, when their technic became perfected, attempt the removal of the disease itself. Wolfler in 1881 reported his technic for gastro-enterostomy and during the same year Billroth did his first successful gastric resection for cancer. It must be remembered that little was then known of the cause of infection and how to prevent it. Pasteur had just isolated the streptococcus and staphylococcus, and although empirical antisepsis had been practiced by Lister, Kirchenmeister, Lemaire, de Morgan and others, abdominal surgical exploration was not possible until the development of asepsis, which awaited the further work of Pasteur, Koch and others. It may be said that the developmental technical period was from 1880 to about 1910, a period of thirty years. Operative mortality for removal of gastric cancer dropped from 100 per cent in 1880 to 9.5 per cent and less in 1906, at which time gastric operations became much more frequent and time was sufficiently long for a study of results. W. J. Mayo, as far back as 1910, reported 20 per cent of his eighty-five patients who had had gastric resections for cancer alive and well after four years, two alive over eight years, two over six years, and two over five years. This was certainly better than letting them die of slow starvation, anemia and metastasis.

From 1910 both the immediate risk of operation and the postoperative results have continued to improve with resultant greater frequency of diagnostic exploration and therapeutic resection, both of which have provided abundant opportunity for the surgeon, endoscopist, roentgenologist and surgical pathologist to see cancers long before they have had a chance to make themselves apparent by textbook signs and symptoms of cancer.

To this review of the surgeons' efforts must be added the more recent and shorter history of the application of x-rays, which have a very definite place in successful diagnosis, therapy and alleviation. While no one would be bold enough to suggest that the empirical methods are perfect or 100 per cent efficient, fairmindedness must admit their excellent results despite the fact that they have not been given half the chance by the profession that their merits deserve. It is quite obvious to those who follow results that the chances of effecting good results are indirectly proportional to the size of the cancers when treated. In spite of all scientific research there has been no method of treatment that

has given anything that even approaches the results of surgeons and radiologists, each in his proper place. Blame cannot be placed on surgeons, roentgenologists, radiologists, popular cancer propagandists, general physicians, laymen or pure scientists for the slowness of progress, the fault does not lie in their direction but rather in the inherent sluggishness of educational methods, which reminds me of one of my favorite quotations: "The longer I teach the more I am impressed with the infinite capacity of the human mind to resist the introduction of knowledge" (Lounsbury).

This leads me to the fourth and last part which I shall consider—that one which has to do with the education of the medical profession itself and future members of the profession. The layman may be dismissed at once. I believe there are probably very few individuals in the United States over 21 years of age who have not heard about cancer, thanks to the campaigns that have been conducted by the profession and the lay press. On the other hand, I am not so certain that the organized medical educational system has done all it can do. Having been for years intimately associated with medical students, recent medical graduates and practicing physicians from schools from all parts of this country and abroad, I must confess that I am chagrined at the lack of practical knowledge of the early stages of cancer and their relation to other diseases. Only cancer in its late stages is being taught. May I bring my opinion to a point abruptly by saying that no teacher of medicine and no teacher of pathology can teach the early stages of cancer by selecting for teaching purposes clinically recognizable cases of cancer and the dead. This can be done no more than the circumstances that lead to war can be taught on the battle field.

Cancer is a biologic disease and its living phases including its initial phase, must be brought to medical students and practicing physicians. What modern ornithologist would be satisfied to teach the life history of birds and their habits from stuffed dry skins, valuable as they may be as records? So far as cancer is concerned, why should it be taught only in the clinical wards and at autopsy tables when the surgeons are offering opportunities to see cancer long before it gives recognizable and characteristic signs and symptoms? Bronchitis is taught as something to be immediately differentiated from early tuberculosis, physicians do not wait for the signs and symptoms of consumption, a term that has been relegated to the past, just as the term cancer will be in the very near future.

Cancer is, in my opinion, a simple problem, although the various specific causes may never be known and no specific cure ever found. It is a problem of health in general, external and internal cleanliness, and heredity. It is, so far as the profession is concerned, a problem of prevention, which means early recognition and treatment of things which frequently end in cancer. It is a disease that is the result of disease.

Now that philanthropists have endowed medical schools, hospitals and research institutions, it is time for some one to endow a system of teaching for general practitioners. This most important member of the profession is the one who sees but does not recognize small cancers. He must have the knowledge brought to him directly by clinics held in his immediate vicinity. He is too busy to read special journals on cancer, he has no time to attend distant special meetings. If famous surgeons and diagnosticians come to him directly they are—often unjustly—criticised, they are accused of soliciting practice. The medical profession has

always been altruistic, it has always given more than it received, severe and unfair criticism exists nevertheless.

Some well trained individual or some group must be endowed to travel and teach without expectation of financial compensation from practice. The method of education of general practitioners today is similar to the teaching of the proprietary medical schools, which have disappeared through financial endowment. The change can be made at very little cost, by this method the almost complete eradication of this scourge can occur in the next thirty to fifty years.

I have spoken very plainly because I have seen too many tragedies that might have been avoided. At present these tragedies are no one's fault. No one is to blame. The problem today is one of education, rid of the criticism that of necessity occurs in any form of proprietary teaching. I believe very firmly that there must be some form of endowed education carried directly to doctors. This is even more important than the establishment of institutes of research, which have certainly produced tremendous progress and justified their existence. Just as long as medical education of the practicing profession has possible monetary reward, just so long will it be handicapped and just so long will the next generation reach middle life with hopeless cancers.

There are enough known facts if properly and extensively applied to solve the cancer problem. Early cancers can be found, are being found, and are being removed safely. As a certain satirist (Kraus) once said, speaking of the cultures of his particular country, "The level of culture has risen tremendously in the past fifty years, but it is a pity nobody stands on that level." The level of medical progress has risen tremendously, but it is a pity the whole profession has not reached that level for lack of financial resources in a country as rich as the United States.

In conclusion, may I suggest, should such an endowment arise, that it be a memorial to the late Dr. William Henry Welch, who, in my opinion, has done more for human welfare and happiness than any one else in recent civilization. May I suggest further that it be applied in the ethical spirit of the American Medical Association, which represents the whole medical profession in its relation to all the people.

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**Epidemic Dropsy**—Undoubtedly the most important and the commonest method of depriving the body of protein is through a prolonged or excessive reduction of protein in the diet. Though it has only recently been discovered, as I shall point out, that there is a close connection between protein starvation and the formation of edema, the occurrence of dropsy in states of advanced undernutrition has attracted attention for centuries. It has been described as occurring in epidemics, and for this reason has been called "epidemic dropsy." The descriptive terms used in the literature serve in themselves to indicate the conditions under which it was likely to occur, for we find it referred to as "war edema," "prison dropsy," "hunger swelling" and "deficiency edema." There are interesting accounts of the dropsy which was widespread in the French Army during the Wars of the Sixteenth Century and which was common in the armies of Napoleon. The interesting observation was also made that the swelling was much greater in the soldiers on march or on duty than in those too sick to move about. Many children confined in Paris during the Siege of 1870-71 became edematous, and in the great famines of India and Russia the people have been described as "swollen with hunger"—Longcope, W. T. The Importance of Disturbances in Nutrition in Edematous States, *New England J. Med.* 210 1244 (June 14) 1934.

# THE IMMUNIZATION OF SCHOOL CHILDREN AGAINST WHOOPING COUGH

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## WHOOPING COUGH—FRAWLEY

JOUR. A. M. A.  
SEPT. 29, 1934

During the past two school years, prophylactic injections of whooping cough vaccine have been given to large groups of primary grade and preschool children in the Fresno public schools.

The vaccine used was the undenatured antigen of *Haemophilus pertussis* described by Krueger, Nichols and Frawley.<sup>1</sup> The method consists essentially of disrupting living bacterial cells by mechanical means and obtaining the endocellular elements of *Haemophilus pertussis* are grown on Bordet's medium enriched with human blood. The cells are harvested in buffered isotonic solution, thoroughly washed to remove metabolic suspension is subjected to ultrafiltration through acetic collodion membranes whereby all intact cells and large particles are retained, while material in molecular or colloidal solution passes through. The Kjedahl filtrate contains the antigen. Micro-nitrogen determinations are made to determine the content of this antigen solution.

The advantages that this vaccine possesses are the following:  
1 It is made from the virulent phase I organisms, which were described by Leslie and Gardner<sup>2</sup> as the strain of high antigenic activity.

### Controls and Children Vaccinated Against Whooping Cough

50 children received 8 cc lysed pertussis vaccine during November 1933	
Since then 80 children have been exposed to whooping cough	
49 children developed no symptoms	
Home exposures	
School exposures	
31 children developed symptoms	
Controls 174 nonvaccinated children who had whooping cough during same period	
Duration of paroxysmal stage	16
Less than 1 week	53
1 to 2 weeks	
2 weeks or more	

Children Who Developed Symptoms	Controls
25	9
5	49
1	116
31	174

### COMMENT

A study of the results obtained in this group of kindergarten and preschool children indicates that definite protection against whooping cough was given by prophylactic vaccination with pertussis antigen. There was no reaction following injections in nonimmune children.

Considerable local reaction does occur in the case of children who have recently had whooping cough. This is probably an allergic phenomenon and represents a reaction between the specific antibodies in the tissue and serum of the individual and the antigen. This hypersensitivity is gradually lost and after a few years no greater local reaction is produced than in the case of children who have never had whooping cough.

Because of the absence of reactions following injections of antigen solution in nonimmune children, it is possible to carry out a vaccination program on large groups of children entering school life. Such children are particularly in need of prophylactic vaccination, as they are at this time most likely to be thrown into contact with whooping cough. There is not much danger of younger children being exposed unless the members of the family. In a recent health survey of preschool children in Fresno County<sup>3</sup> it was found that 70 per cent of the children ready to enter the public school had not yet had whooping cough. Routine vaccination of kindergarten children would remove the danger of

2 The antigenic activity of the vaccine is preserved by this method. It is now generally conceded that bacterial antigens are altered by physical agents such as heat or chemicals and lose their relationship in whole or in part to the organism from which they originated. This conception is founded on the work of Anson and Mirsky on the denaturation of proteins and forms the basis of this method wherein no heat or chemicals are used for devitalization.

3 There is no reaction following its use because the bulk of the bacterial protein has been removed with the killed bodies of the bacteria. Also the toxic filtrate has been eliminated by the thorough washing.

4 There is no danger of sensitization of the patient by foreign serum adsorbed on the surface of the bac-

Read before the Section on Pediatrics at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 15, 1934.  
1 Krueger, A. P., Nichols, V. C., and Frawley, J. M., Preparation of an Active Undenatured Antigen from *Haemophilus pertussis* Proc Soc Exper Biol & Med 30: 1097 (May) 1933.  
2 Leslie, P. H., and Gardner, A. D., The Phases of *Haemophilus pertussis* J Hyg 31: 423 (July) 1931.  
3 Leslie, P. H., Early Diagnosis of Whooping Cough Lancet 1: 9 (Jan 2) 1932.  
4 Frawley, J. M., The Immunization of School Children Against Whooping Cough J Pediatr 4: 164 (Feb) 1934.  
5 Frawley, J. M., and Nichols, V. C., A New Pertussis Antigen Preliminary Clinical Report ibid 4: 179 (Feb) 1934.  
6 It was made according to the technique described by Krueger, Nichols and Frawley.  
7 Deissler, K., Allergic Intestinal Reaction to Food Report of a Case in Childhood Proc Staff Meet Mayo Clin 9: 33 (Jan 17) 1934.  
8 Personal communication to the author from W. F. Stein, medical officer of health, Fresno, Calif.

epidemics which are likely to occur under the present regulations, children being frequently allowed to attend school during the catarrhal stage of whooping cough when the diagnosis is most uncertain but the danger of contagion is greatest

## SUMMARY

1 Prophylactic injections of 8 cc of active undenatured *Hæmophilus pertussis* antigen were given to a group of 505 nonimmune school children. Injections were followed by practically no local or systemic reaction.

2 Since vaccination these children have been kept under observation. Forty-nine have been exposed to whooping cough without developing symptoms, sixteen were exposed at home and thirty-three at school. In thirty-one children, whooping cough developed. In twenty-five cases the paroxysmal stage was of less than one week's duration, in five cases of from one to two weeks' duration and in one case of two weeks' duration or more.

3 As controls 174 nonvaccinated children from the same homes and classrooms who had whooping cough during this period were classified on the same basis as the vaccinated children. The duration of the paroxysmal stage in these cases was as follows. In nine cases it was less than one week, in forty-nine cases from one to two weeks, and in 116 cases two weeks or more.

T W Patterson Building

## ABSTRACT OF DISCUSSION

DR LOUIS W SAUER, Evanston, Ill. Dr Frawley's results with a total of 8 cc of Krueger's pertussis endo antigen compare favorably with Madsen's recent report in which a total of 22 cc of potent vaccine was injected sometime before exposure occurred. Both found the disease more severe and more prevalent among the uninjected controls. Dr Frawley has pointed out that endo-antigen does not contain anything which is not present in potent vaccine, its distinctive features are that systemic reactions do not occur and that local reactions are rarely visible at the end of twenty-four hours. As it causes no reactions, why is the total dosage divided into four weekly injections? Since the first smallpox and typhoid immunizations clinicians observed that immunization is often associated with local or systemic reactions of varying degree. Reactions are attributed, at least in part, to the immunizing fraction of the antigen. Immunologists, notably Cannon and Kahn, in recent years, have ascribed to certain cells of the skin an important role in antibody formation. Potent vaccine is thought to exert a specific action first on the local tissues, then on the blood serum. The immunity response should be enhanced by the particulate nature of vaccine which delays its absorption. Faroe Island physicians, for example, stressed the importance of local reactions and Madsen says "The effect is greatest in patients showing a strong reaction at the point of injection. There may be some connection between this and the curve showing the formation of antibody." Mishulow, Mowry and Scott found Berkefeld filtrates of *Bacillus pertussis* cultures strongly toxic and antigenic. The toxin could be neutralized by the serum of a previously immunized rabbit. Gross repeated their Schwartzman and neutralization tests. The Berkefeld filtrates of some strains were so toxic that positive reactions occurred with filtrates diluted 1:25. The reactions that follow the subcutaneous injection of immunizing vaccine (three times the Madsen dosage) have not been sufficiently severe to postpone a subsequent injection. At no time have they caused any great concern. The local redness and rise in temperature are transient whenever they occur and usually disappear within a day or two. These reactions are not due to alien protein rarely do they resemble nonspecific reactions due to bacterial protein. Although allergic reactions have not occurred in any of the 800 immunizations during the past six years it is advisable to give the injections not further than seven days apart. If it should be found that prolonged immunity can be conferred by a

more concentrated and larger dosage of endo antigen, it will probably be given also earlier in life, i.e., at a time when the disease is most serious.

DR H F HELMHOLZ, Rochester, Minn. This subject is one of the most important that have come before the section, because it is preventive pediatrics, in which field results are just beginning to appear. Whooping cough now stands at the top of the deaths from communicable diseases. The work presented by Dr Frawley and discussed by Dr Sauer opens the way for further study of active immunization. The difficulty at present is that the deaths from whooping cough are largely in the first year of life, so that immunization must be carried out during the first six months of life. The disease much less fatal after this period, nevertheless carries with it complications that are crippling, so that, as far as the infant and the older child are concerned, there is every reason for furthering this work to the utmost. I have had but slight experience with Dr Frawley's vaccine. There was an epidemic this winter in which twenty children were immunized. I had observed these children since birth. I knew their family history. Of this group immunized during the epidemic three developed the disease during the process of immunization. The other seventeen were protected, with the exception of one case. There was for a period of two months constant exposure in schools and in two instances, intimate contact in the home. One of these children who had intimate contact in the home with a brother who developed it five months after inoculation was protected. In the other instance, a child in a home exposed to an older brother did not come down with the disease. This series is entirely too small to be of any definite value, but it shows what can be hoped for when work of this kind is definitely standardized.

DR REUBEN L KAHN, Ann Arbor, Mich. I was interested in Dr Frawley's finding that children who have recently recovered from whooping cough show a marked local inflammatory reaction to a skin injection of his specific protein vaccine. Many workers consider this local reaction an allergic or hypersensitive response. I look on this reaction as an immunologic or defensive response. When Dr Frawley injects his specific protein into a nonimmune child, the protein diffuses from the area of injection and practically no local inflammation follows. The tissues of a nonimmune animal do not possess the capability of keeping a protein or vaccine localized in the area of injection. This capability makes its appearance only after immunization. A sequel to this localizing property is the destruction of the injected protein or vaccine. This destruction is brought about by proteolysis as a result of the inflammation. When therefore, Dr Frawley injects his vaccine in the skin of children who have recovered from whooping cough, there follows a local inflammatory response. Having developed immunity to whooping cough, the tissues have acquired the capacity to enter into some combination with and to localize the injected vaccine, presumably to prevent its diffusion through the body. Inflammation is the next step, to aid in the local destruction of the antigen. Of interest in this connection is the recent report by Francis, from the Rockefeller Hospital that patients who are recovering from type I pneumonia show positive skin reactions to injections of the specific soluble substance of type I pneumococcus, while those who are not recovering from this infection do not show positive skin reactions. The explanation in my opinion is the same as in whooping cough. The patient who is recovering from pneumonia possesses the capacity of localizing the specific antigenic substance and to destroy it subsequently by inflammation. The patient who lacks immunity to recover from the pneumonia lacks the capacity to localize and destroy the specific antigen and when injected into the skin, the antigen diffuses from the injected area and no local inflammation follows.

DR JAY I DURAND, Seattle. It seems that for the first time there is a valuable agent for preventing and treating this disease. I have given Dr Sauer's vaccine to about 150 children during the past year. None of them developed whooping cough after a period of four weeks following the last injection. One developed whooping cough four weeks after the last injection. I don't know whether it is going to be 100 per cent successful but I have had two infants live in the house with older brothers and sisters who have had severe whooping



cough during the last winter, without contracting it. I have had a number of other children in kindergartens where the disease was prevalent, who have not contracted the disease. A number of these children, I should say 5 per cent, have had a reasonably severe febrile reaction the night the vaccination was given. One of the patients had a convulsion. However, none of these children have been ill enough to worry me. All have been well within twenty-four hours after the symptoms of the fever began. The reactions have not been any more severe than those following the ordinary mixed respiratory vaccines. The reaction is not to be considered if there exists, as I believe there does, an agent for preventing this distressing disease. Physicians are immensely indebted to Dr. Sauer for first making available a real method of immunization. I hope physicians are going to feel equally indebted to Dr. Frawley for supplying something that may help in the treatment.

DR. J. VICTOR GREENEBAUM, Cincinnati: I should like to ask a question. Dr. Schwartzman's exhibit downstairs beautifully demonstrates the Schwartzman reaction, which occurs after giving a second dose of filtrate intravenously. I should like to ask Dr. Frawley whether one of these severe Schwartzman reactions could occur if he happened to hit a vein at the time of the second or third inoculation with his vaccine.

DR. J. M. FRAWLEY, Fresno, Calif.: With regard to Dr. Sauer's question as to why the total dosage is divided since there is no reaction, I have felt my way along with this antigen and began, as a matter of fact, with very small doses and am now realizing that much larger doses can be given. I feel sure that as the strength of the antigen is increased so that the dosage will be cut down as much will soon be given in one dose as is now being given in three or four doses. With regard to Dr. Greenebaum's question, there is no danger of the Schwartzman reaction following an intravenous injection of the second or third dose. I tried to elicit the Schwartzman phenomenon in animals and found it was impossible, because the toxic filtrate which is responsible for that phenomenon has been removed by the thorough washing to which the bacteria have been submitted before they have been ground down.

## CARBON TETRACHLORIDE AS AN INDUSTRIAL HAZARD

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Carbon tetrachloride has many uses at the present time. Many years ago it was tried as an anesthetic in place of chloroform but it was too toxic because of the high chlorine content. More recently it has been given as a remedy in hookworm and other intestinal parasitic diseases. It is at the present day used by the veterinary profession in treatment of canines. Perhaps the most frequent commercial uses of carbon tetrachloride today are the following:

- 1 As a solvent in the rubber industry
- 2 As a cleansing agent in the dry cleaning industry
- 3 As a solvent in the chemical and drug industry
- 4 As an occluding and nonoxidizing agent in fire extinguishers
- 5 As a solvent in the paint industry
- 6 As an anthelmintic for parasites in the practice of medicine
- 7 In machine shops for the removal of grease in combination with benzene in order to keep the fire hazard at a minimum
- 8 As a dry shampoo in the hair dressing industry, especially in foreign countries

The chief use of carbon tetrachloride in all of these processes is as a solvent and a diluting agent to reduce the flash point in certain other solvents. Mixtures of carbon tetrachloride and benzene and of carbon tetra-

chloride and benzene in ratios of 60 to 40 and 50 to 50 are unflammable. Carbon tetrachloride is a saturated chlorine derivative of methane,  $\text{CH}_4$ , or marsh gas. Starting with the formula of methane and making substitutions with chlorine one gets, when the saturation point is reached, the extremely volatile substance carbon tetrachloride, which is a clear liquid of high specific gravity. It has a specific gravity of 1.599, a boiling point of 170.6°F and a vapor density of 5.33.

The commercial preparation of carbon tetrachloride is as follows: (1) Chlorination of carbon bisulphide. This method produces many impurities in the finished product, especially some sulphur compounds which are toxic. (2) Chlorination of ethylene. (3) Catalytic action of the electric arc on carbon and calcium chloride.

The most toxic impurities that may be present in commercial carbon tetrachloride are phosgene, hydrogen sulphide, free hydrochloric acid, organic sulphides and carbon bisulphide. Most of these can be removed by distillation and further absorptive treatment. The increasing use of carbon tetrachloride both as a solvent and as a cleaning agent prompted me to investigate the toxicity of this substance. The following experiments were made and the reactions noted.

### EXPERIMENTS WITH CARBON TETRACHLORIDE

A space was used measuring 20 by 20 by 10 feet, equaling 4,000 cubic feet, or 6,912,000 cubic inches, and containing 113,347.5 liters of air.

EXPERIMENT 1—One milligram per liter, or 0.0158 volume per cent, or 126 Gm. to 4,000 cubic feet, or 158 parts per million. Exposure, thirty minutes.

1 Age 28 Nervous, slight nausea, pulse 120, respiration 28, blood pressure 145. Blood count normal. Hemoglobin 90 per cent.

2 Age 30 Very little effect. Pulse 85, respiration 18, blood pressure 115. Blood count normal. Hemoglobin 95 per cent.

3 Age 20 No effect. Pulse 76, blood pressure 120, respiration 17. Blood count normal. Hemoglobin 90 per cent.

4 Age 28 No effect. Pulse 70, respiration 18, blood pressure 118. Blood count normal. Hemoglobin normal.

Urinalysis in twenty-four hours gave negative results in all cases.

EXPERIMENT 2—Five-tenths milligram per liter, or 0.0076 volume per cent, or 63 Gm. to 4,000 cubic feet, or 76 parts per million. Exposure, two and one-half hours.

1 Age 35 No symptoms. Blood pressure 118, respiration 17, pulse 75. Blood count and hemoglobin normal.

2 Age 48 No symptoms. Blood pressure 130, respiration 20, pulse 78. Blood count and hemoglobin normal.

3 Age 22 No symptoms. Blood pressure 115, respiration 16, pulse 72. Blood count and hemoglobin normal.

4 Age 30 No symptoms. Blood pressure 126, respiration 19, pulse 76. Blood count and hemoglobin normal.

EXPERIMENT 3—Next day the same subjects were exposed for four hours and no symptoms developed from carbon tetrachloride. There was a slight tired feeling but this was due to insufficient oxidation and not to carbon tetrachloride. Urinalyses after seventy-two hours were all negative.

EXPERIMENT 4—Two milligrams per liter, or 0.0317 volume per cent, or 252 Gm. to 4,000 cubic feet, or 317 parts per million. Exposure, thirty minutes.

1 Age 20 Slight nausea. Blood pressure 120, pulse 80, respiration 20. Blood count and hemoglobin normal.

2 Age 45 Nausea and vomiting. Blood pressure 150, pulse 88, respiration 25. Blood count and hemoglobin normal.

3 Age 36 Headache. Blood pressure 132, pulse 90, respiration 27. Blood count and hemoglobin normal. Urinalysis after forty-eight hours gave normal results.

EXPERIMENT 5—Eight milligrams per liter, or 0.1191 volume per cent, or 1,008 Gm. to 4,000 cubic feet, or 1,191 parts per million. Exposure, fifteen minutes.

1 Age 19 Headache, nausea and vomiting Blood pressure 130, pulse 130, respiration 22 Subject could not stay out in nine minutes

2 Age 21 Nausea, vomiting Blood pressure 125, pulse 100, respiration 20 Subject stayed in twelve minutes

3 Age 28 Nausea, headache Blood pressure 122, pulse 110, respiration 20 Subject stayed in fifteen minutes

4 Age 40 Nausea headache, vomiting Blood pressure 142, pulse 128, respiration 20 Subject stayed in ten minutes Urine examination in forty-eight hours revealed no albumin, no sugar, increased acidity, increased phosphates, otherwise negative

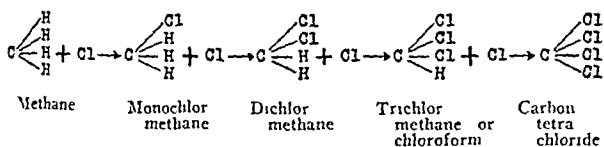
EXPERIMENT 6—Twenty-five one hundredths gram per liter, or 0.2382 volume per cent or 1,890 Gm to 4,000 cubic feet, or volume 2,382 parts per million, weight 12,800 parts per million

1 Age 40 Exposure five minutes Dizziness nausea throbbing in head, sleepy Blood pressure 150, pulse 130, respiration 28

2 Age 26 Exposure three minutes Nausea and nervousness, not sleepy but listless Blood pressure 150 pulse 110, respiration 22

3 Age 19 Exposure seven minutes Nausea and vomiting, dizziness, sleepy Blood pressure 129 pulse 115, respiration 23 Urinalysis in forty-eight hours disclosed no albumin no sugar, no casts, no sediment, increased phosphates and acidity, no definite change except temporary Examination in two weeks showed that no ill effects were caused

EXPERIMENT 7—Three men were asked to work with pure carbon tetrachloride by painting it on a fabric in a room that was closed but had exhaust ventilation about 6 feet away from the table over which they worked A sample of the air



in the immediate vicinity of their faces was collected and analyzed by the alcohol potassium hydroxide and combustion method and found to be 0.23 per cent carbon tetrachloride. None of the men could work over ten minutes without becoming nauseated and sleepy one vomited and developed dizziness with a throbbing feeling in his head

EXPERIMENT 8—Since the average man during an eight hour work period inhales 11¾ pounds of air it was thought advisable to see how much carbon tetrachloride he would get in an eight hour period. The air within the working area was examined and found to contain 0.02 per cent of carbon tetrachloride. Several had complained of nausea and had vomited. Several had said they felt tired and sleepy when the day's work was done. Now 0.02 per cent of 11¾ is approximately 0.234 pound in eight hours. It would be 0.37 pound if the weight of carbon tetrachloride was calculated. This is sufficient for our purposes. The odor of carbon tetrachloride can be detected with as little as 0.5 mg to a liter, and at 3 or 5 mg to a liter it is very strong. One man who had been working in the cement house was found to have albumin in the urine. He was removed and placed on other work and the urine was examined weekly. At the end of two months the albumin had disappeared. The phenolsulphonphthalein function test showed him to have 90 per cent function. He was not placed in carbon tetrachloride after that. He was continued on his work without after-effects becoming noticeable. The albumin cleared up and there was no microscopic evidence of any pathologic condition in his urine. There probably will never be any trouble, as the rest of the kidney tissue has taken up the work.

A rabbit was exposed to carbon tetrachloride 20 mg per liter for three hours daily for three days. It died on the fifth day. Autopsy showed the lungs to be full of mucopurulent material. The kidneys were injected and had hemorrhagic spots. The intestinal mucosa was injected and red. The stomach was injected and showed some edema. The eyes were reddened and showed evidence of conjunctivitis. There was a beginning central necrosis of the liver.

Eight men were engaged in spraying cellulose cement on the end of liner rolls to be sent to Australia. These men constantly complained of nausea, headache and fatigue at the end of the day. The air was examined and found to contain 0.037 per cent of carbon tetrachloride. This condition was corrected and the spraying was done under a suction hood with a suction floor grating. Later inspection did not reveal any odor of carbon tetrachloride and the men said that conditions were satisfactory and they did not have any further trouble. The men in the cement house experienced the same condition and after correct ventilation was installed, no symptoms were complained of.

One milligram in a liter, 24,450 divided by the molecular weight of carbon tetrachloride, is 153.85, 24,450 divided by 154 is 158.8 the number of parts in a million from 1 mg of carbon tetrachloride.

A guinea-pig was exposed to carbon tetrachloride, 15 mg per liter daily for three days, then 10 mg for four days and finally 300 mg. The guinea-pig died in two and one-half hours. The autopsy showed congestion of the lungs and bronchial tubes, with a serous exudate. The stomach was congested and inflamed. The liver showed mottled areas representing a central necrosis. The kidneys showed a congestion with what appeared to be a cloudy swelling.

From these experiments and examinations of many persons exposed to carbon tetrachloride fumes, it appears that the following symptoms may be caused:

Slight headache  
Nausea In many cases this becomes severe and lasts for several days  
Nervousness  
Mental confusion  
Loss of weight  
Dry dermatitis  
Secondary anemia  
Slight jaundice  
Chronic spasms of muscles  
Necrosis of the liver  
Acidosis  
Phosphaturia and irritative nephritis  
Loss of consciousness  
Coma and death  
Visual disturbances, such as blurred vision, color confusion and disturbance of near vision

Dr L. T. Wirtschaffer of Cleveland has recently reported a number of cases in which a toxic amblyopia was present and states that the examination of the visual fields may be a valuable procedure for the early detection of carbon tetrachloride intoxications. There have been several cases reported in which carbon tetrachloride produced fatty degeneration of the liver, kidneys and heart with a subsequent necrosis. The action of carbon tetrachloride is very similar to that of chloroform except that it is more intense. This is due to the larger amount of hydrochloric acid liberated as it is broken down in the body.

Carbon tetrachloride plus hydrogen plus oxygen plus the influences of the body produce four molecules of hydrochloric acid, plus the oxidation products of carbon, carbon monoxide, and intermediate oxidation products, the most poisonous of which is carbonyl chloride ( $\text{COCl}_2$ ) or phosgene.

Alcohol seems to act as a catalytic agent for carbon tetrachloride and intensifies its action. A person who is under the influence of alcohol when exposed to carbon tetrachloride becomes disoriented and often becomes maniacal.

#### MODES OF ABSORPTION

The modes of absorption of carbon tetrachloride are

- 1 Inhalation of the fumes of carbon tetrachloride
- 2 Alimentary system absorption. Carbon tetrachloride is sometimes given in small doses as a medi-

cament for hookworms and in a short time it is followed by a purge, which prevents much absorption

3 Absorption by the skin and its appendages Dr Alice Hamilton reports a case in which a woman collapsed and died while having her hair shampooed with carbon tetrachloride. How much absorption takes place by the hair is not determined, but I believe that the greatest absorption in this case was due to inhalation, as the heavy fumes gravitated about her nose and mouth. Dr K. O. Møller has recently presented several cases of poisoning as a result of the use of carbon tetrachloride in the hair dressing profession and to any one who is interested in this type of exposure there is much valuable information available.

Carbon tetrachloride extracts the fats from the skin and produces a dry condition, which favors absorption and also initiates a dry dermatitis, causing the skin of the hands to crack. Often this produces avenues for secondary pyogenic infections. This condition can be corrected if the workmen will use oil of theobroma, petrolatum or a good grade of ointment of rose water (nonvanishing cream) on the skin after having used carbon tetrachloride.

As with most volatile substances, the principal avenue of absorption is the respiratory system. The occasional inhalation of small amounts of carbon tetrachloride produces very little effect unless the concentration is very high, and the lower the concentration the less the immediate effects produced. Dilutions of 0.01 per cent show very little effect over a period of six to eight hours, but if this continues daily without intermediate aeration, accumulative effects are shown and chronic carbon tetrachloride poisoning occurs. Concentrations of from 0.1 to 0.5 per cent produce very little effect if only a short exposure is made and not repeated until the next day.

The nausea and vomiting produced by exposure to carbon tetrachloride is due to a central nervous system reaction and not a local gastric one. I recall one case that was very amusing. A man was working on a traveling crane in a low ceiling building in which a mixture of carbon tetrachloride and benzene was being used over heated mandrills. There was enough heat generated to make the carbon tetrachloride very volatile and he was getting the effect of it, with the production of nausea and vomiting. He did not realize that the gastric disturbance was due to the fumes of carbon tetrachloride. When he went on his crane each morning he took a bucket to be used as a receptacle for his vomiting. He later reported to me and his condition was found to be due to the carbon tetrachloride and not to indigestion, as he thought. The condition was remedied at once by proper ventilation and reduction of the amount of carbon tetrachloride used.

If the concentration of the carbon tetrachloride is kept at a minimum and the circulation of air at a maximum, very few symptoms are noticed. A concentration of 0.01 per cent and lower can be tolerated for long periods of time. However, I do not advocate a continued exposure to carbon tetrachloride of low concentrations, for slow absorption produces the chronic stage of the poisoning and the retrograde changes in the liver, kidneys and the hematogenous organs.

#### PREVENTIVE MEASURES

I have always maintained that most volatile and toxic substances can be used if it is necessary, but the method of using the substance must be in perfect accord with the nature of the substance.

Ventilation is one of the most important items. This may be in the form of suction or forced ventilation. The properties of the substance must be known. For example, carbon tetrachloride is heavier than air and seeks the lowest level, therefore the chief part of the ventilation should be suction at the lowest level. If carbon tetrachloride is used in vats, tubs or containers, necessitating removal of the covers, there should be hood ventilation with a baffle plate tube surrounding the top of the container, with sufficient suction to remove the fumes as they arise when the lid is removed. When carbon tetrachloride is used in paints as a solvent, these painting operations should be carried out under a hood with both overhead and floor ventilation. Carbon tetrachloride should not be used to shampoo hair.

The type of personnel employed to work around carbon tetrachloride should be selected. The following types should not work where there is a concentration above 0.01 per cent:

- Very obese persons
- Undernourished persons
- Any one with pulmonary diseases
- Those with gastric ulcers or with a tendency to vomiting
- Persons with hypertrophic or atrophic liver condition
- Those with nephritis or diabetes
- Persons with glandular disturbances especially enlargements of the thymus and the thyroid
- Persons with blood disturbances or myocardial degeneration

Substitution products should be used in place of carbon tetrachloride in all processes in which the change is possible. The workers should be rotated so that one individual has a chance to aerate completely and eliminate the products of carbon tetrachloride decomposition while the other is working.

Frequent examinations should be made with periodic inspection of the processes and determination of the carbon tetrachloride concentrations used. Frequent physical examinations are very valuable as an indication for the removal of a worker from the vapor of carbon tetrachloride. The use of carbon tetrachloride should be confined to closed systems and, if this cannot be done, some other substance should be substituted. Persons who are working with or around carbon tetrachloride should be examined frequently. If after examination any of the following symptoms are elicited, the worker should be removed and placed on a job in which there is plenty of ventilation and fresh air:

- Persistent nausea after having worked in very low concentrations for several eight hour shifts
- Loss of appetite and loss of weight
- A 15 per cent reduction of hemoglobin
- Hyperacidity of the gastric contents
- Hyperacid urine
- Persistent headache after eight hours of rest and aeration
- Decreased blood pressure
- A marked poikilocytosis and anisocytosis

The condition that usually follows nausea and loss of appetite is acidosis, and this is manifested very readily in those who perspire freely. An irritative dermatitis which becomes very annoying develops in the body folds.

While carbon tetrachloride is a very desirable solvent and a diluent for benzene to prevent fire, it is at the same time a very toxic substance even in its purest state. The redeeming feature of the toxicity is the fact that it produces symptoms by very slight absorption, and removal can be made before any serious conditions develop.

# TREATMENT

The treatment of toxicity due to carbon tetrachloride is as follows

- Removal from contact with the substance
- Aeration—fresh air, oxygenated if necessary
- Alkalinization with sodium carbonate, calcium carbonate or intravenous calcium gluconate
- Ingestion of levulose, dextrose and animal fats
- Tincture of digitalis to protect the heart
- Hexylresorcinol for kidney irritation
- Intravenous administration of physiologic solution of sodium chloride and dextrose or Fischer's solution
- Transfusion if necessary, followed by the administration of iron compounds

If any bronchial conditions develop, which is common after the use of certain impure grades of carbon tetrachloride, owing to the free chlorine and carbonyl chloride, inhalations of compound tincture of benzoin and pine needle oil, followed by some soothing syrup containing codeine unless the condition of the kidneys and liver contraindicate it

- Free catharsis
- Forced liquids and starchy foods

Epinephrine should not be used in cases of carbon tetrachloride poisoning if there is a possibility of any myocardial involvement

Carbon tetrachloride is an industrial hazard when the vapor is permitted to escape into the open room and its concentration is constantly above 0.01 per cent. The hazard can be removed by proper ventilation and using the substance in closed systems. Frequent examination of the workers will enable one to rotate them or remove them from contact with the fumes and will prevent the development of any serious condition. Research workers will no doubt provide a nontoxic substitute for carbon tetrachloride or will produce a diluent for benzene or gasoline that will eliminate the hazard.

Supervised selection of individuals to work with this substance will greatly eliminate the hazard. I am of the opinion that a single exposure to carbon tetrachloride in small concentrations does not produce any serious lasting changes, but the daily exposure with the cumulative effect produces very definite pathologic changes which deserve attention. The use of proper ventilation and safety appliances should prevent practically all cases of poisoning except those emergency ones over which there is no control.

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## ABSTRACT OF DISCUSSION

DR C P McCORD, Cincinnati: In my experience about one industrial plant in two will make use of carbon tetrachloride, although in the greater number its use is limited to fire extinguishers. Dr Davis spoke of skin absorption and recognized it as a practical hazard—a practical source of entry. In our animal work we found that carbon tetrachloride readily enters the intact skin. The unshaven skin, to which carbon tetrachloride was applied under conditions that prevented entry by inhalation, promptly led to the characteristic manifestations of carbon tetrachloride poisoning. This means that if animal work may be carried over to human beings, protection against inhalation of carbon tetrachloride may not always be sufficient. Some consideration perhaps should be given to the possibility of entry through the skin. Dr Davis mentioned the respiratory disease involvement in carbon tetrachloride poisoning. In practical work and in experimental work I have often observed a bronchitis and other forms of irritation of the respiratory tract directly resulting from carbon tetrachloride. Carbon tetrachloride may be a contributing factor in pneumonia. The methods for testing carbon tetrachloride in the atmosphere are

difficult. As a rough method of appraising the situation, if carbon tetrachloride odor may be readily detected in any work room it is nearly always true that enough is there to be harmful, particularly if the exposure is long continued. I do not offer that as a precise test but merely as a suggestive one. No discussion of carbon tetrachloride poisoning should fail to mention the work of Lamson and his associates. Although it primarily has to do with the use of carbon tetrachloride in the treatment of hookworm and similar diseases, it furnishes a great deal of information of value to industry.

DR Z T WIRTSCHAFTER, Cleveland: Dr Davis said that the carbon tetrachloride mixtures were nonflammable. It would be well to remember that the evaporation rate of carbon tetrachloride is much greater than that of gasoline. When the mixture evaporates the halogen compound is the first one to escape, with the result that the originally nonflammable substance may now be inflammable. Lamson found that carbon tetrachloride produced a liver necrosis with an increase of guanidine in the blood and a subsequent fall in blood sugar. A lipemia and a cholesterolemia have been shown to be present in carbon tetrachloride poisoning as a result of central necrosis and fatty degeneration of the liver. I too found that men exposed to carbon tetrachloride had blood dextrose concentrations that were at the lower border of the normal and in some cases even below. I also found a toxic amblyopia in all my cases. This bilateral constriction of the peripheral visual fields returned to normal after the men left their work and were put on a high calcium and dextrose diet. The constriction of the color fields is marked even in the mildest case. It is of significance that carbon tetrachloride intoxication can be detected at an early stage by routine perimetric examination of exposed workers.

DR E R HAINHURST, Columbus, Ohio: Few cases of intoxication are reported annually to the Ohio State Health Department. I think there is a reason other than the heavy specific gravity of its vapors, which causes them to fall to the floor. The chief feature of the three cases in our last year's reports was the association with heating the substance, by which its volatility was increased. Several cases occurred recently in one manufacturing company. None lasted over forty-eight hours and the symptoms were those of the digestive tract only and did not amount to much. Three or four years ago however, a school janitor died of liver symptoms four days after he had applied twelve 1-pound cans of wax to a basement gymnasium floor. The wax was dissolved in a mixture of 48 per cent carbon tetrachloride and "turpentine and a light petroleum distillate 52 per cent." This was, of course, a mixed poisoning, a point I wish to make. I think that the admixture of other solvents, particularly of petroleum compounds, increases the danger (similar to alcohol). I don't believe that carbon tetrachloride is used any more as a hair cleanser, although it formerly was. Here it was mixed with other solvents in at least some of the reported cases. But whether pure or not, it should never be used as a shampoo. A recent extensive summary of the hazards of carbon tetrachloride is that by K. B. Lehmann of the Institute of Hygiene, Wurzburg in the *Zentralblatt für Gewerbehygiene* 7 123 (May) 1930.

DR WILLIAM D McNALLY, Chicago: I should like to ask Dr Davis whether he determined the blood calcium in any of these patients. A calcium deficiency is claimed by the plaintiff in these cases. One law firm in Chicago had nineteen such cases. They occurred in a refrigerating organization in which the men were removing grease from a part of the electric refrigerator unit. Probably others in the country have the same problem. We have many cases, because when the heat is generated by electric soldering it evaporates the carbon tetrachloride, and the workers inhale it. An interesting fact about the workers in that particular industry is that if they feel sick they go out and get a sandwich, and it stops all nausea.

DR WILSON G SMILLIE, Boston: Samuel B. Pessoa and I had the first case of carbon tetrachloride poisoning reported in the treatment of hookworm disease. We gave the tetra-

chloride on a plantation in the interior of Brazil and had a very serious time with an alcoholic addict

DR P. A. DAVIS, Akron, Ohio Dr Hayhurst says that the reason he hasn't got so many reports is that there aren't so many cases and that the small amount of tetrachloride required to produce nausea brings the individual to the hospital to find out the cause. If a man employed in a department using carbon tetrachloride states that he cannot keep his breakfast down, an alert physician immediately knows that the man is absorbing too much carbon tetrachloride. If he is removed from the job he will be all right in twenty-four hours. On determining the blood calcium I have found that it has decreased in every case. In cases of headache, nausea or vomiting, complete aeration for from twenty minutes to two or three hours will bring about improvement, and a disappearance of symptoms in four or five hours. My plea is Don't expose workers day in and day out until an accumulation is built up, leading to an acidosis, a central necrosis or beginning necrosis of the liver. It is too late then, and the men must be given compensation, and the more men you put on compensation, the less valuable one is to one's company.

## SONNE DYSENTERY

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Sonne dysentery is an inflammatory condition of the small and large intestine characterized by a bloody and mucoid diarrhea accompanied by colic, having a short incubation period and being of a relatively nontoxic type. The disease is caused by the *Bacillus dysenteriae* of Sonne, which has many points of clinical, cultural and agglutination similarity to the organism causing the Flexner type of dysentery, for which it is often mistaken.

Our purpose in this communication is to present the general subject of Sonne dysentery and the detailed clinical, bacteriologic and experimental studies of a recent outbreak. The disease has been practically unknown in the United States. There is reason for believing, however, that this distinctive type of dysentery has been overlooked, that it is endemic in many parts of this country, that it can assume epidemic proportions and that there is a possible connection with certain intestinal and arthritic diseases of obscure origin.

Although other investigators, notably Duval and Shorrer,<sup>1</sup> described an organism similar to the bacillus of Sonne in diarrheal disease, the latter investigator<sup>2</sup> in 1915 was the first to establish a definite etiologic relationship to dysentery. Since then reports have appeared from various parts of the world (France, Denmark, Norway, Sweden, Japan, Scotland, England, Australia, South Africa, Canada and the United States) Bamforth<sup>3</sup> and Smith<sup>4</sup> in 1924 described the organism as a cause of enterocolitis in England, and Channon<sup>5</sup> in 1925 recovered the bacillus from a patient who had previously had dysentery in Egypt. The first report of

the disease in South Africa appeared in 1930, when Buchanan and Rau<sup>6</sup> described five cases. In Canada, Johnston and Brown<sup>7</sup> in 1931 described twenty cases of Sonne infection in a series of 175 children suffering from intestinal intoxication or infectious diarrhea. Since 1929 several reports have appeared in the United States, notably the outbreaks described by Gilbert and Coleman<sup>8</sup> in 1929, Nelson<sup>9</sup> in 1931, Silverman<sup>10</sup> in 1932, Welch and Mickle in 1932<sup>11</sup> and Soule and Heyman<sup>12</sup> in 1933.

### GENERAL CLINICAL FEATURES

**Age Incidence**—In the majority of cases, those affected have been children under 10 years of age. It is surprising, however, with the limited literature at our disposal to note the number of adults affected.<sup>13</sup> It appears quite probable that under proper conditions of medical and laboratory control an increase in the frequency of the disease in adults will be noted, for with few exceptions, adult cases have been detected only during the course of an epidemiologic survey. The mildness of the symptoms in older people, as thus far encountered, probably accounts for the infrequency of diagnosis. This point will again be stressed in discussing the carrier problem, in explaining the endemic nature of the disease and in noting the severity of the disease in outbreaks of epidemic nature.

**Seasonal Incidence**—There is no definite seasonal incidence. The disease may occur in endemic or epidemic form at any time, though most of the large outbreaks have been in winter.

**Social Aspects**—Except when the disease has started in hospital wards, it appears to be most prevalent among the poorer classes. Being essentially a contact infection, it frequently affects many members of the same family. In our studies positive cultures were obtained in all three children of one family, including the patient to whom the outbreak was finally traced. The importance of general good hygiene and sanitation is stressed by the observations of Fyfe, who reported an epidemic affecting 150 persons. This was a milk-borne outbreak started by a dairyman's wife. The cases reported by Gilbert and Coleman in New York State included five occurring in a city during an out-

6 Buchanan G and Rau P. The Sonne Type of Dysentery in South Africa. *J. M. A. South Africa* 4: 685 (Nov. 22) 1930.

7 Johnston M. M. and Brown A. Cases of Intestinal Intoxication in Children Attributed to *B. Dysenteriae* Sonne. *Canad. M. A. J.* 24: 364 (March) 1931.

8 Gilbert R. and Coleman M. B. Cases of Dysentery in New York State Attributed to *B. Dysenteriae* Sonne. *Am. J. Pub. Health* 19: 312 (March) 1929.

9 Nelson R. L. Sonne Dysentery. A Report of Thirty Cases of Dysentery in Children Caused by *B. Dysenteriae* Sonne. *Am. J. Dis. Child* 41: 15 (Jan.) 1931.

10 Silverman D. N. Occurrence and Significance of Certain Strains of *B. Dysenteriae* in Bacillary Dysentery in New Orleans Area. *Proc. Soc. Exper. Biol. & Med.* 29: 664 (Feb.) 1932.

11 Welch H. and Mickle F. L. Bacteriological and Antigenic Analysis of *Shigella* Paratyphenteriae Sonne Isolated from 9 Cases. *Am. J. Pub. Health* 22: 263 (March) 1932.

12 Soule M. H. and Heyman A. M. Bacteriologic and Serologic Study of 89 Cases of Dysentery in Which *B. Dysenteriae* Flexner and *B. Dysenteriae* Sonne Were Isolated as Causative Agents. *J. Lab. & Clin. Med.* 18: 549 (March) 1933.

13 Some of the reported cases include

MacGill J. S. and Downie A. W. Sonne Dysentery in an Industrial Town. *Lancet* 2: 29 (July 2) 1932.

Cann L. W. and de Navasques S. Epidemic Dysentery in Nursing Staff Due to *B. Dysenteriae* Sonne. *J. Hyg.* 31: 361-372 (July) 1931.

Wiseman W. R. cited by Johnston and Brown.

Richards R. Bacillary Dysentery in Aberdeen. *Brit. J. Child Dis.* 24: 31 (Jan. March) 1927.

Fyfe G. M. Milk Borne Sonne Dysentery. *J. Hyg.* 26: 271 (Aug.) 1927.

Clayton F. H. A. and Hunter J. W. Infection with *B. Dysenteriae* Sonne. Fatal Case Involving Small Intestine and Simulating Food Poisoning. *Lancet* 2: 649 (Sept. 29) 1928.

Johnston and Brown.

Nelson.

Fraser A. M., Kinloch J. P. and Smith J. Sonne Dysentery in Aberdeen. *J. Hyg.* 25: 453 (Nov.) 1926.

From the Departments of Laboratories and Medical Research the Bronx Hospital.

1 Duval C. W. and Shorrer E. H. Report on Studies of Diarrheal Diseases of Infancy. Studies from the Rockefeller Institute of Medical Research 2: 42 1904.

2 Sonne Carl. Neber die Bakteriologie der Giftarmen Dysenteric bacillen. *Centralbl. f. Bakt. Org.* 75: 408 1915.

3 Bamforth J. Small Outbreak of Dysentery Associated with Unusual Bacillus. *J. Hyg.* 22: 343 (March) 1924.

4 Smith J. Enteritis Due to *B. Dysenteriae* Sonne. *J. Hyg.* 23: 94 (Sept.) 1924.

5 Channon cited by Clayton F. H. A. A Case of Sonne Dysentery in England. *Lancet* 1: 391 (Feb. 19) 1927.

break of intestinal disorders associated with a polluted water supply

**Symptomatology**—From the standpoint of symptomatology, Sonne dysentery may be divided into three main types

**1 Symptomless Type** In this group the diagnosis is made incidental to an epidemiologic survey and no history of indisposition, fever or diarrhea can be obtained. The fecal cultures or agglutination tests are positive and the individual concerned can definitely be ruled out as a carrier. In borderline cases only the most careful questioning will elicit a doubtful history of a few loose bowel movements but no other symptoms. Sometimes a history of a transient attack of "food poisoning" resembling *Salmonella* infection may be obtained. It is quite possible, too, that some of the cases of toxic arthritis of unknown etiology, but known to occur in Flexner and Shiga dysentery, fall in this group. Arthritis occurring in dysentery is of particular interest, too, as bearing a possible relationship to a similar condition quite frequently seen in idiopathic ulcerative colitis, for it is generally admitted that the latter disease, in some cases at least, may be the aftermath of an undiagnosed bacillary dysentery or a recognized type in which the specific organisms and the agglutination titer have disappeared.

At least three of our cases fall in this group

**CASE 1**—B S., aged 7½ years, operated on for mastoiditis and sinus thrombosis, during an uneventful convalescence had a soft bowel movement of which a culture was made and found to be positive. There were no symptoms referable to the intestinal tract, no rise in temperature or diarrhea. The duration of the illness was one day.

**CASE 2**—S T., aged 2 years, convalescing from pneumonia, had two loose stools with mucus on the first day and three loose greenish stools on the second day. There were no other signs or symptoms and no change in temperature, which had been ranging between 99 and 100 F. The duration of the illness was two days.

**CASE 3**—I S., aged 10 years, operated on for acute appendicitis with subsequent uneventful recovery, had four loose bowel movements nine days after operation and on the following four days five, one, three and one. There were no constitutional symptoms and no rise in temperature. The duration of the illness was five days.

**2 Mild Type** Most of the reported cases in older children and adults have been mild. This is the characteristic form of the disease as generally encountered up to the present, thus marking it off at once clinically from the Shiga and Flexner types. The distinguishing clinical features are the shorter duration and a lessened tendency to pyrexia, tenesmus and profuse bloody stools than the other forms of dysentery. The onset is generally without noteworthy prodromal symptoms other than slight lassitude or anorexia. The only symptoms may be a mild diarrhea with mucus, soft greenish diarrheal or watery bowel movements and a little abdominal discomfort. There may be little or no rise in temperature. The stools vary from three to eight or more per day and usually contain specks or larger quantities of bright red blood. The surprising fact is the well being of the patient, who complains little or not at all. After a period varying from a few days to perhaps two weeks the bowel movements gradually subside, the feces become well formed, and the disease appears to be at an end. There are generally no bad after effects, no noticeable prostration and no pronounced anorexia or loss in weight. Practically all of our cases among children fell in the mild group. The

majority of our patients could be grouped under the mild type of the disease. The following are examples

**CASE 4**—M S., a girl, aged 8 years, admitted with dysentery which was incorrectly diagnosed as acute appendicitis, complained of pain in the right loin radiating to the umbilicus of one day's duration. This was accompanied by anorexia, headache and three attacks of vomiting. There was some tenderness over McBurney's point and in the right loin. The urine contained some albumin. The total leukocyte count was 4,000 per cubic millimeter with a normal differential. The admission temperature was 101.2. At operation there was found a quite normal appendix but an enlarged mesenteric lymph node. Pathologic examination revealed moderate lymphoid hyperplasia of the solitary nodules in the appendix and marked lymphoid hyperplasia in the node, but no necrosis. On the day of admission there were many bowel movements and on subsequent days they varied from three to nine, the average being seven. During the first three days, bright red blood was present. The postoperative temperature varied from 98.6 to 100 F. The patient served as the focus of dissemination in the outbreak and was followed up for four months. The positive fecal cultures and high agglutination titers of the serum continued for approximately four months.

Several points are noteworthy with regard to this case. At least two other instances of Sonne dysentery being mistaken for appendicitis are reported in the literature.<sup>14</sup> The misleading symptoms suggesting appendicitis and the mesenteric adenitis are due to the marked lymphoid hyperplasia seen in Sonne dysentery. This is most evident in the region of the ileocecal valve, where edema and a ring of lymphoid hyperplasia may be noted. This, as well as mesenteric adenitis, have already been described by other investigators.<sup>15</sup> Evans made special note of the enlarged nodes at the ileocecal angle. The other features of case 4 are the low total leukocyte count and the unusual persistence of positive cultures. Those in the other two children of the family did not remain positive quite so long. Fecal cultures in Sonne dysentery usually do not remain positive for more than one to three weeks, which practically excludes the possibility of the carrier problem in this disease. The duration of the illness was approximately two weeks.

**CASE 5**—R W., aged 8 years, developed dysentery after the resolution of a lobar pneumonia. Without any prodromal symptoms there occurred a sudden rise in temperature from 98.2 to 103.6 F. On the same day there were four loose watery, bloody bowel movements containing some mucus. The temperature dropped on the following day to 99 and remained at that level for the next five days, when there were five, five, five, two and one bowel movement. The duration of the illness was six days.

**CASE 6**—G M., aged 10 years, was convalescing from lobar pneumonia. Except for slight abdominal cramps, the onset was sudden with no prodromal symptoms. Six diarrheal movements with blood and mucus occurred on the first day and were accompanied by a rise in temperature from 100 to 104 F. The average on the subsequent four days was three stools. The duration of the illness was five days.

**CASE 7**—P H., aged 14 months, convalescing from bronchopneumonia had a sudden onset with vomiting. Six foul, green, watery bowel movements containing mucus occurred on the first day. There was a slight rise in temperature from 99 to 100 F, with a prompt drop to 99 on the second day, where it remained except for a recrudescence to 101.4 on the fifth day. There were no constitutional symptoms. The bowel movements varied from one to nine a day, the average being five. The duration of the illness was twenty-six days. This case is noteworthy because of the long duration of active symptoms. Sonne dysentery is apt to manifest its gravest form in infants.

**3 Severe Type** The onset is sudden and suggestive of a severe Flexner infection with abdominal pain, and diarrheal stools containing mucus and blood. Vomiting may be severe, accompanied by profound pros-

<sup>14</sup> Clayton & Nelson.

<sup>15</sup> Harvey E. Dysentery as a Cause of Sudden Death. *Lancet* 1: 190 (Jan. 28) 1933. Evans W. H. Fulminating Dysentery in Child, *Cau ed by B. Dysenteriae Sonne Brit M J* 2: 96 (July 21) 1928.



tration Some of these cases are mistaken for "food poisoning" Anorexia is marked Dehydration and acidosis are prominent features, especially in infants The temperature remains quite high for several days, reaching 104 or 105 F The drop to normal generally coincides with the cessation of diarrhea and improvement of subjective symptoms This type is apt to occur in infants during epidemics Our severest cases were encountered, however, in adults and, though of very short duration, were characterized by sudden onset, profound prostration and severe bloody diarrhea lasting one or two days This was quite striking, as the cases occurred at the height of the outbreak among the children who appeared to be remarkably well It points to the strange vagaries of Sonne dysentery Of course we

were four loose stools containing mucus The pyrexia gradually reached 104 on the third day and then fell to 99 on the sixth The maximum daily stools were six The duration of the illness was six days

EPIDEMIOLOGIC STUDY OF HOSPITAL OUTBREAK

The following data concern an epidemiologic study made of an outbreak of Sonne dysentery which occurred at the Bronx Hospital during the latter part of December 1933 and January 1934

The existence of an unusual intestinal disturbance among hospital patients first came to the attention of the senior author when a member of the intern staff asked for an opinion on a warm wet smear made from the feces of a patient in the children's ward He had been endeavoring to find *Endamoeba histolytica* On questioning, it was ascertained that the child whose specimen he was examining had had several diarrheal stools with blood and mucus The absence of *Endamoeba*, the search for which the intern had pursued with commendable zeal, and the presence of what appeared to be an acute intestinal condition aroused our interest It was soon discovered, after careful inquiry, that there had been and still were a number of other cases of unexplained diarrhea in the children's ward Careful laboratory and clinical studies convinced us that we were dealing with an inflammatory condition of the intestine, characterized by a bloody and mucoid diarrhea accompanied by colic, of the nonamebic type, having a short incubation period, and of a relatively nontoxic type We ventured the diagnosis of Flexner dysentery and advised that the matter be taken in hand before it spread through the entire hospital Indeed, within a few days we discovered that approximately twenty men on the engineer's staff had come down with diarrhea, three or four of them bloody, that four or five men on the housekeeper's staff had been similarly affected and, most important of all, a member of the kitchen staff was involved At first glance, the problem appeared simple and clear cut, i e., that the outbreak had been started by this member of the kitchen staff, but repeated cultural and agglutination tests were negative for *B dysenteriae*, all types While this did not conclusively rule out this individual as being a focus of dissemination, it appeared advisable to seek elsewhere for more positive evidence It was soon found in the person of a little girl, M S, who had been admitted to the surgical service for an acute appendicitis We ascertained, however, that on the day of admission she had had cramps and diarrhea Her appendix was removed the following day, but the diarrhea persisted (varying from three to nine movements a day), the feces showing bright red blood on two days On the day of her discharge, eight days after operation, she still was having eight stools a day At the time of the inquiry, this little patient had already been home for eight weeks We succeeded, however, in obtaining fecal specimens from the patient during the tenth week and also from the two other children in the family All were positive culturally for the *B dysenteriae* of Sonne<sup>16</sup> We could not explain, however, to our own satisfaction, the interval between the discharge of this little girl (October 18) and the occurrence of dysentery in the other children during the latter part of December We felt that other cases must have filled the intervening

16 We could not definitely ascertain the source of infection in the child who served as the focus of dissemination Both parents proved negative on repeated examination The father however who was a traveling salesman had experienced a bloody stool four months previously which he had attributed to hemorrhoids There were no domestic animals in the family, and no relatives affected nor had the child been away from home

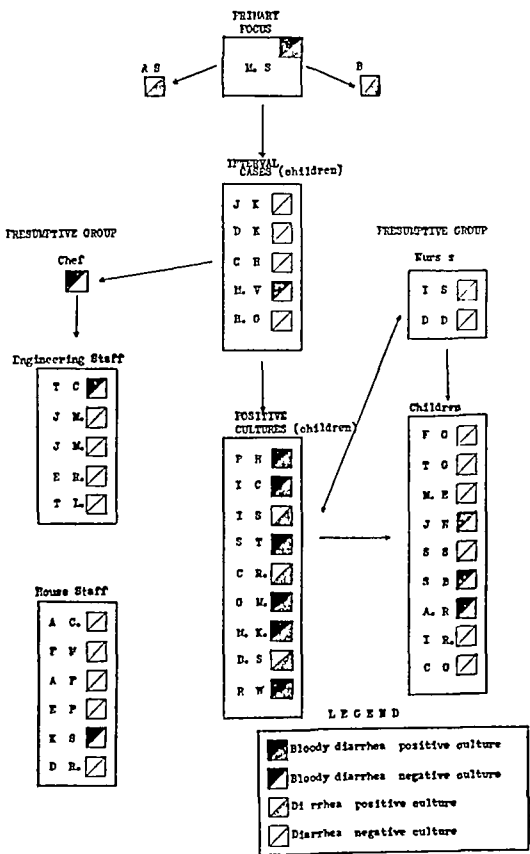


Chart 1—Epidemiologic survey of an outbreak of Sonne dysentery

cannot predicate our statement on actual cultural and serologic proof, since we learned of the adult cases too late to permit of accurate study Moreover, the bacterial and agglutination criteria of Sonne dysentery are very transitory and irregular, as pointed out by MacGill and Downie, and do not appear to be related to the severity of the disease Fraser, Kinloch and Smith<sup>13</sup> made similar observations and paralleled their observations with the clinical aspects It might be added that the adult cases were erroneously regarded as due to "food poisoning," and the symptoms were believed to have occurred shortly after the evening meal The two patients who showed ulcerative lesions by sigmoidoscopy belong to this group

Among the children, the following case is of interest

CASE 8—C R, aged 5 years recuperating from an injury but feeling perfectly well otherwise, gradually developed a marked apathy and anorexia At about the same time there occurred a rise in temperature to 101 F and on this day there

gap and accordingly had the charts for all children admitted to the hospital from October 15 to December 15 reexamined and were rewarded by discovering five obvious cases of dysentery from November 3 to December 15. One of these children, M V, had had a bloody diarrhea.

The ward was quarantined and we commenced an intensive survey of the nursing staff, kitchen help, engineering staff and all possible contacts. Cultures were taken of all food, both boiled and unboiled. The one kitchen suspect was relieved of responsible duties. The results of these studies may be summarized as follows:

Eleven children showed positive cultures for *B. dysenteriae* Sonne. Eight other children, three of them having had bloody stools, were diagnosed clinically as having bacillary dysentery, even though we could not prove it either by cultural or by agglutination tests. The probability of accurate diagnosis in this group on clinical evidence alone is apparent, however, from certain known facts already mentioned with regard to the Sonne type of dysentery. Similarly, fifteen members of the engineer's staff fell in the same group, i. e., culturally and agglutination free, except for a questionable organism in one case. Two of this group had bloody diarrhea and of these, one (K S) showed several superficial small follicular healing ulcers at the recto-sigmoid. Another (J M), who had not noted any blood in the diarrheal stool, showed two follicular lesions, one surrounded by an inflammatory vascular caput medusae. Two nurses in the children's ward had had diarrhea and could with reasonable certainty be included in the presumptive group. The member of the kitchen staff who had had a severe diarrhea was similarly classified. All of these cases occurred between December 18 and January 4, except the interval group, which covered the period between the first case (M S) in October and the time the outbreak was recognized in the latter part of December. Through proper isolation measures further spread of the disease was prevented, and by the end of January the outbreak was definitely terminated. The total number of persons involved was forty.

The short and relatively mild course of the disease and the limited period during which cultural and agglutination studies proved to be positive account for the fact that many of these cases were unrecognized, even when hospitalization took place before the inception of the disease, as occurred at the Bronx Hospital. It is of interest to note that at the time of this outbreak it was ascertained that a similar condition appeared to prevail at other hospitals in this section of the city. The clinical aspects were very similar to those described in this paper. The transitory and relatively benign character of the Sonne dysentery in our patients is evidenced by the fact that in some children the diarrhea lasted only from twenty-four to forty-eight hours and in none was it accompanied by any marked constitutional symptoms, by dehydration or by more than a slight rise in temperature. It is quite probable however, that in epidemic form the clinical and laboratory picture might be intensified, the virulence being enhanced by repeated passage through many human contacts. The mildness of the disease and missed cases in the outbreak reported brings up the question of the carrier problem. Ritchie, in a study of 792 normal serums, found that 30 per cent agglutinated Shiga strains in a dilution of 1:32, and that 41 per cent agglutinated Flexner strains in a dilu-

tion of 1:64 and 30 per cent in 1:128. This does not appear to be true for *B. dysenteriae* Sonne, but an increased incidence of the disease in this country may alter this fact.

We were able to make a sigmoidoscopic study of only a limited number of adults in the presumptive group (diarrhea with or without blood). Two cases showed ulceration of the mucosa with inflammatory reaction. In most of the cases with positive cultures there was probably only a reddening of the mucosa or very superficial and slight ulceration to account for the bleeding. We predicate this assumption on the experimental data in rabbits. We injected rabbits intravenously with pure cultures of the Sonne organism recovered from our cases. In some of the animals it took as much as 8 cc of a heavy suspension to produce diarrhea, and the organisms were recovered in the animals' feces. Post-mortem examination revealed only a slight edema of the intestinal mucosa, localized patches of hyperemia (chiefly in the colon), but no ulceration. These results were confirmed by microscopic section. It is of interest to note that almost all the rabbits survived the heavy inoculations, it being necessary to kill them for the pathologic studies. Their survival corresponds to the mild clinical course observed in our studies. Flexner in 1906 called attention to the fact that in bacillary dysentery the intestinal lesions are due to the excretion of dysentery toxin through the bowel wall rather than to any local action of the bacteria. He was able to produce the characteristic intestinal lesions in rabbits by the intravenous injection of the toxic autolysate. Experimentally, we may state that in the Sonne organisms studied by us neither the toxin nor the bacillus produced ulcerations in the rabbit's bowel, though the organisms injected intravenously were recovered in the feces. It is quite probable that the mucus observed in the stools in all our diarrheal cases was sufficient to protect the mucous membrane of the intestine against the relatively nontoxic Sonne strain.

#### CULTURAL, IMMUNOLOGIC AND ANIMAL STUDIES

*Method of Isolating Organisms*—Fresh fecal suspensions were streaked on Endo plates and incubated overnight. When the presence of colorless colonies typical of the typhoid-dysentery group were noted, single colonies were restreaked on this medium. After we confirmed the presence of the suggestive organisms, single colonies were inoculated into sterile broth ( $p_H$  7.8). From these broth cultures inoculations were made on Russell double sugar and plain agar slants ( $p_H$  7.4). Although the combined use of these differential mediums allowed for tentative classification of the organisms among the typhoid-dysentery group, more extensive fermentation tests were carried out.

*Fermentation Tests*—Inoculations were made into sterile broth containing 2 per cent of the specified carbohydrates with litmus as an indicator. One-tenth cubic centimeter of an eighteen hour culture was used as the inoculum for each tube and readings were taken after forty-eight hours' incubation. The tubes were replaced in the incubator because it was noticed that some of the strains produced acid in lactose after prolonged incubation (delayed lactose fermentation). This characteristic was not constant. Tests for indole production were made in peptone water cultures that had been incubated for five days.

*Morphology*—The organisms are short bacilli, 3 microns in length and 0.5 micron in width, with parallel sides and rounded edges. There was a slight variation

from this modal form in some of the cultures but not to any great degree. None of the organisms are motile and all are gram negative.

**Type of Growth**—The organisms grow well on all ordinary mediums. Twenty-four hour cultures on agar plates of all the isolated strains vary but slightly from the following description. The colonies are circular, raised, convex, smooth and colorless. They are about

TABLE 1—Cultural Characteristics of Organisms Isolated from Positive Cases (Sonne Dysentery)\*

Patient	Endo Plate	Motility	Russell's Double Sugar	Dextrose	Galactose	Lactose	Maltose	Mannite	Saline	Sucrose	Indole
P H	+	0	Acid Butt	A	A	0	A	A	0	0	0
I C	+	0	Acid Butt	A	A	0	A	A	0	0	0
I S	+	0	Acid Butt	A	A	0	A	A	0	0	+
M S	+	0	Acid Butt	A	A	0	A	A	0	0	+
S T	+	0	Acid Butt	A	A	0	A	A	0	0	0
B S	+	0	Acid Butt	A	A	0	A	A	0	0	+
C R	+	0	Acid Butt	A	A	0	A	A	0	0	0
G M	+	0	Acid Butt	A	A	0	A	A	0	0	0
M K	+	0	Acid Butt	A	A	0	A	A	0	0	0
B S	+	0	Acid Butt	A	A	0	A	A	0	0	+
R W	+	0	Acid Butt	A	A	0	A	A	0	0	+

\* The colonies on twenty four hour agar plates measure from 1 to 3 mm and are circular raised, convex smooth and colorless. The organisms are short, Gram negative bacilli with parallel sides. Variations in indole production by *B. dysenteriae* Sonne have been noted by many investigators. A denotes acid.

from 1 to 3 mm in diameter and have a butyroid consistency. There is a slight tendency to roughness, which is lost in a few transfers. In broth, there is usually an abundant growth with uniform turbidity.

About thirty organisms that were isolated from patients were tested. However, many of them which were not included in table 1 gave late fermentation of lactose with the production of gas. The other sugars showed early formation of acid and gas. These strains, which were gram negative, showed the presence of a capsule, and because of their action on the carbohydrates we concluded that they were *Bacterium aerogenes*. The organisms listed in table 1 gave uniform reactions in the sugars, except for one detail: a few of them, after prolonged incubation, showed a slight acid production in lactose. This was not noted in all the strains and the acid production was not very strong. Otherwise the strains all fermented dextrose, galactose, maltose and mannite with the production of acid.

With these data in hand we were able definitely to include these organisms among the dysentery group. To determine which member of this group was involved, we decided to study the organism serologically. Because of the mannite fermentation and the irregular indole production, we thought the causative agent belonged to the Flexner type of dysentery organisms.

#### AGGLUTINATION STUDIES

**Preparation of Immune Serums**—Rabbits were immunized to the following organisms: *B. dysenteriae* Shiga, *B. dysenteriae* Flexner Y, *B. dysenteriae* Sonne, *B. dysenteriae* Mount Desert, and the organism isolated from patient I C. Eighteen hour agar cultures were emulsified in 0.85 per cent saline solution and the emulsions were treated with 0.5 per cent solution of formaldehyde. The formaldehyde treated suspensions, tested for sterility, were injected into rabbits on three successive days. The animals were allowed to rest four days

and the immunization process was repeated. After each rabbit had received a total of twelve injections, seven days elapsed before a trial bleeding was resorted to. When the serums contained antibodies to sufficiently high titer, the rabbits were bled to death from the carotid artery.

**Agglutination Tests**—Serial dilutions of the serums were made and to 0.5 cc of the diluted serum, 0.5 cc of an eighteen hour broth culture ( $p_H$  7.0) was added. Suitable controls were used and the mixtures were incubated at from 52 to 55 C for four hours. Readings were taken and the tubes were refrigerated over night. Final readings were taken after the tubes had been placed in the refrigerator over night.

Using the immune serums obtained by the methods described, we performed agglutination tests with all the suspected organisms with the results listed in table 2.

In each case, agglutination with the anti-Sonne serum gave the highest titer and most consistent results. That some degree of agglutination did occur with the other serums can best be explained only by the heterogeneity of the dysentery group of micro-organisms fermenting mannite. This heterogeneity is manifested in the agglutination of *B. dysenteriae* Sonne with the anti-Flexner and anti-Shiga serums. The titer in this group agglutination is not as high, however, as with the homologous organism. From these agglutination and fermentation reactions, we felt justified in concluding that the organism we were dealing with was *B. dysenteriae* Sonne.

Of further interest are the results of the cross agglutination obtained with these strains. It shall suffice to state that serum obtained from patient P H was able to agglutinate the strain isolated from G M to a titer as high as 1:400. Further, a serum obtained by immunizing a rabbit with the strain from G M was able to agglutinate all the other strains listed in the table. All

TABLE 2—Agglutination Tests with Organisms Isolated from Positive Cases\*

Patient	Immune Serums			
	Anti Shiga	Anti Flexner	Anti Sonne	Anti Mount Desert
P H	0	0	1:320	0
I C	0	0	1:320	1:50
I S	1:160	1:160	1:320	1:100
M S	1:160	1:40	1:320	
S T	1:320	0	1:640	
G M	0	0	1:640	
B S	1:20	1:40	1:640	1:200
C R	0	0	1:320	
M K	0	0	1:320	
B S	0	0	1:320	
R W	1:40	1:20	1:640	

\* This table shows the agglutination titers reached by the patient's organism in the presence of the known serums. The numbers represent the highest dilution of the serum in which complete agglutination occurred.

the strains were agglutinated to practically the same titer. When one organism is agglutinated by a serum prepared against another organism and when the process can be reversed with similar results, these two agglutination tests constitute the "mirror test." This test is used to establish definitely the identity of two or more strains. The fact that we were able to perform this "mirror test" with all our strains greatly strengthens our conclusion that all the strains listed in table 2 were *B. dysenteriae* Sonne.

In a previous section we mentioned certain strains which were isolated and which because of their actions

on sugars we identified as *Bacterium aerogenes*. We attempted to agglutinate these strains with the known antiserums, but in no case was any clumping perceptible. These tests thus served as suitable controls for the other strains and provided a clear-cut differentiation between the *B. dysenteriae* Sonne organisms and *Bacterium aerogenes*.

**Pathogenicity**—Live cultures of the Sonne organisms recovered from the patients were injected into rabbits with the following results

**RABBIT 1**—Injected intravenously with 4 cc. of a forty-eight hour culture of strain G M. Twenty-four hours later the rabbit showed a profuse bloody diarrhea and the injected organism was recovered from the fecal material. The rabbit was killed two days after the injection and the gastro-intestinal tract was searched for ulcers. None were found.

**RABBIT 65**—Injected intravenously with 2 cc. of an eighteen hour culture with strain G M. The next day the animal showed signs of diarrhea. This rabbit lived for weeks after the injection, but a fecal culture seventy-two hours after the injection yielded strain G M.

**RABBIT 78**—Injected intravenously with 2 cc. of an eighteen hour culture of strain G M. In forty-eight hours after the injection there were signs of collapse and bloody diarrhea. The animal was killed three days after the injection and although the feces contained the injected organism, no evidence of ulcer formation could be seen.

**RABBIT 7**—Injected intravenously with 8 cc. of an eighteen hour culture of strain B S. A profuse diarrhea ensued and culture of the intestinal contents yielded the injected organism.



Chart 2—Antigenic heterogeneity of mannite fermenting group of dysentery organisms. This shows the heterogeneity of the Flexner group and the presence of all the antigenic factors in Flexner Y. The presence of *B. dysenteriae* Sonne antigen in all the Flexner strains demonstrates the possibility of agglutinating *B. dysenteriae* Sonne in immune Flexner serum. The reverse however is not possible.

The rabbit died in twenty-four hours and postmortem examination showed a hyperemia and congestion of the small and large intestine. No ulcers were seen.

**RABBIT 13**—Injected intravenously with 4 cc. of an eighteen hour culture of strain B S. The animal died in twenty-four hours with a profuse diarrhea. Intestinal ulcers could not be found, but the strain injected was recovered from the feces.

Attempts to reproduce the disease by feeding live cultures were repeated without success. This confirms the well known fact that bacillary dysentery cannot be reproduced experimentally in animals by oral administration of the causative organism.

#### CONCLUSIONS

1 Sonne dysentery chiefly affects children and is characterized by a short incubation period, brief course and general mildness.

2 The disease exists in endemic and epidemic form in the United States.

3 With increasing incidence it is expected that the general character of the disease will change and, in epidemic form, affect more adults and cause a higher degree of mortality in children.

4 Sonne dysentery is a contact infection and outbreaks can be terminated by proper epidemiologic measures.

5 The effects of high titer serums in patients and of specific vaccines in contact cases are now being studied.

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## THE DIAGNOSIS AND TREATMENT OF PULMONARY ABSCESS IN CHILDREN

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DURHAM, N. C.

Pulmonary abscess is not diagnosed as frequently in children as in adults probably because it occurs less commonly and is more difficult to differentiate from other pulmonary infections. Among 2,250 cases of lung abscess collected from the American literature, only fifty-nine were in infants and children.<sup>1</sup> Unquestionably the disease occurs more often than these figures indicated, since a majority of the clinics reporting cases did not treat children. Among 2,119 patients admitted to the pediatric service of the Duke Hospital seven had pulmonary abscess. An analysis of 172 consecutive cases of lung abscess by Flick and his co-workers<sup>11</sup> showed 64 per cent in the first decade, 10.5 per cent in the second, 27.9 per cent in the third, 30.8 per cent in the fourth, 18.6 per cent in the fifth, 3.6 per cent in the sixth and 2.3 per cent in the seventh decade of life.

Multiple embolic abscesses of the lung, which present themselves during a general septicemia, are regarded as an integral part of the septic disease and will not be discussed in this article.

The thirty-nine cases collected from the literature, supplemented by six previously reported from the Duke Hospital,<sup>2</sup> have been analyzed for predisposing causes. Among these forty-five cases twenty-four followed pneumonia, thirteen followed tonsillectomy, one followed aspiration of a foreign body, one followed exposure, and one followed aspiration of a membrane in a case of Vincent's angina.

There are four possible routes by which the infecting material may reach the lung. It may be introduced directly by a penetrating wound, it may drain in through the lymphatics, it may enter through the blood stream as an embolus, or it may be aspirated. There was no evidence in any of the cases studied that the material entered by either of the first two routes. Cutler and his co-workers<sup>3</sup> believe that most, if not all, of the abscesses following operations are embolic in origin. Certainly those following aspiration of a foreign body must reach the lungs through the air passages and those that follow pneumonia are logically explained by the same mechanism. Abscesses that follow operation in sterile fields, which remain sterile, are best explained by the aspiration of infected material while the patient is under an anesthetic. It is my opinion that the majority of the cases which follow operations on the tonsils and other structures in the upper respiratory tract are also due to simple aspiration.

From the Duke University School of Medicine.

Read before the Section on Pediatrics at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

1 (a) Eisendrath, D. M. The Surgery of Pulmonary Abscess, Gangrene and Bronchiectasis Following Pneumonia. Philadelphia, M. J. 8: 706 (Nov.) 1901. (b) Kline, B. S. and Berger, S. S. Pulmonary Abscess and Pulmonary Gangrene. Arch. Surg. 18: 481 (Jan. part 2) 1929. (c) Wessler, Harry and Schwarz, Herman. Abscess of the Lungs in Infants and Children. Am. J. Dis. Child. 19: 137 (Jan.) 1920. (d) Lockwood, A. L. Abscess of the Lung. Surg. Gynec. & Obst. 35: 461 (Oct.) 1922. (e) Hedblom, C. A. The Surgical Treatment of Acute Pulmonary Abscess and Chronic Pulmonary Suppuration. J. A. M. A. 83: 1577 (Nov. 15) 1924. (f) Flick, J. B., Clerk, L. H., Funk, E. H. and Farrell, J. T. Pulmonary Abscess. Arch. Surg. 19: 1292 (Dec. part 2) 1929.

2 Smith, D. T. and McBryde, A. M. Pulmonary Abscess in Children. South. M. J. 26: 686 (Aug.) 1933.

3 Cutler, E. C. and Hunt, A. M. Postoperative Pulmonary Complications. Arch. Surg. 1: 114 (July) 1920. Postoperative Pulmonary Complications. Arch. Int. Med. 29: 449 (April) 1922. Cutler, E. C. The Etiology of Postoperative Pulmonary Complications. S. Clin. North America 2: 935 (Aug.) 1922.

The facility with which material from the mouth and pharynx is aspirated into the lungs has been demonstrated in the past few years by numerous investigators. Mullins and Ryder,<sup>4</sup> Corper<sup>5</sup> and Lemon<sup>6</sup> have shown that normal unanesthetized rabbits readily aspirate foreign material from the pharynx into the lungs when held on their backs with the head elevated. By bronchoscopic examination immediately following tonsillectomy under general anesthesia, Myerson<sup>7</sup> has demonstrated blood below the vocal cords in 76 per cent and the Dailys<sup>8</sup> in 78 per cent of the patients examined. Aspiration may occur even when the tonsils are removed under local anesthesia. Ochsner and Nesbit<sup>9</sup> found that every patient with local infiltrative anesthesia aspirated iodized oil while attempting to swallow, and Iglaue<sup>10</sup> noted blood in the trachea in 38 per cent of patients whose tonsils had been removed under local anesthesia. Hamilton<sup>11</sup> observed aspiration of iodized oil in two patients asleep from the effects of an opiate and in one patient in a normal sound sleep.

In children as in adults, pulmonary abscesses can be divided on the basis of etiology into (1) bacterial abscesses (2) fusospirochetal abscesses and (3) fungous abscesses. Kline<sup>12</sup> believes that the term abscess should be reserved for the bacterial type and that the fusospirochetal type should be designated as pulmonary gangrene. There is much to be said in favor of this view. As a rule the bacterial abscesses are not gangrenous while the fusospirochetal abscesses, whether diffuse through one or more lobes or limited to a small area in one lobe, are always gangrenous. The exceptions in this classification would be, first, the bacterial abscesses due to colon bacilli which give foul sputum without the lung being gangrenous and, second, the bacterial abscesses caused by *Clostridium welchii* and other gas gangrene bacilli in which the lung is gangrenous. I prefer to use the word abscess in its descriptive pathologic sense and preface it with the name of the specific etiologic agent. Thus one may speak of a staphylococcal abscess of the lung, an actinomycotic abscess of the lung or a fusospirochetal abscess of the lung. The reason for including the fusospirochetal infection as a specific etiologic unit will be discussed later.

#### BACTERIAL ABSCESS

Any pathogenic bacterium that gains access to the lungs may cause an inflammation and infiltration of the pulmonary tissues, but the ability to initiate abscess of the lung is limited to those organisms which produce proteolytic or necrotizing enzymes. The common bacteria that produce abscesses are staphylococci, Friedlander's bacilli, certain streptococci, *Bacillus pyocyaneus*, *Bacillus influenzae* and the members of the gas gangrene group of bacilli. When careful bacteriologic

studies have been made in a sufficient number of cases of pulmonary abscesses in children for one to speak in terms of statistics, I believe the staphylococci will be found to be the etiologic agent in at least 75 per cent of the bacterial type of abscess and in 50 per cent of all abscesses in children.<sup>13</sup>

#### FUSOSPIROCHETAL ABSCESS

In 1867 Leyden and Jaffe<sup>13</sup> found spirochetes in the sputum and in the lungs of adults with pulmonary abscesses. Jaffe is quoted by Miller<sup>14</sup> as having obtained in 1886 "progressive contraction of the trachea and real pulmonary abscess following introduction into the lungs of rabbits of shreds and casts from the mouth." Rona<sup>15</sup> in 1905 observed both fusiform bacilli and spirochetes in pulmonary gangrene. Buday<sup>16</sup> in 1910 described in detail the pathologic changes in thirty-five cases of pulmonary abscess and gangrene and demonstrated by stains the presence of fusiform bacilli, spirochetes, vibrios and cocci in the tissues.

With fusospirochetal material from the sputum, the gums or the tonsils of patients I have produced pulmonary abscesses in mice,<sup>17</sup> in guinea-pigs<sup>17</sup> and in rabbits<sup>18</sup>. They have been produced in rabbits by Kline<sup>19</sup> and in dogs by Crowe and Scarff,<sup>19</sup> Allen,<sup>20</sup> Hedblom, Joannides and Rosenthal,<sup>21</sup> Harkavy,<sup>22</sup> Van Allen, Adams and Hrdina,<sup>23</sup> and Herrmann and Cutler.<sup>24</sup> This uniform series of successful experiments leaves little doubt that the fusospirochetal mixture is pathogenic, but it does not prove which organism or combination of organisms is responsible for the disease.

I have isolated the following organisms in pure culture from patients with fusospirochetal pulmonary abscesses: *Treponema microdentatum*, *Treponema macrodentatum*, *Treponema buccale*, *Vibrio viridans*, *Bacterium melaninogenicum*, *Micrococcus gazogenes*, a large fusiform bacillus, a small fusiform bacillus, alpha, beta and gamma strains of streptococci and the several types of staphylococci.<sup>25</sup> Cultures of *Treponema vincenti* and *Spirillum sputigenum* were grown in symbiosis with cocci but never isolated in pure culture. Some of these cultures were isolated from children and some from adults.

Several of the strains of streptococci produced fatal cellulitis and pneumonitis and some of the staphylococci initiated small, nonfetid abscesses, but none of the other organisms produced infection. Spirochetes, alone or mixed with fusiform bacilli, failed to infect mice, guinea-pigs or rabbits. Although the pure cultures

4 Mullins M. V. and Ryder C. T. Experimental Lesions of the Lungs Produced by the Inhalation of Fluids from the Nose and Throat. *Am. Rev. Tuberc.* 4: 683 (Nov.) 1920.

5 Corper H. L. Pulmonary Aspiration of Particulate Matter Normally During Anesthesia. *J. A. M. A.* 78: 1858 (June 17) 1922.

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failed to reproduce the disease a mixture made from pure cultures of *Treponema microdentatum*, *Vibrio viridans*, a small fusiform bacillus and a beta hemolytic streptococcus produced a typically foul necrotic abscess, which could be transmitted to animals in series.<sup>24</sup> The spirochete is an essential element in this symbiosis and the disease could no longer be transmitted from animal to animal if the spirochete disappeared either spontaneously or as a result of arsenic therapy even though all the other organisms were present. Herrmann and Cutler<sup>24</sup> failed to produce chronic fetid abscesses in dogs with pure cultures of any one of the twelve types of organisms isolated from pulmonary abscesses but succeeded with a mixture of the anaerobic forms. The recent work of Proske<sup>25</sup> has confirmed and extended the evidence I<sup>26</sup> have obtained and that presented by Herrmann and Cutler, attesting that this disease is caused by a symbiosis of non-spore-bearing anaerobic organisms.

The source of this mixture of organisms which is responsible for the fusospirochetal type of abscess is generally the gums or the tonsils of the patient although occasionally it may be contracted from another individual.<sup>28</sup>

#### MYCOTIC ABSCESS

In adults, abscess of the lung may be caused by any one of the organisms listed in the accompanying table. I have seen one child infected with sporothrix and one with actinomycetes. Proof of their relation to the disease rests primarily on the presence of the organism in the lesion and on certain immunologic and serologic reactions such as skin tests, agglutinations and complement fixations.

#### DIAGNOSIS

The history of a tonsillectomy or aspiration of a foreign body should at once direct the attention to the possibility of a fusospirochetal abscess, although in one previously reported case the aspiration of an oat head was followed by an actinomycotic abscess of the lungs.

A child with the clinical signs and symptoms of pneumoma who has gingivitis or Vincent's infection of the tonsils may have a fusospirochetal abscess of the lungs. I have seen two such cases in infants in whom the treatment was delayed until the diagnosis was made by pleural tapping, both patients died.

The history, physical signs and x-ray shadows may be identical in cases of bacterial abscess, fusospirochetal abscess and mycotic abscess. The final diagnosis rests entirely on a study of the pulmonary secretions. Sputum is more difficult to obtain in children than in adults and recourse to laryngeal swabbings, bronchoscopic drainage and pleural tapping may be necessary. Exploring the lung with a needle in search of an abscess is contraindicated because of the danger of producing empyema.

The common bacteria that produce lung abscess are easily cultivated on blood agar. The spore bearing anaerobes of the gas gangrene group may be demonstrated by the Gram stain and cultivated in tubes of meat or milk mediums sealed with sterile petrolatum or on the surface of blood agar plates incubated under anaerobic conditions.

The fusiform bacilli and the thicker spirochetes (*Treponema buccale* and *Treponema vincenti*) are

readily demonstrated by staining a smear of the secretion with gentian violet or dilute carbol-fuchsin. The finer spirochetes (*Treponema microdentatum* and *Treponema macrodentatum*) may be shown by the Fontana stain or by the darkfield apparatus. When chunks of purulent sputum can be obtained, the smears should be made from the pus in the center. If no large particles are found, it is difficult and at times impossible to learn whether the fusiform bacilli and spirochetes are from the lungs or merely contaminants from the mouth. In infants, I believe it is wiser to assume that the organisms are from the lungs and to proceed with specific treatment.

Cells of the yeastlike and moldlike fungi may be found by direct microscopic examination after the material has been treated with a 10 per cent solution of sodium hydroxide. The higher bacterial forms may be found in fresh preparations as "sulphur granules" or demonstrated in stained smears as branching gram-positive rods and filaments. Some of the nocardia or streptothrix organisms are non-acid fast and some acid fast. Sometimes it is necessary to inoculate a guinea-pig to prove that these acid-fast forms are not atypical tubercle bacilli.

#### Fungous Diseases of the Lungs

I	Yeastlike Fungi
1	Saccharomyces
2	Monilia
3	Torula
4	Endomyces
5	Geotrichum (Oldium)
6	Blastomyces
7	Coccidioides immitis
8	Sporothrix
II	Moldlike Fungi
9	Aspergillus
10	Penicillium
11	Mucor
III	Higher Bacterial Forms
12	Actinomycetes
13	Nocardia (a) acid fast (b) nonacid fast

Often the greatest difficulty is encountered in distinguishing pulmonary abscess from (1) pulmonary tuberculosis, (2) encapsulated and interlobar empyema and (3) unresolved pneumonia, yet it is absolutely necessary to make a specific diagnosis if specific treatment is to be applied.

#### TREATMENT

The general supportive measures, such as rest in bed, forcing of fluids, high vitamin diet and postural drainage, can be applied equally well to all types of pulmonary abscess.

If the bacterial abscess is caused by an organism of the gas gangrene group, the patient should be treated with specific or polyvalent antigangrene serums. The acute staphylococcal abscesses might be treated with the new staphylococcus antitoxin, which I among others have found to be polyvalent and to protect rabbits against staphylococcus toxin formed by organisms isolated from different patients.<sup>29</sup> I have not as yet had an opportunity of treating a primary pulmonary infection with this antitoxin. Abscesses due to the other bacteria should be treated palliatively in the acute stage unless empyema develops. In the subacute stage postural drainage, bronchoscopic drainage and perhaps autogenous vaccine therapy is indicated. If the lesion persists for three months, it has reached the chronic

26 Smith D T Fusospirochetal Disease of the Lungs Produced with Cultures from Vincent's Angina J Infect Dis 46 303 (April) 1930

27 Proske H O Pub Health Rep to be published

28 Smith D T Relation of Vincent's Angina to Fusospirochetal Disease of the Lungs J A M A 94 23 (Jan 4) 1930

29 This investigation has been conducted by Joyner Rigdon and Hare and will soon appear in the literature



stage and should be treated by open operation and drainage

The fusospirochetal type of pulmonary abscess should be diagnosed and arsenic treatment started within the first two weeks of the disease if the best results are to be obtained. Either neoarsphenamine or sulpharsphenamine may be used in doses about one half as large as a similar child would require for syphilis, but repeated every three or four days up to six or eight doses. Bronchoscopy should be employed if postural drainage is not effective. Phrenicectomy is not advised, because of the danger of kinking the bronchus and stopping the drainage. Artificial pneumothorax is inadvisable for the same reason and because of the danger of causing the abscess to rupture into the pleura, initiating a severe if not fatal empyema. In cases in which the lesion persists for three months while the patient is receiving arsenic therapy, postural drainage and bronchoscopic treatment, the abscess is chronic and should be drained by open operation.

The mycotic abscesses of the lung should be treated by gradually increasing doses of potassium iodide. If the patient does not respond to this treatment, it should be supplemented by inhalations of ethyl iodide with an initial dose of from 0.5 cc to 1 cc once daily, gradually increased to 2 cc three times daily. Vaccine therapy seems to be of value in some cases as a supplementary treatment.

#### SUMMARY

An effort should be made to determine the etiology of every case of pulmonary abscess occurring in children, because those initiated by the gas gangrene anaerobes can be treated with specific antitoxin serum, those due to the fusospirochetal organisms can be treated with neoarsphenamine or sulpharsphenamine, and those caused by fungi respond to potassium iodide or ethyl iodide therapy.

#### ABSTRACT OF DISCUSSION

DR LOUIS H. CLERF, Philadelphia. Dr Smith's presentation on pulmonary abscess in children has brought out some important points. Pulmonary abscess in children is more common than is generally realized. Many of the patients that I have seen were treated as cases of pneumonia for a considerable time. One wonders how many of the cases that recovered spontaneously from abscess were diagnosed as pneumonia. Although much of the experimental evidence indicates that abscess of the lung may be embolic in origin, I am of the opinion that aspiration plays a very important part. I have often marveled that one could indicate on the basis of physical examination and roentgen study that a single abscess in a given case was of embolic origin. To me clinical evidence supports aspiration. I agree with Dr Smith that the designation "abscess" is preferable to pulmonary gangrene if the lesion consists of a localized collection of pus in a cavity formed by the disintegration of tissues. The term "gangrene" as commonly employed implies more than a localized process. The etiologic organism, so far as the production of an abscess is concerned, is obviously difficult to determine. In a majority of the cases observed by me a number of organisms were found. However, if one does a bronchoscopy early, before the area of pneumonitis has gone on to abscess formation, one may secure organisms in pure culture from the secretion removed. In four cases so examined a streptococcus was found in pure culture. Diagnosis of pulmonary abscess is difficult in the early stages at a time when treatment should be instituted if the best results are to be secured. A lesion localized to one lobe, occurring within a week or ten days after an operation, particularly tonsillectomy, is very probably a pneumonitis which will either clear up spontaneously or go on to abscess formation. My concept of pulmonary abscess presupposes the existence of an inflammatory lesion that has broken down

I agree that arsenical treatment is of value in the fusospirochetal type of abscess and should be administered early if good results are to be secured. I consider it of little value in long standing cases. In my experience, operations, particularly those about the mouth and throat, have figured in approximately 70 per cent of the cases of pulmonary abscess that came under observation. A diagnostic bronchoscopy is indicated in all these cases unless there is a very definite contra-indication. I believe that it is a mistake to delay until there is a definite abscess cavity with fluid level before one will make a diagnosis of pulmonary abscess and then consider appropriate treatment. Early bronchoscopy in a number of these cases of so-called pneumonitis, a pulmonary lesion which I believe precedes the formation of abscess, has been followed by prompt clearing of the lesion. If this is done, many potential cases of abscess will be cases of acute pneumonitis with spontaneous recovery.

DR J. W. EPSTEIN, Cleveland. In our studies of pulmonary gangrene and pulmonary abscess at Mount Sinai Hospital we classified these conditions to conform with their clinical and pathologic characteristics. Dr B. S. Kline, director of our laboratories, whose exhaustive studies and contributions on this subject are well known, is responsible for its terminology. The classification is as follows: 1. Embolic pulmonary abscess. 2. Bronchogenic pulmonary abscess. 3. Pulmonary gangrene. The embolic abscess occurs more frequently in infants and in children. These patients usually have a suppurative condition elsewhere in the body and their pulmonary lesion represents a manifestation of bacteremia. The bronchogenic pulmonary abscess is the type most frequently met in infants and children. By bronchogenic abscess we mean an area of suppuration in the lung caused by pyogenic organisms gaining access through the bronchus. They are therefore always aspiratory in character. Pulmonary gangrene is a distinct clinical entity and should not be confused with pulmonary abscess. Pyogenic organisms never produce gangrene, while the characteristic lesion caused by spirochetes fusiform bacilli and vibrios is not abscess but gangrene. Pulmonary gangrene is much more frequent than pulmonary abscess and is six times as frequent in adults as in children. In our series of thirty-nine cases of pulmonary gangrene, only seven were in children. The number of cases of pulmonary gangrene in children and adults treated in our hospital in a comparatively short period of time is convincing evidence that this disease is not of rare occurrence, yet its apparent frequency is not properly reflected in the number of reports appearing in the medical literature. Heretofore, the total number of cases of pulmonary gangrene reported in the United States has hardly reached a few hundred as compared to thirty-nine cases observed in one hospital. The discrepancy between the number of cases reported and the number that actually occurred leads me to believe that there is a great deal of confusion regarding these two clinical entities and that many of the cases reported as pulmonary abscess from clinical and roentgenographic evidence, but not supplemented by study of sputum, were actually cases of pulmonary gangrene. I therefore feel that the term "pulmonary gangrene," not "pulmonary abscess," should be applied to lesions caused by spirochetal anaerobes.

DR E. F. BUTLER, Elmira, N. Y. This discussion is from the standpoint of the thoracic surgeon, who may eventually be called on to treat some of these cases. In my experience about 10 per cent of all cases of lung suppuration occur in children. Fortunately the prognosis is good as compared to cases occurring in adults. The pediatrician has an important role to play. It is true that not every case of respiratory infection requires elaborate diagnostic study. However, in cases of recurrent infection or infection that continues without improvement for two or more weeks there rests on the pediatrician an obligation to arrive at an accurate diagnosis of the underlying pathologic condition. There should be a complete review of the history of the case with special reference to previous operations or the possibility of foreign bodies; there should be a complete review of the physical observations with special reference to changes in the upper respiratory tract; the bacteriologic examination should be exhaustively studied, as set forth by Dr Smith; roentgen examination should not only include an anteroposterior film of the chest but should also include

fluoroscopy and such lateral or oblique films as may be indicated, bronchoscopy is most valuable in these cases. Some men might be inclined to add exploratory aspiration as the next diagnostic step. Let it be emphatically stated that exploratory aspiration should not be performed in the presence of a suspected lung abscess or other pulmonary suppuration. There is no assurance that the aspirating needle will not traverse a clean defenseless pleural cavity and pave the way for a putrid empyema with an attendant mortality risk of from 75 to 90 per cent. There is no assurance that cellulitis of the chest wall may not result from such a procedure. It is safer to expose the diseased lung surgically and be assured of defensive pleural adhesions than to plunge a needle blindly through the chest wall. Therefore let it be said emphatically that the pediatrician or the general practitioner should not undertake exploratory aspiration under such conditions but should refer an uncomplicated case to a qualified thoracic surgeon.

DR DAVID T. SMITH, Durham, N. C. I agree with all the discussers in detail, except perhaps with the terminology used by Dr. Epstein. I don't think it makes a particle of difference whether one wants to designate this peculiar type of abscess as a fusospirochetal abscess or as gangrene, as long as one knows what one is talking about. He prefers the term gangrene and there is a lot to be said for this view. I prefer the term abscess, and whether there is much to be said for it or not, it does not matter, as long as one recognizes that this is a particular type of infection. If diagnosed sufficiently early, it will respond to arsenical treatment.

## CYCLOPROPANE ANESTHESIA

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A new inhalation anesthetic agent is presented. To justify such a contribution, the drug must have advantages over the drugs in current use. We propose in this paper to present the results of a twelve months' clinical study of cyclopropane, including over 2,000 clinical administrations, leaving the reader to judge either the evidence warrants acceptance of this agent or not, in addition to the present therapeutic armamentarium.

John Snow was the first member of the medical profession to devote his attention to anesthesia. He was the first to appreciate the disadvantages as well as the advantages of ether as an anesthetic agent and he called attention to the unpleasant induction and recovery, difficulty of technique of administration and the irritation of the respiratory tract by that drug. He called attention to the safety of ether in comparison with chloroform through the improbability of causing primary cardiac damage by its use. Search for a drug that would not injure the heart but possessing the anesthetic properties characteristic of chloroform led him to study various hydrocarbons. One, amylene ( $C_5H_{10}$ ), he administered to 238 patients. Although Snow appreciated the physiologic importance of oxygen, it was not available in his time as a vehicle or adjuvant to narcotic drugs. His experience with gaseous hydrocarbons was therefore limited. Since the death of Snow (1858), many such gases have been studied. In this country, ethylene ( $C_2H_4$ ) alone has stood the test of time. Its usefulness has been limited, however, because of the lack of potency in concentrations that do not produce oxygen want.

In the search for new inhalation agents propylene ( $CH_3CHCH_3$ ) received extensive study. Electro-

cardiographic observations<sup>1</sup> showed certain cardiac irregularities and arrhythmias that seemed to condemn it for anesthetic purposes. Searching for the cause of cardiac damage in propylene anesthesia, Lucas and Henderson studied a possible contaminant or impurity, its isomer cyclopropane. This agent proved not to be the factor causing cardiac damage but to be a more potent anesthetic agent than propylene, causing very little change in the physiologic processes of laboratory animals. In addition, they found cyclopropane rapid in action, pleasant to inhale, of slight toxicity in effective concentrations, and susceptible of being rapidly eliminated.

A preliminary report on the first clinical application of cyclopropane was made by the Department of Anesthesia of the University of Wisconsin in October 1933.<sup>2</sup> Studies of the effects of this agent on various functions of animals have been reported from the laboratories of the University of Wisconsin Medical School.<sup>3</sup> In the present communication are summarized the clinical results from a year's routine use of cyclopropane in the various surgical services of the Wisconsin General Hospital, in comparison with ethylene and ether. The results of certain detailed studies of physical characteristics as well as physiologic effects are included, with a view to anticipating the reader's questions as completely as possible. All administrations included in the report were made by members of the anesthesia staff, graduates in medicine in various stages of training, ranging from interns serving one month in anesthesia through residents in the service for three year periods, and including the chief of the service.

The technique of administration used, with the exceptions noted, has been that known as the carbon dioxide absorption technique.<sup>4</sup> A closed extension of the respiratory tract is obtained by means of a mask, canister of soda lime granules, and breathing bag. Expired carbon dioxide is retained in the soda lime in the form of a carbonate. The oxygen used from the anesthetic mixture, filling such an enlarged respiratory system, is replaced by a constant metered flow of oxygen, approximately equal in quantity to that utilized by the patient. When endotracheal airways were used, they were sufficiently large to accommodate "to-and-fro" breathing<sup>5</sup> and were connected directly to the soda lime canister, thus replacing the face mask.

## PREPARATION, PHYSICAL PROPERTIES

The simplest cyclic hydrocarbon—cyclopropane or trimethylene—was first prepared by the chemist Freund<sup>6</sup> in 1882. No use was found for the agent and little concerning cyclopropane appears in the chemical or other literature until 1929, when Henderson and Lucas<sup>7</sup> published their studies. The method used in preparation has been the reduction of an alcoholic solution of

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2. Stiles J. A. Neff W. B. Roventine E. A. and Waters R. M. *Cyclopropane as an Anesthetic Agent*. A Preliminary Clinical Report. Anesth. & Analg. 13: 56 (March-April) 1934.
3. Seivers M. H. Meek W. J. Roventine E. A. and Stiles J. A. *A Study of Cyclopropane Anesthesia with Especial Reference to Gas Concentrations*. Respiratory and Electrocardiographic Changes. J. Pharmacol. & Exper. Therap. 51: 1 (May) 1934.
4. Waters R. M. *Carbon Dioxide Absorption from Anesthetic Mixtures*. California & West Med. 35: 342 (Nov.) 1931.
5. Guedel A. E. and Waters R. M. *Endotracheal Anesthesia*. A New Technic. Ann. Otol. Rhin. & Laryng. 11: 1139 (Dec.) 1931.
6. von Freund August. *Ueber Trimethylene*. Monatsh. f. Chemie. 3: 625 (July 13) 1882.
7. Lucas G. H. W. and Henderson V. E. *A New Anesthetic Gas*. and Lucas G. H. W. *Cyclopropane*. A New Anesthetic. J. L. Arch. internat. de pharmacod. et de therap. 37: 155 1930.

trimethylene bromide in the presence of metallic zinc. The Ohio Chemical and Manufacturing Company has prepared the cyclopropane used as a basis for this report. As with the preparation of other hydrocarbons, purification of the product is important. The supply furnished the University of Wisconsin during the past year has been uniform and has remained stable while stored in steel cylinders for a period of twelve months, and no evidence of impurity has been observed. The containers caused some embarrassment at first because valve packing of the sort used in storage of ethylene and nitrous oxide was not efficient in forming a leak-tight closure of the cylinders. During the last nine months we have had no difficulty with leaking valves. The gas is liquefied at a pressure of 75 pounds per square inch. It is heavier than air (specific gravity 1.46) and the molecular weight is 42.05. Twenty-eight grams (1 ounce) of the agent is equivalent to approximately 16 liters (4¼ gallons) of gas at atmospheric pressure. The structural formula is  $\text{H} \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{C} \quad \text{CH}_2 \\ \diagdown \quad \diagup \\ \text{H} \end{array}$  According to Henderson and Lucas, it is practically insoluble in water but very soluble in lipoids, having a water-oil ratio of about 1:65. It is an inflammable agent, capable, in our experience, of exploding when mixed with oxygen in concentrations as low as 3.8 per cent.<sup>8</sup> Cyclopropane, ether and ethylene all form explosive mixtures with air and oxygen, making it necessary to take precautions against fire hazards when using one of these agents. Anesthetic mixtures are quite as likely to come in contact with the cautery, electric sparks from motors, and other sources of ignition, at varying distances from the mask or apparatus as they are to be exposed to such sources within the mask or breathing bag. Knowledge of the exact flash point, therefore, in the case of a given agent is of little importance. Unlike ethylene, which is somewhat lighter, cyclopropane and ether are heavier than air, and the precautions necessary for safety when using them are similar.

Cyclopropane is diffusible through rubber, as are ethylene, carbon dioxide and nitrous oxide.<sup>9</sup> An 8 liter rubber breathing bag, filled to capacity without pressure and containing by analysis 92.8 per cent of cyclopropane, 1.3 per cent of oxygen and 5.7 per cent of undetermined gas, after four hours and forty-five minutes was found to contain much less gas, and analysis showed 85.6 per cent of cyclopropane, 4.66 per cent of oxygen and 8.7 per cent undetermined. Eighteen hours and forty-five minutes after filling, analysis showed 60.0 per cent of cyclopropane, 13.8 per cent of oxygen and 26.4 per cent undetermined. The weight of such a bag filled with the gas decreased at a rate of 0.0876 Gm. per hour, or 4.2 Gm. in forty-eight hours. A bag placed over a frame to prevent collapse and attached to a water manometer reached a negative pressure of 24 cm. of water in thirty hours, the negative pressure then decreasing slowly for several days. The rapidity of escape of cyclopropane through the skin during anesthesia has not been compared with other agents.<sup>10</sup>

Cyclopropane is capable of producing narcosis when inhaled in a concentration as low as 4 per cent. Even lower concentrations have maintained a light degree of

#### EFFECTIVE CONCENTRATIONS

Cyclopropane is capable of producing narcosis when inhaled in a concentration as low as 4 per cent. Even lower concentrations have maintained a light degree of

anesthesia in patients who have received richer mixtures during the early stages of administration. It is therefore evident that anesthesia may be effected by inhalation of this agent with air as a vehicle. Insufflation into the pharynx of cyclopropane at a rate of from 200 to 800 cc. per minute has maintained satisfactory anesthesia for abdominal surgery in the few cases in which it has been tried. The carbon dioxide absorption technique described has proved more satisfactory. With this technique, gas analyses have been made of the mask concentration coincident with various degrees of narcosis. For preanesthetic medication in all cases studied, morphine from 0.008 to 0.016 Gm. (⅛ to ¼ grain) and scopolamine from 0.00032 to 0.00065 Gm. (1/200 to 1/100 grain) was administered hypodermically about one and one-half hours before induction.<sup>11</sup> Forty-six cases have been selected from this group for graphic compilation (fig. 1), in which a definite statement was possible as to the plane of anesthesia<sup>12</sup> at the time of sampling and in which no change in the mixture had been made for five or more minutes. The graphs show concentrations of cyclopropane found by analysis of the mask contents for each degree of narcosis. In the upper circles are shown the maximum percentages found in any one sample; in the lower circles the minimum, and averages for all analyses in the large circles. Determination of oxygen and carbon dioxide was also made. The oxygen figures are included in the graphs. It will be seen that the average concentration of cyclopropane for first plane, third stage anesthesia (roving eyeball) was 7.4 per cent, while second plane (fixed eyeball) sufficient for a majority of abdominal operations required an average of 13.1 per cent, and third plane, with intercostal paralysis, required an average of 23.3 per cent. In our experience the fourth plane, as noted later, cannot be separated from the third. Fourth stage anesthesia, or respiratory arrest, was produced with an average concentration of 42.9 per cent. When produced in the presence of high oxygen concentrations, such respiratory arrest has not been found to cause harm provided ample tidal exchange is artificially maintained.

It will be noted in the graphs that oxygen always exceeded 20 per cent. The intention in each case was to fill the respiratory spaces with a cyclopropane-oxygen mixture. Since the maximum carbon dioxide content of any sample was less than 4 per cent, it will be seen that a residue of nitrogen was present in every sample in quantity varying over a wide range. This nitrogen was derived in part from the air present in the patient's air passages when the mask was originally applied and in part from the desaturation of the patient's tissues and blood during anesthesia. This fact must be kept constantly in mind and care taken to maintain an oxygen content of decidedly more than 20 per cent.

#### TECHNIC OF ADMINISTRATION

Before we adopted the present technique, our tendency was to use too high a concentration of cyclopropane. This difficulty undoubtedly rose from our familiarity with nitrous oxide and ethylene, which require a concentration exceeding 75 per cent to be effective. The

<sup>8</sup> We regret that in a previous communication<sup>2</sup> from this institution a table of explosive ranges was published which gave incorrect figures.

<sup>9</sup> Wineland, A. J. and Waters, R. M. The Diffusibility of Anesthetic Gases Through Rubber. *Anesth. & Analg.* 8: 322 (Sept. Oct.) 1929.

<sup>10</sup> Orelutt, F. S. and Waters, R. M. The Diffusion of Nitrous Oxide, Ethylene and Carbon Dioxide Through Human Skin During Anesthesia Including a New Method for Estimating Nitrous Oxide in Low Concentrations. *Anesth. & Analg.* 12: 45 (Jan. Feb.) 1933.

<sup>11</sup> Seevers, Meek, Rovenstine and Sules<sup>3</sup> compared a group of dogs that had received similar premedication with a group uninfluenced by nonvolatile agents. They found an average difference in concentration of cyclopropane necessary to maintain a given degree of narcosis of about 12 per cent. For example if 18 per cent cyclopropane maintained first plane third stage anesthesia in a dog without premedication it required only 6 per cent to accomplish a similar result after premedication with morphine and scopolamine. There would appear to be a similar difference in dosage in patients.

<sup>12</sup> Classification of degrees of narcosis used is that of Cuedel (*Anesth. & Analg.* 6: 157 [Aug.] 1927).

method for satisfactory use of the completely closed carbon dioxide absorption technique is as follows. Administration is begun with a very rapid flow of oxygen (8 or 10 liters per minute) into the mask as it is placed on the patient's face and continued until the mask canister and bag are sufficiently filled to accommodate completely the patient's tidal excursion. At the same time, cyclopropane is introduced at a rate of 600 or 700 cc per minute in average cases and continued for from thirty seconds to two or three minutes. The addition of cyclopropane is then stopped completely. An interval of several minutes must intervene before complete distribution to the tissues takes place and maximum narcotic effects result. In certain resistant individuals it may be necessary to give the gas for a few seconds at a more rapid rate, and in some very susceptible ones, or those heavily dosed with non-volatile agents, a slower flow during induction is indicated.

During the period of maintenance, a constant slow flow of oxygen should be added, approximating as nearly as possible the metabolic demand of the patient. This usually varies between 250 and 400 cc per minute. An air-tight contact of the mask on the face simplifies maintenance of smooth anesthesia. A few minutes of observation usually suffices to determine the optimal constant flow of oxygen for a given patient. If physical signs indicate that the degree of narcosis resulting from the mixture originally used to fill the mask, canister and bag is insufficient, the flow of cyclopropane may be resumed for a time sufficient to enrich the mixture properly. If, on the other hand, the degree of narcosis is too profound as evidenced by physical signs, a rapid addition of oxygen for a brief period will reduce the potency of the mixture inhaled. The necessity for maintenance of unobstructed respiration is quite as important as with other agents. Pharyngeal airways are frequently used for this purpose.

#### PHYSICAL SIGNS

In general, the physical signs used in ether anesthesia, to determine the degree of narcosis present, are applicable. Cyclopropane, however, possesses two properties that are responsible for definite differences in physical signs and necessitate quite different interpretations from those commonly accepted for the older anesthetic agents.

First, although a gas like nitrous oxide and ethylene, cyclopropane is of the potency of chloroform and ether, but without their irritant qualities. Consequently, an extremely high concentration can be inhaled without producing laryngospasm, the normal physiologic protection from a sudden and extreme increase in dosage. Lacking this protection, the anesthetist experienced in the use of nitrous oxide or ethylene must guard against rushing the patient rapidly from one degree of narcosis to another and not allowing sufficient time for circulatory distribution and maximum effect of one concentration with full development of the physical signs characteristic of that dose. Second, cyclopropane is not a respiratory stimulant. As commonly administered ether, nitrous oxide and ethylene, on the other hand always tend to produce an initial increase in rate and minute volume respiration, up to the point at which the depression of an overdose or of oxygen want supervenes. In other words, they must be administered to a point of very large dosage before the respiratory rate and the minute volume decrease to normal. Cyclopropane if administered with oxygen as a vehicle and

without carbon dioxide excess, may result in no change in respiratory rate or minute volume until depressive doses are reached. The high oxygen concentration used may even result in reduced minute volume in the early stages of administration.

The disappearance of the lid reflex, which has been used since Snow's time to determine the degree of narcosis below which there is no pain perception, is a reliable. Complete extra-ocular paralysis, with cessation of movement of the eyeball and fixation in a "looking forward" position, was at first thought to occur relatively later than with ether. We are now inclined to believe that the better skeletal muscle relaxation due to better oxygenation in the first plane accounts for our early misinterpretation of this sign. With increasing experience, our reliance on the physical signs commonly used has increased. We are still unable, however, to discriminate between the third and fourth planes of third stage anesthesia. The patient in the first plane shows retained extra-ocular muscle activity. As the narcosis deepens and he reaches the second plane, movement of the eyeball ceases but both the diaphragm and intercostal

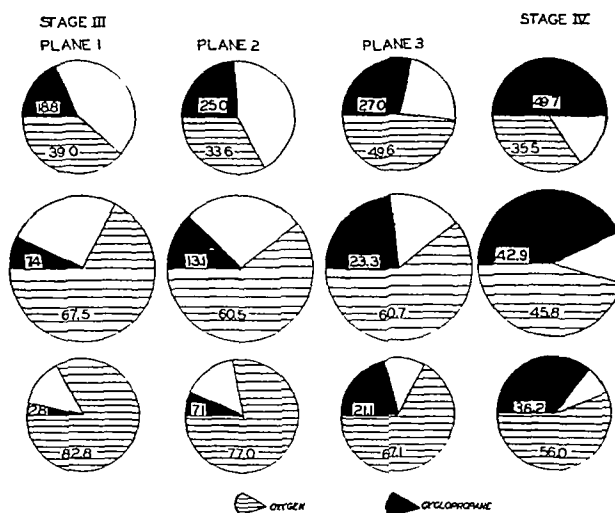


Fig. 1—Gas analyses of mask samples from forty-six cases taken during the various planes of surgical anesthesia and during the fourth stage (respiratory arrest). Upper circles show maximum cyclopropane concentration, lower circles show minimum, and large circles show the average percentage for each degree of narcosis.

muscles maintain their normal share of the load of respiration. As the depth of anesthesia increases still further, intercostal activity lessens, is delayed, and finally ceases as the patient passes into the third plane characterized by diaphragmatic breathing only. Diaphragmatic breathing in plane 3, however, is not exaggerated during cyclopropane anesthesia as it is with ether. While the patient is passing down through this plane, depression simply increases until complete respiratory paralysis is reached, without evidence of a change from the third into the fourth plane. When respiration ceases, the patient, of course, may be considered in fourth stage narcosis.

#### PREMEDICATION

Our present attitude toward premedication with non-volatile agents in relation to cyclopropane is that respiratory depression by such drugs is to be avoided. Barbituric acid derivatives, tribrom-ethanol, opium derivatives, and certain other drugs commonly used in preliminary medication all tend to depress respiration and decrease minute volume exchange. Our best results

have been obtained by decreasing the dose of the opium derivative generally used before other agents by at least one half, while retaining the full customary dosage of scopolamine and giving them together about one and one-half hours preoperatively. This premedication would be entirely inadequate for ethylene or nitrous oxide administration. In the few cases in which anesthesia was induced with no premedication, the anesthesia was quite satisfactory although requiring a higher concentration for induction. A surprisingly slight stimulation of the salivary glands may be expected in such cases.

#### DANGER SIGNS

The pupils dilate sluggishly in morphinized patients and the sign is of little value. Color cannot be used as an indication of the degree of narcosis or of danger, because an excess of oxygen should be present and the patient decidedly pink at all times. The most valuable signs, warning that the limit of tolerance has been reached, are changes in the character of the pulse. Arrhythmia, slowing of the rate to 50 and less or a definite increase in rate demands a reduction in gas concentration by the addition of a considerable quantity of oxygen. Inflation of the lungs with oxygen is indicated if such pulse changes occur when respiration is decidedly depressed.<sup>13</sup> To the anesthetist experienced with other drugs, the addition of carbon dioxide is apparently indicated. However, we believe that carbon dioxide additions are definitely contraindicated. Instead, simple reduction of anesthetic concentrations should be practiced. When in doubt as to depth of narcosis, one should always add oxygen in cyclopropane anesthesia. The beginner's mistakes will always be in the direction of overdosage. Although the average concentration causing respiratory paralysis is 42.9 per cent, extreme respiratory depression may occur with as low a concentration as 21 per cent (fig. 1). It is scarcely conceivable that warning of impending cessation of breathing would not be taken from gradually increasing depression, unless a large quantity of the gas was suddenly added to the respiratory system either through lack of familiarity with the agent or by accident. Exception to this statement might be made in case of too large a dosage of a preanesthetic medicament and considerable respiratory depression before the mask was applied. Under such circumstances the induction should be conducted with a weak mixture of the gas. If the rule is always observed of maintaining a high oxygen content in the atmosphere inhaled, the advent of respiratory arrest need not cause alarm, since one or two inflations of the chest with oxygen or with a weaker mixture will always reestablish respiration. Removal of the mask without artificial respiration, in dogs, has many times resulted in spontaneous breathing and rapid recovery without untoward effects.

#### ABSORPTION AND ELIMINATION

The odor of pure cyclopropane is neither unpleasant nor irritating to the upper respiratory mucosa even in concentrations stronger than needed for anesthesia. Laryngospasm may result from extremely high percentages. It is evident, therefore, that the administration of a mixture containing 50 per cent of the gas might be accepted by a patient without coughing or holding the breath. Such an induction in dogs has

resulted in anesthesia in a very few breaths, quickly followed by respiratory arrest. Seevers, De Fazio and Evans<sup>14</sup> have compared the rate of absorption and elimination of cyclopropane with ethylene and find the former more rapid. The apparent slowness of induction seen in the technique described is explained by the very gradual increase in concentrations recommended. Such an induction we feel to be safer than a more rapid one when using an extremely potent agent. Gas analyses of gastric, peritoneal and subcutaneous gas pockets in animals have been found to contain increasing concentrations of cyclopropane as anesthesia is prolonged, approaching but not reaching, in the periods of anesthesia, the concentrations inhaled.

After administration, it is evident that desaturation of the body cavities as well as the tissues must take place over a considerable time. Gas analyses of gradually increasing low concentrations inhaled for the purpose of determining the minimum effective percentages lead us to believe that a normal individual is not affected by less than 3.5 per cent. The lowest concentration found in the mask during operation has been 3.8 per cent. If the mask is suddenly removed while the patient is inhaling a full anesthetic concentration of cyclopropane, he will sometimes pass through a period of excitation, whereas a gradual decrease in the concentration toward the end of an operation will result in a more nearly normal awakening. Gas analyses of pharyngeal samples of atmosphere taken at the height of expiration, and just following such an awakening, have shown a cyclopropane concentration of less than 1 per cent, gradually decreasing to traces during the following one to three hours. Although we prefer a gradual decrease in concentration during the last minutes of operation, elimination may be hastened following the removal of the mask by the display of sufficient carbon dioxide to maintain a brief hyperpnea.

#### CLINICAL LABORATORY STUDIES

Certain cases were studied to determine the changes in blood chemistry brought about by cyclopropane anesthesia. Although many more cases were observed than are used to compile the graph (fig. 2), we believe that the twenty-one cases there represented were the only ones in which the effects were produced solely by anesthesia and operation. No cases were omitted because of the seriousness or length of the operation. However, since oxygen want is known to cause changes in blood chemistry, cases that had shown severe respiratory obstruction during anesthesia have been omitted as well as others in which oxygen concentrations had been low because of technical error. Some cases were omitted because of the necessity having arisen during operation for intravenous medication. In the graph are shown average determinations for carbon dioxide combining power, sugar and nonprotein nitrogen, before, at the end of and four hours after anesthesia. The maximum and minimum readings in each item are not shown because they are approximately similar to the averages. In one exception a patient showed a rise of blood sugar content to 167 mg per hundred cubic centimeters of blood without demonstrable cause other than the anesthetic. No patients with diabetes were studied. Four cases were studied for blood phosphorus changes, showing a marked increase and a quick return to normal. When these figures for phosphorus are

13 It should be noted however that the pulse rate is not usually increased by cyclopropane and that the rate in a normal individual with moderate premedication and anesthetized with this agent by the carbon dioxide absorption technique is between 60 and 70 per minute.

14 Seevers, M. H., De Fazio, S. F. and Evans, S. M. A Comparative Study of Cyclopropane and Ethylene with Reference to the Rate of Body Saturation and Desaturation to be published.

compared with the study of phosphorus during anesthesia by Stehle and Bourne,<sup>15</sup> the marked mobilization of phosphorus at the end of anesthesia would indicate a similar effect to that found by the McGill workers, namely, an increased liberation of phosphorus from the muscles. Studies of the effect of cyclopropane on kidney and liver function have been limited. Clinical results, other than nausea and emesis have not suggested, however, that serious disturbance of either occurs. Kidney output is depressed or an actual suppression occurs during anesthesia with a compensatory increased excretion several hours following anesthesia. In this respect the effect is similar to that caused by ether and ethylene and not more marked.

The amount of bleeding from the capillary bed during operation is of interest to the surgeon and difficult to evaluate. Every new agent is subject to criticism from this angle. Some work has been done showing that other factors such as oxygen or carbon dioxide content of the blood are more important than the anesthetic agent in influencing wound bleeding. Of nine surgeons working in a routine manner with cyclopropane at Wisconsin General Hospital during the past year one is positive that more wound bleeding occurs. No such comment has been offered from the other eight. On several occasions the comment from the one source has been offered that bleeding was excessive when the agent was ether or nitrous oxide but believed to be cyclopropane. Observations of coagulation time before, during the second half hour of cyclopropane anesthesia, and one hour following have been made by the capillary tube method. No significant change was noted in twenty-one cases observed.

Erythrocyte counts have been made before, during and after cyclopropane anesthesia. Little change in the number of red cells was noted. As with ether and other inhalation agents,<sup>16</sup> a marked leukocytosis occurs, the maximum change being found from the third to the sixth hour after operation. In the average case this increase is from two to three times the preoperative count. Twenty-four hours postoperatively the white blood count has returned to one-half the maximum, and a normal count is usually reached on the third or fourth postoperative day. There is always a distinct increase in polymorphonuclear cells in the differential count, with a slower return to normal than that occurring with the total number of leukocytes.

#### ELECTROCARDIOGRAPHY

Five clinical cases have been studied satisfactorily during cyclopropane anesthesia. Celiotomy of more than one hour duration was the operative procedure in each case. Electrocardiographic tracings were secured before anesthesia, during induction and every five to twenty minutes throughout the operation. Anesthesia was carried to plane 3 in three of the cases, and to stage IV in the other two. Four of the patients showed no electrocardiographic changes from normal other than a moderate slowing of the heart rate. In a single case during a two hour pelvic operation, significant changes were noted. During induction of anesthesia there was evidence of transient heart block in lead II. The next tracings fifteen minutes later were normal. After one and one-half hours operating, and with stage IV anesthesia, the tracing showed an inverted diphasic p wave and a shortened p-r interval. Ventricular extrasystoles

were noted. From observing these five cases, one would be led to the impression that electrocardiographic changes during cyclopropane anesthesia were certainly no more evident than changes during a corresponding degree of narcosis with any commonly used agent. A comparative clinical study of cyclopropane and other agents is in progress.

Since the clinical study is incomplete at this time, we take the liberty of commenting from a publication by Seevers, Meek, Roventine and Stiles.<sup>3</sup> They observed electrocardiographic changes in unmorphinized dogs anesthetized with cyclopropane. Three dogs carried to complete respiratory arrest showed no changes during and following varying periods without artificial respiration. One dog spontaneously resumed normal respiration at the end of six minutes and the other two after shorter intervals. Experimental arrangements were then made to maintain artificial respiration in intubated dogs over long periods, gradually increasing the concentration of cyclopropane in as nearly as possible, a pure

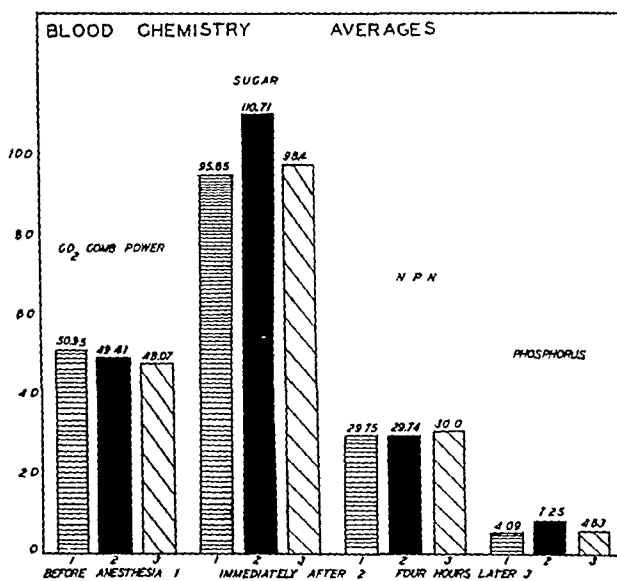


Fig 2—Average determinations of carbon dioxide combining power, sugar, nonprotein nitrogen and phosphorus in the blood taken from patients 1 before, 2 at the end of, and 3 four hours after operation under cyclopropane anesthesia.

oxygen vehicle. The dogs were allowed to reach either extreme respiratory depression or arrest and then respiration was continued by rhythmic compression of the breathing bag. Gas samples were taken in fourteen cases at the first appearance of electrocardiographic change (arrhythmia). The lowest concentration of cyclopropane was 26.6 per cent and the highest 72 per cent, with an average of 46.8 per cent. All fourteen dogs recovered normal electrocardiographic records in very short periods (from thirty seconds to two minutes) following artificial respiration with pure oxygen. Two other dogs died with ventricular fibrillation, occurring after short runs of ventricular extrasystoles and tachycardia. Gas analysis of the sample in one showed cyclopropane 71.4 per cent, and oxygen 17.7 per cent, in the other cyclopropane 52.0 per cent and oxygen 33.9 per cent. Artificial respiration did not effect recovery. A morphinized dog showed ventricular extrasystoles and ventricular rhythm on concentrations of cyclopropane under 30 per cent. After a 2 mg dose of atropine sulphate, arrhythmia ceased. Artificial respiration was maintained thereafter while the concentration

<sup>15</sup> Stehle, R. and Bourne, W. The Excretion of Phosphoric Acid During Anesthesia. *J. A. M. A.* 83: 117 (July) 1924.  
<sup>16</sup> Meloy, F. L. A Study of Pre- and Postoperative Blood Counts in Noninfectious Surgical Conditions. *Ann. Surg.* 67: 129 (Feb.) 1918.



was continuously raised until 72 per cent was reached without return of the arrhythmia

Slowing of the pulse rate seen preceding arrhythmia might indicate a vagal effect. The type of early arrhythmia is usually nodal rhythm or ventricular extrasystole. There may be a partial or complete auriculoventricular heart block. Later effects consist in ventricular tachycardia and auricular and ventricular fibrillation.

#### STATISTICAL ANALYSIS OF CLINICAL CASES

Advantage has been taken of the routine records kept by the anesthesia department of the Wisconsin General Hospital consisting of, first, preoperative observations taken from the clinical record and supplemented by the anesthetist's preoperative visit, second, the condition of the patient recorded by the anesthetist from minute to minute during anesthesia and operation as shown by blood pressure, pulse, degree of narcosis and other data, and, third, a postoperative record completed from a combination of the result of a personal visit by the

anesthetist because this agent is so lacking in potency without oxygen want as to afford little basis for comparison. When a very light degree of narcosis is desired, we prefer nitrous oxide and will continue to use it for the very reason that deep narcosis is impossible. The same group of surgeons working in the same hospital with the same anesthesia personnel, during the same period of time and with similar patients as to risk and type of operation, should make the comparisons fair even though the total number of cases is not great. The cyclopropane cases were selected at random from the total series administered, including those done early before experience had determined the most satisfactory technic or taught the character of the agent.

#### EXTRA-ABDOMINAL GROUP

Although cyclopropane has been used with satisfaction for thoracic surgery, eye surgery, obstetrics, operations on the mammary gland and the thyroid gland, genito-urinary surgery and tonsillectomies, all these are excluded because one or the other of the agents compared is thought to be contraindicated for such operations. The series includes central nervous system, bone and joint, plastic, vaginal and rectal surgery, hernias and miscellaneous general surgery outside the abdominal cavity.

The preoperative condition of these patients was similar in the three groups. For example, coughing was present in 3 per cent of the ether, 4.5 per cent of the cyclopropane and 4.1 per cent of the ethylene cases. Chronic pharyngitis was diagnosed in more than 11 per cent of each group, and oral sepsis in from 20 to 26 per cent of all the cases. The circulatory abnormalities were not less frequent than is expected in a hospital treating charity patients almost exclusively. Myocardial degeneration was a factor in 3.4 per cent of the ether, 7.8 per cent of the cyclopropane and 2.8 per cent of the ethylene cases. Arteriosclerosis averaged about 10 per cent, and patients with a functional capacity of grade II-A or less constituted 1.8 per cent of the ether, 4.1 per cent of the cyclopropane and 2.3 per cent of the ethylene cases. A nonprotein nitrogen of more than 40 was present preoperatively in 1.9 per cent of the ether, 3.5 per cent of the cyclopropane and 4 per cent of the ethylene cases. Fifty-seven of the 1,800 patients, equally divided for the agent, had brain or spinal cord lesions. More than 5 per cent of each group complained of headache, and a malignant condition was noted in 4.67 per cent of the ether, 5.3 per cent of the cyclopropane and 4.5 per cent of the ethylene cases.

During operation the complications in this series were practically nil except for surgical shock. In 2 per cent of the ether, 1.8 per cent of the cyclopropane and 2.2 per cent of the ethylene cases, third degree circulatory depression developed during operation. Pulse rate and systolic and diastolic blood pressures have been recorded throughout all anesthesia. No distinct differences were noted, and changes appear to have depended more on bleeding, operative manipulation and anesthetic technic than on the agent used. The respiratory rate was slower in the cases in which cyclopropane was administered.

Postoperative complications graphically represented in figure 3 include all the complications recorded in the nurse's notes and staff progress notes, as well as those gleaned from a personal visit to the patient. Many patients had more than one complication, and in a large number the postoperative complication was present preoperatively. Not every minor complication is included,

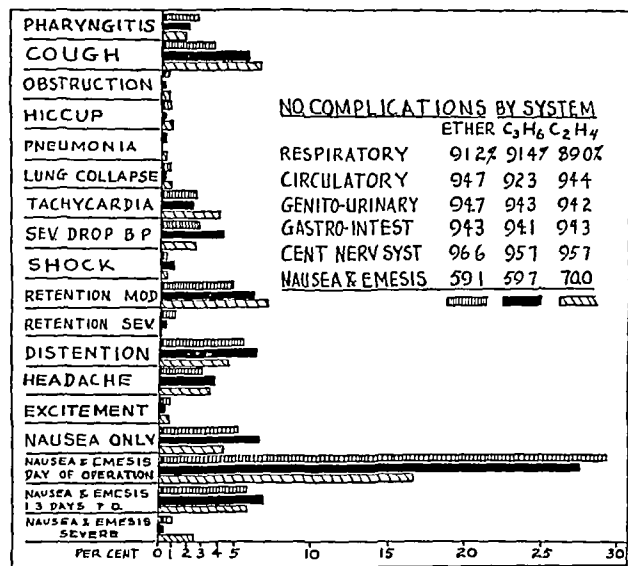


Fig. 3.—Postoperative morbidity following 600 cases each of anesthesia with ether, cyclopropane and ethylene for extra abdominal surgery. The table shows by systems the percentage showing no complications. The graph represents the percentage incidence of each complication.

anesthetist from the third to the fifth postoperative day with inspection of the bedside record at this time, and checked by a review of the clinical chart at the time of discharge or death. Finally, the completed anesthesia record is transferred to a punch card, which is then available for machine sorting in the compilation of statistical data.<sup>17</sup> Thus the comparative information concerning ether, cyclopropane and ethylene recorded in the accompanying graphs is taken from the routine records of the hospital and does not involve special observations made because of this study.

In the extra-abdominal group, a series of 600 operations with ether anesthesia are compared with a similar number with cyclopropane and ethylene. Ether having been our previous choice for abdominal operations, 400 such operations done with this agent are compared with 400 similar operations under cyclopropane. This affords a comparison of cyclopropane with the older agents ether and ethylene. Nitrous oxide has not been

<sup>17</sup> Rovenstine, E. A. A Method of Combining Anesthetic and Surgical Records for Statistical Purposes. *Anesth. & Analg.* 13: 122 (May-June) 1934.

and instances of a single occurrence are not recorded. For example, phlebitis was noted once in the 1,800 anesthetics.

#### ABDOMINAL GROUP

In the abdominal group the type of operation was about equally divided between the upper and lower parts of the abdomen for the 400 ether and 400 cyclopropane cases. Herniorrhaphy was included in the extra-abdominal group.

Preoperative complications in this group were more extensive. The respiratory and circulatory systems presented about the same percentage of preoperative

or shock occurred distinctly more frequently after cyclopropane than following the other agents. In this connection it should be noted that myocardial degeneration had been recorded preoperatively in more than twice as many of the extra-abdominal cases in which cyclopropane was given as of those in which the other two agents were administered.

#### DEATHS

The deaths occurring in the 2,600 cases statistically studied are shown in the table. The time of death as well as the cause is recorded.

Tissues taken at autopsy from fifteen of the forty patients dying in the hospital who had received cyclopropane have been carefully studied by Dr. C. H. Bunting for evidence of tissue damage that might have been brought about by this agent. Briefly his comment is as follows:

The attention of the laboratory was directed toward possible harmful effects of cyclopropane as an anesthetic by the occurrence in a patient after prolonged anesthesia of lesions comparable to those seen in dogs after excessive anesthesia with the same drug. These consisted of hyaline degeneration and necrosis of heart muscle fibers and hyaline necrosis of cells of the convoluted tubules of the kidney.

As a result, the organs in fifteen fatal cases have been scanned rather carefully for indications of injury, especially to the heart, kidney and liver. It has been difficult to evaluate the lesions found as the patients had been on the whole

Deaths Occurring in 2,600 Cases

	Extra-Abdominal Cases			Abdominal Cases	
	Ether	Cyclopropane	Ethylene	Ether	Cyclopropane
Number of cases	600	600	600	400	400
Total deaths	23	13	22	27	27
Mortality, per cent	3.8	2.16	3.66	6.75	6.75
Time of death					
Day of operation	1	1	1	2	1
13 days after operation	4	4	1	5	3
47 days after operation	1	2		8	6
Second week	2	2	4	6	6
Later	10	4	11	6	11
Cause of death					
Pneumonia	5	0	4	6	4
Other respiratory diseases	0	0	1	2	0
Hemorrhage	0	1	0	1	2
Other circulatory diseases	3	0	2	4	4
Toxemia	0	1	9	7	10
Carcinoma	3	4	4	5	4
Shock	0	0	0	1	1
Others	3	2	2	1	2

complications. There were fewer central nervous system abnormalities. Intestinal obstruction was present in 52 per cent of the ether and 75 per cent of the cyclopropane cases. Nausea and emesis before operation was present in 15.8 per cent of the former and 17 per cent of the latter. A malignant condition was diagnosed in approximately 12.5 per cent of each.

During operation, complications were rare. Emesis occurred during operation in 1 per cent of the ether and 0.5 per cent of the cyclopropane cases. Shock developed in 1.7 per cent of the ether anesthetics and in 2 per cent of the cyclopropane anesthetics. As in the extra-abdominal group, no significant differences in pulse rate or blood pressure were noted. Respiratory excursion was definitely less in patients receiving cyclopropane, often adding considerably to the convenience of the surgeon.

Postoperative complications, graphically recorded in figure 4, were determined in the same manner as described for the extra-abdominal group. All complications were included, even though they were present before operation. Many patients had several complications.

It will be seen from a careful perusal of figures 3 and 4 that nausea and emesis following anesthesia for operations outside the abdominal cavity was similar to that following ether and distinctly more frequent than following ethylene, although distinctly less severe. Following abdominal operations, nausea and emesis was less frequent and less severe than after ether. Pneumonia did not occur after cyclopropane in the extra-abdominal group, and massive collapse was less frequent. The incidence of pneumonia following abdominal operations under cyclopropane was less than one-third that after ether. Lung collapse was also distinctly less frequent. Tachycardia, a severe drop in blood pressure

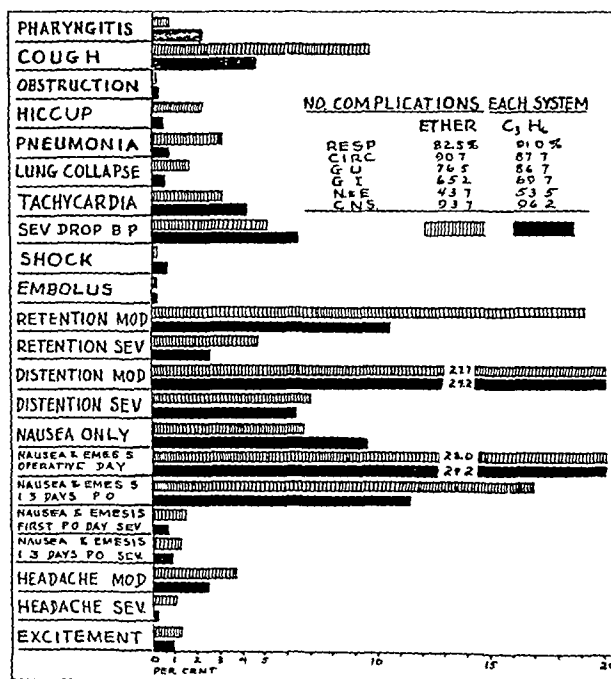


Fig. 4—Postoperative morbidity following 400 cases each of anesthesia with ether and cyclopropane for abdominal surgery. The table shows by systems the percentage showing no complications. The graph represents the percentage incidence of each complication.

extremely handicapped not only by chronic lesions but by acute terminal infections. Therefore, any notation as to lesions must be accepted as subject to correction on more extended study.

The general observations are as follows:

**Heart**—A definite tendency toward hyaline degeneration and necrosis of heart muscle fibers has been noted. This may involve complete fibers or may be limited to a marked hyaline swelling of the intercalated disks and evidence of injury to the adjacent part of the fiber. In two cases with a survival of two weeks or more after operation there was found a fairly widely disseminated hyaline degeneration of the peripheral sarcolemma.

of the muscle fibers. The unusual character of the lesion suggested the possibility that it was due to cyclopropane, yet the late occurrence of it might discredit that suggestion.

**Liver**—No necrosis of liver cells that could be attributed to the anesthetic was found in any case. The lesions found were fatty degeneration and hydropic degeneration, suggesting the reduction in oxidation processes common to all the usual anesthetics.

**Kidney**—The lesions of the kidney were in general of a degenerative nature, nonspecific in character, including parenchymatous, fatty and hydropic changes. Colloid degeneration of the ascending limbs of Henle was present in two cases. In several cases, more serious damage was indicated by the presence of hyaline necrotic cells found in the tubular lumen.

Several dogs have been anesthetized for periods as long as nine and sixteen hours and others for shorter periods frequently repeated. Such dogs have later been killed and their tissues are being studied. These are the animals referred to by Dr. Bunting. The patient to whom he refers in the same paragraph had been subjected to hysterectomy the day before death. The operation was technically difficult and hemostasis most unsatisfactory. Third degree circulatory depression (shock) was present during the last seventy-five minutes of operation in spite of treatment.

#### COMMENT

Induction with cyclopropane has appeared to be quite as pleasant as is that with nitrous oxide, though less rapid with the technic which we have used. Sensations of "ringing in the ears," "fullness" in the head and other unpleasant experiences seem less frequent than with other agents. Thus we have attributed to the complete avoidance of oxygen want from the beginning of inhalation. The ability to induce deep anesthesia without respiratory stimulation, irritation or the possible necessity of producing oxygen want gives the anesthetist a feeling of safety and assurance not experienced with any other agent.

Recovery has seemed to be more frequently accompanied by nausea than following nitrous oxide and ethylene. A curious observation has been made that severe nausea or nausea and emesis have more often followed minor administrations to expected ambulatory patients than to patients hospitalized for major surgery. We would therefore consider nitrous oxide the agent of choice for minor cases of short duration when suitable. Rather than risk oxygen want with nitrous oxide, however, we prefer to supplement nitrous oxide lightly with cyclopropane, returning to nitrous oxide at the earliest possible moment. For major surgery we think that the incidence of nausea and emesis is less pronounced than with the other agents in common use. The speed with which recovery takes place does not differ from the awakening following a nitrous oxide or ethylene anesthesia, provided the patient is in first plane anesthesia when the mask is removed.

As a preliminary to ether anesthesia, cyclopropane has given satisfaction. The induction is pleasant and the tolerance to ether vapor in the presence of a high oxygen content of the inspired gas makes for a smoother and quicker ether induction.

It is agreed by all members of the anesthesia staff that the induction of endotracheal anesthesia is easier with cyclopropane than with ether or ethylene. Although there may be slight stimulation of mucus following laryngoscopy and intubation, in patients receiving no premedication, we have nevertheless done many endotracheal anesthetics for brain surgery when no pre-

liminary opium derivative, barbiturate or atropine-like drug had been given. Endotracheal cyclopropane, with large tubes for "to-and-fro" breathing,<sup>6</sup> is very satisfactory for brain, dental and many abdominal cases as well as for plastic work about the head. Except for central nerve surgery, morphine and scopolamine have been used as premedication. Many of these cases are finished with nitrous oxide after intubation with cyclopropane.

In performing thoracoplasty, rib resection for empyema and other operations within or outside the chest the extremely quiet respiration, ample oxygen supply and quick recovery of the cough reflex have appeared to the anesthetist to offer ideal conditions for this work. Ease of intubation when needed is an added advantage.

In the lower part of the abdomen, including all gynecologic procedures through an abdominal incision, satisfaction has been complete for surgeon and anesthetist. Relaxation is ample. For upper abdominal work, cholecystectomy and stomach resections, for instance, noticeable defect in the relaxation has been evident in many cases. In the strong muscular type, the rectus muscles are relaxed and breathing is quiet without "forcing" the anesthesia. However, during closure of the wound, the surgeon finds the peritoneal margins retracted under the recti, sometimes causing difficulty in closure. Having had similar experiences with ether in certain cases, we have used similar remedies.

For many years, nitrous oxide has proved satisfactory for intermittent relief from pain during parturition. For a majority of patients in labor, potency and muscular relaxation are to be avoided. Only relief from pain is desired. We still prefer nitrous oxide in the early stages of labor in all cases and throughout in most. A very small amount of cyclopropane added to nitrous oxide during second stage pains has been found useful in adding potency for the occasional woman the severity of whose pains is too great to be completely relieved by nitrous oxide. In forceps delivery, version and extraction, and cesarean section, cyclopropane has proved immediately satisfactory in the few cases in which it has been used. A study of a large series of cases to determine the incidence of postpartum hemorrhage and other complications should be made. Continuous administration of cyclopropane in very light dosage by the carbon dioxide absorption technic in three obstetric cases has resulted in partial relief from pain with retained consciousness. The possibility of obtunding the sensation of pain with cyclopropane, without the production of unconsciousness, warrants further study.

#### APPLICABILITY OF CYCLOPROPANE

At the end of a year's study of the possible usefulness of this agent for clinical anesthesia at the Wisconsin General Hospital, we find it replacing ethylene to the satisfaction of anesthetists, surgeons and patients. We choose it in preference to ether in well over 75 per cent of the work formerly done with that agent. In the cases in which ether is still used, there seems to be an increasing tendency to choose cyclopropane in preference to nitrous oxide as a means of inducing ether anesthesia.

Our own analysis of the comparative graphs of post-operative complications leads us to believe that we may expect slightly better results by the use of cyclopropane in patients handicapped by respiratory and circulatory abnormalities. We must, however, emphasize our firm conviction that the careful individual attention of a

skilful anesthetist, well versed in the physiologic principles on which efficient respiration and circulation depend, is much more important in preventing damage to handicapped patients than is the agent used to produce relief from pain

## Clinical Notes, Suggestions and New Instruments

### ZIPPER BANDAGES

GERALD H PRATT MD PHILADELPHIA

Abdominal incisions require adequate support for a long period after operation and by elimination it has been established that this support is best supplied by the application of adhesive tape strips, long enough to include the back muscles. Inadequate support to the incision in the postoperative period probably contributes as much as any other factor to wound rupture. This tight adhesive application is difficult and often painful to remove. Especially is this true in hairy males or in lower abdominal operations in which the incision encroaches on the pubis. Thorough shaving preparation does not eliminate the trouble, as the hair grows into the adhesive tape before the time of the first dressing. When the skin is burned by the iodine or other sterilizing solution, or when there is an irritating drainage, the changing of the adhesive at dressing times becomes a serious ordeal.

As most surgical routines require the dressing to be changed about the seventh and twelfth days for the removal of the superficial and retention sutures, there must be at least three changes in the adhesive tape. When there is drainage it is often necessary to change the dressings several times a day. To avoid this annoyance many ingenious devices have been described. The Montgomery straps seemed to solve the problem for a time, but it was found that the simple strings were not sufficient to hold the abdomen and many ruptures of the wound followed their routine use. In one institution there were three such "blow-outs" in a month, emphasizing for all time the inadequacy of this type of dressing, at least in the early postoperative days. Particularly in drainage problems with an already weakened wound, is this prone to occur.

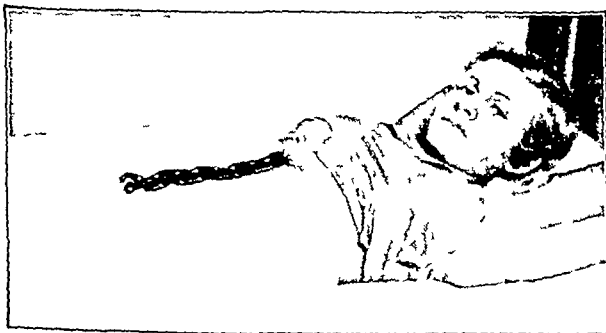


Fig 1—Zipper bandage applied

At present most surgeons resort to cutting the adhesive tape down the center and stripping it free from the underlying dressing, thus having an access to the wound. It is then closed with either new adhesive tape or laced through cut out openings. This is only partially satisfactory, as it is difficult to cut and requires the surgeon to contaminate his hands in the soiled dressing. This procedure is not without its discomfort to the patient.

In the Babcock surgical service at Temple University Hospital we have been using that ingenious device which seems to have found its way into nearly everything used today, the zipper. It has solved our problem very nicely and we suggest its adoption by others of the profession, both in abdominal and in extremity work.

From the Babcock Senior Surgical Service Temple University

We obtained the zippers at the five and ten cent store in various lengths. These zippers are sold with a small border of cloth tape around them for attachment. This lends itself to incorporation into the adhesive tape. Sufficient adhesive strips are cut and overlapped, and the end next to the zipper is folded over so that there is a three inch facing on the adhesive side. A simple rubber punch is used to make multiple perforations at distances from half an inch to an inch in both the cloth tape around the zipper and in the faced adhesive strips. We use a punch that places a metal eyelet on the zipper tape to prevent fraying after much use. A piece of string or tape is then laced through these openings in the zipper cloth and the adhesive tape, thus joining the adhesive tape securely to the zipper. The finished dressing is then applied, one adhesive strip on each side at a time and the tape strings are tied at the top and bottom in a bow knot. The facing of the adhesive tape pre-

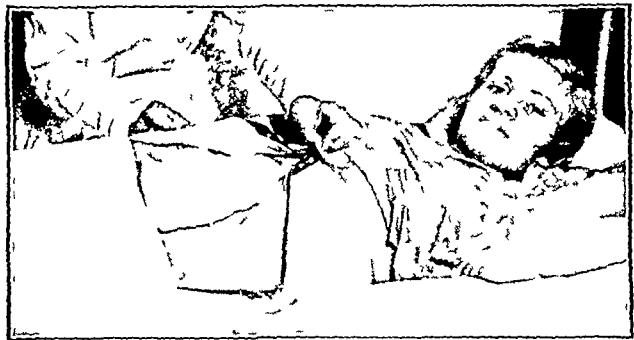


Fig 2—Zipper opened by nurse for dressing change. The faced adhesive tape assures an adequate opening to give free access to the wound.

vents the dressings from sticking to the adhesive tape and greatly facilitates their removal.

The zipper may be removed after use by merely pulling out the lacing on each side. It is washable and sterilizable, does not rust, and may be used any number of times. After the first experience it is easily prepared by the nurse and kept in readiness on the dressing carriages.

The patients react very favorably to the idea. This is true particularly when previous dressings or operations have made the patient apprehensive about the removal of the dressings. The draining wound may be changed freely by the attendant physician or nurse without the mechanical difficulty of opening a dressing without contamination. We find that many more dressings requiring attention every few hours can be assigned to the nurse, thus assuring regularity. The device is applicable when irrigations such as with surgical solution of chlorinated soda are being carried out, and is of great value in such wounds as osteomyelitis, fecal fistula and biliary fistula. When drainage is excessive, the use of gutta percha or cellophane is of assistance in preventing soiling of the outside coverings.

1720 Spruce Street

### SARCOMA OF THE PROSTATE

OSWALD SWINNEY LOWSLEY MD, AND FRANCIS NELSON KIMBALL MD  
NEW YORK

Sarcoma of the prostate is such a rare finding that it is considered proper to report our case in considerable detail. A diagnosis is often difficult to make, and this case is unusual in that it occurred to a man late in life. The literature shows, however, that our case is not unique in that regard.

#### REPORT OF CASE

S E B, a man, aged 64, admitted to the Urological Department of the New York Hospital (James Buchanan Brady Foundation), May 19, 1930, complained of frequency and dribbling. The frequency began about three years before admission and greatly increased in severity until the patient voided on the average of every hour, day and night. The micturition was always painful. Dribbling began one year before. At first it

From the Department of Urology (James Buchanan Brady Foundation) of the New York Hospital

# SARCOMA OF PROSTATE—LOWSLEY AND KIMBALL

JOUR A M A  
SEPT 29 1934

occurred at the end of micturition. On admission it was constant. Cystoscopy had been performed about one month before and he was told that he had a moderate intrusion of the prostate. Immediately following this procedure there was marked bleeding from the urethra, but this gradually subsided. His family and past personal histories were unimportant, except that he had a gonorrheal infection at the age of 24. Recovery was uncomplicated. He had a syphilitic infection at the age of 29 for which he received vigorous antisyphilitic treatment. The blood Wassermann reaction had been negative during the past thirty years. Physical examination showed that the hearing was slightly impaired. The heart was slightly enlarged, and the blood pressure was 170 systolic, 88 diastolic. On rectal examination the prostate was found to be about two and one-half times the normal size, flattened in type and leathery in consistency. It was our impression that the patient had an

was greatly disturbed because of pain in the right side and flank and an elevation of temperature. However, for one week his temperature had been normal. During his absence from the hospital he returned at frequent intervals for phenolsulphonphthalein tests and blood chemistry examinations, but the kidney function was so poor that it was impossible to do the second stage of the operation. On readmission to the hospital another cystoscopy was attempted after the suprapubic tube had been removed from the wound and the wound tightly closed by digital pressure. The instrument passed without difficulty, although it seemed to assume a peculiar angle as it entered the bladder. There was a tremendous intrusion into the bladder of the median portion of the prostate. The ureteral orifices could not be seen. The prostate appeared to be about the size of a hen's egg. October 17, intravenous urography was done. Three hours after injection the right kidney pelvis was seen to be about five times its normal size and the ureter was tremendously enlarged and distorted. The left kidney shadow pictures were not visualized in any of the shadows in the right upper quadrant, which were thought to be gallstones.

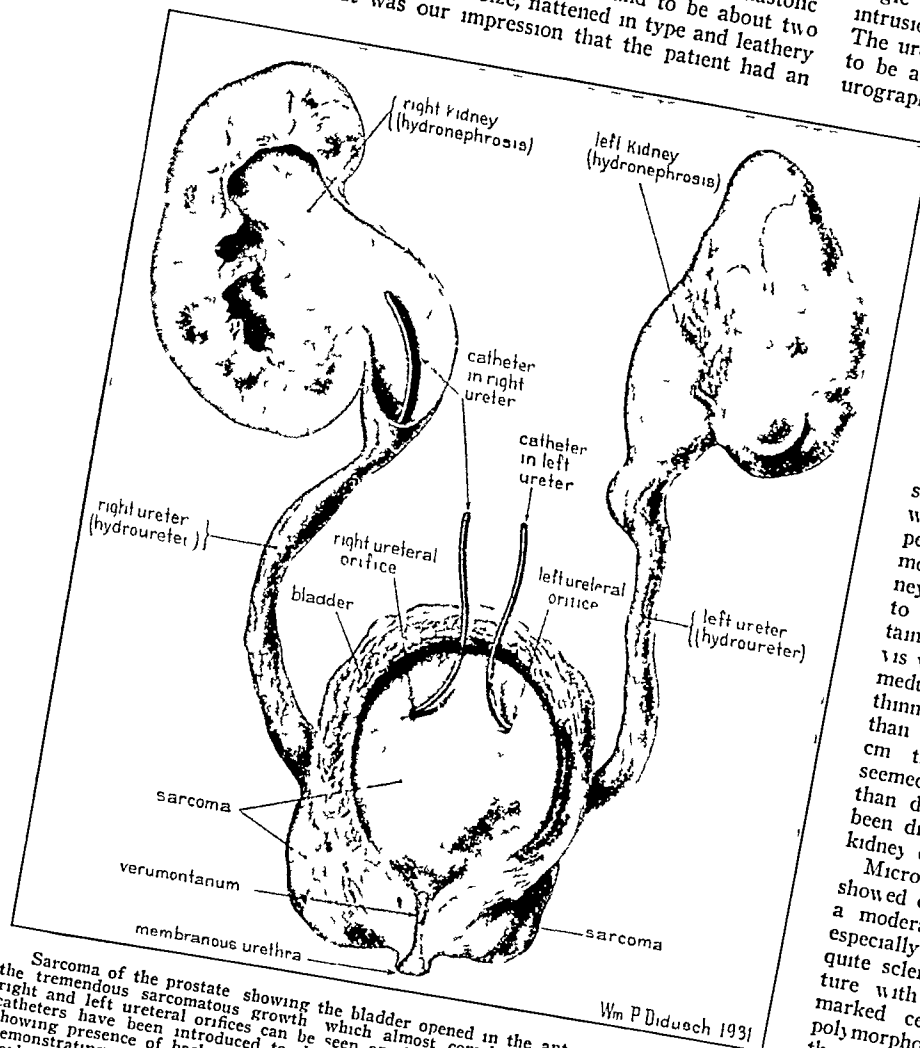
The patient gradually grew worse, marked emphysema, bronchitis, and marked embarrassment to the circulation with enlargement of the liver developed, and death occurred December 1933. The probable cause of death was uremia.

An autopsy was obtained and the pertinent urologic observations were as follows:

**Kidneys**—Gross Examination. There were some significant changes. The perirenal fat tissue was considerable in amount and could be readily peeled from the kidneys, their capsules being removed with the surrounding fat. The right kidney felt small and soft. The pelvis was dilated to almost the size of the kidney itself and contained cloudy mucinous material. When the pelvis was empty this kidney weighed 175 Gm. The medullary portions seemed to be relatively more thinned out by the greatly dilated renal pelvis than the cortex. The kidney substance was 2.5 cm thick around the pelvis. The left kidney seemed even more injured by the hydronephrosis than did the right. After the pelvic fluid had been drained the kidney weighed 135 Gm. The kidney cortex was 1 cm in thickness. Microscopic Examination. The left kidney showed extensive interstitial fibrosis. There was a moderate amount of lymphocytic infiltration, especially in localized areas. The tubules were quite sclerotic. The right showed a similar picture with rather less fibrosis but much more marked cellular infiltration. Fairly numerous polymorphonuclears were found in addition to the very large numbers of round cells.

**Ureters**—These were both greatly dilated throughout. They were fairly uniformly 1.5 cm in diameter throughout and contained thick white mucinous urine. There was a slightly smaller diameter where the right ureter crossed the pelvic brim. The dilated ureters extended to the bladder wall.

**Bladder**—Gross Examination. The bladder communicated well preserved with the suprapubic sinus. The bladder contained almost no urine. It was closed down so as practically to surround the prostate without any remaining lumen. The prostate was enormous, being 8 cm in length, 5.5 cm in width and 4.7 cm in thickness (i.e., about the size of a tennis ball). The ureters could not be recognized from inside the bladder but when probed into from the outside they were found to empty into the bladder on the most prominent portion of the anterior surface of the prostate. Their openings were very oblique and a probe within them could be seen through the bladder mucosa almost 1 cm above the point of opening. There were a few small diverticula superior to the



Wm P. Diduch 1931

Sarcoma of the prostate showing the bladder opened in the anterior midline exposing the tremendous sarcomatous growth which almost completely filled the bladder. The right and left ureteral orifices can be seen on the surface of the tumor mass. Ureteral catheters have been introduced to demonstrate these openings. Both ureters, although showing presence of back pressure were patent. The right kidney is shown in section demonstrating a marked degree of hydronephrosis. The left kidney was also hydro-nephrotic and the external form showed cyst formations on its surface. The high insertion of the ureters is evident and below on each side is seen the lower portion of the sarcomatous growth. The bladder wall showed marked hypertrophy of its musculature. There was no evidence of a trigon present.

adenomatous hypertrophy of the prostate. Further physical examination prior to operation did not reveal anything unusual. A suprapubic cystostomy was performed under regional block, and the interior of the bladder showed a moderate intrusion of the prostate. Following the operation the patient made an uneventful recovery, but the kidney function failed to show any appreciable improvement. June 20 the patient was discharged from the hospital, as removal of the prostate was deferred until a more favorable period.

October 13 the patient reentered the hospital and told us that his condition had improved rapidly after he had left the hospital, except that his appetite was very poor and his sleep

prostate On section, the prostate seemed to consist almost entirely of fibromuscular tissue The enlargement seemed to be most prominent in the so called middle lobe, but the lateral lobes were almost as much enlarged Posteriorly the seminal vesicles and ampulla of the vasa deferentia were displaced somewhat laterally by nodular projections from the prostate The ureters were displaced upward The bulk of the growth grew into the bladder, suggesting that the process originated in the middle lobe

**Microscopic Examination** Several sections were studied In all of them the picture was that of sarcoma, apparently of smooth muscle origin, as shown by van Gieson's stain (leiomyosarcoma) No glandular element was recognized in any section The spindle-shaped cells varied greatly in size, and very large nuclei were found in many of the cells There was very little cellular infiltration Although we are listing this case as sarcoma, we do so largely on histologic grounds

**Genitalia**—The seminal vesicles were both firm and large The testes were soft and yellowish Microscopically the testes showed some atrophy There was no evidence of invasion in the seminal vesicles or in the testes

#### SUMMARY

Uremia followed a ureteral obstruction by an enormously enlarged and histologically sarcomatous prostate

The clinical diagnosis was adenomatous hypertrophy of the prostate, right hydronephrosis and uremia

The anatomic diagnosis was leiomyosarcoma of the prostate, bilateral hydro ureter, bilateral pyonephrosis, cholelithiasis, emphysema and bronchopneumonia

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### Special Article

## THE PRESENT STATUS OF RADIATION IN THE TREATMENT OF CANCER

CLINICAL LECTURE AT CLEVELAND SESSION

ARTHUR C CHRISTIE M.D.

WASHINGTON D. C.

Substantial improvement has occurred in the past few years in the treatment of cancer This has been due to several causes, among which are improvements in apparatus for roentgen therapy, advances in technic in the application of both the roentgen ray and radium, and a change in attitude which permits radiation treatment of patients favorable for cure There are reasons to believe that further improvement will take place in all these respects but the results already attained justify a reappraisal at the present time of the place of radiation therapy in cancer

Since the cause of cancer remains undiscovered, its treatment is still empirical This is true of radiation as of other methods The rational basis for radiation therapy goes back to the early discovered fact that embryonal types of cells are more radiosensitive than adult forms The sensitivity peculiar to each kind of cell appears to be related to the life cycle of the cell, that is, the shorter the life cycle the more sensitive to radiation and vice versa Lymphocytes have the shortest life cycle and are therefore most sensitive to radiation, bone and nerve cells have the longest life cycle and are therefore most resistant Experience has fully established this principle, but it is now well known that

other equally important factors enter into the problem of the curability of cancer by irradiation Because of this it has been appropriately suggested that "radio-curability" is a better term than "radiosensitivity" for use when an attempt is made to estimate the probability of cure by radiation Among other factors that are equally important with radiosensitivity of the cancer cells are the general condition of the patient and his reaction to radiation, the immediate tissue environment of the cancer (the cancer bed) and the relation of the growth to vital organs or important tissues that may suffer injury

It is thoroughly established that the beneficial effects of radiation on malignant growths are due not only to the direct changes produced in the growth itself but equally to the reaction of the surrounding healthy tissues

The explanation of the fact that some cancers show initial marked regression under irradiation but finally reach a point at which there is no further effect is probably due to several factors One of these is the fact that the more radiosensitive cells are destroyed by the early treatment, while those that are radioresistant to the particular dose administered persist Repetition of an equal dose will not destroy such cells any more than did the initial dose If radiation is to accomplish additional good in such cases it must be given in a larger dose, and this is often inadmissible because of the injury that may result to the normal tissues Great harm, with little probability of additional benefit, may be done by repeated irradiation without change of dosage Another factor that may terminate the beneficial effects of radiation is the permanent change that occurs in the surrounding healthy tissues They will sooner or later reach the point at which the capacity to react to irradiation is exhausted The ideal now aimed at is to apply the total radiation dose in such a manner as to secure the optimum relation between destruction of neoplastic cells and the normal tissue reaction, the latter not being carried to such a point that prompt recovery is impossible

Methods have been devised in the past few years which constitute an important advance in respect to proper and efficient dosage Except in superficial cancers in which it is possible to destroy the growth by the caustic effect of radiation, the single massive dose method has been practically abandoned Some type of fractional dosage is now in general use The "saturation" method of Pfahler consists in administering a large initial dose and maintaining the radiation effect at a maximum by giving a small daily dose until the total dosage is attained Theoretically the advantage of this method is that the maximum effect on the tumor cells is obtained at a time when the normal tissues are still able to react strongly The Coutard fractional dose method of applying the roentgen ray consists in giving a very large total dose over a prolonged period (from eighteen to thirty-five days), an equal amount being given daily until the total dose has been reached Essential factors in the method are relatively high voltage (at least 200 kilovolts) and heavy filtration (from 1 to 2 mm of copper or its equivalent) Results have been obtained by this method, to which I will refer later, which are superior to any previously thought possible Holfelder has used a method that aims to take advantage of the large initial dose of the "saturation" method and subsequently to build up the dosage by

From the Radiological Clinic of Drs Groover Christie and Merritt  
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1914



## IRRADIATION OF CANCER—CHRISTIE

JOUR. A. M. A.  
SEPT. 29, 1934

the method of Coutard. The increased benefits from the fractionated dose method appear to arise from the improvement in the ratio between the destructive effect on the neoplasm and the reaction in the surrounding normal tissues.

Progress has taken place also in methods of radium therapy, especially in respect to interstitial radiation. The use of gold and platinum seeds was a great advance over glass seeds for the interstitial application of radon, the increased filtration lessens the danger of localized necrosis, so likely to occur when glass seeds are used. There has also been improvement in the use of radium needles by increasing the filtration to at least a millimeter of platinum and by using smaller needles to minimize trauma. One of the difficulties in the use of seeds and needles is that of securing a uniform distribution in the area to be irradiated. This was partly solved by the use of seeds or needles with a very small content, but better still by tubules or needles from 3 to 6 cm in length with a very small amount of radon or radium element to the running centimeter. The use of such needles makes it possible to transfer the tissues in the form of a grid and thus to secure fairly uniform dosage.

Improvements that have been made in roentgen apparatus in the years immediately past are of importance equal to those made in technic. Machines are now in common use delivering from 20 to 30 milliamperes of current at 200 kilovolts (recently the voltage has been increased to 350 kilovolts), and tubes are available to withstand such currents. In a few places in the country special apparatus has been installed to operate at 750 and even 1,000 kilovolts. There is not yet sufficient evidence to show that such voltages produce results that are an improvement over those obtained at from 200 to 350 kilovolts. There are indications, however, that the clinical results will be found somewhat better than those being secured at present. It seems quite certain that the results in cancer are due to the amount of radiant energy that can be delivered to the cancer without permanently injuring the normal structures and that the voltage per se is of no importance. There are indications now that further advance may be made in roentgen apparatus by securing a much greater energy output by the use of tremendously higher milliamperage rather than by an increase in voltage. Such machines would not require the large space of those of very high voltage and would make possible the same biologic results by enabling the operator to treat at a much greater distance from the patient, thus securing the proper relationship between surface and depth dosage. I have mentioned these advances to show that the possibilities of radiation in the treatment of cancer are not yet exhausted.

In an attempt to appraise the present position of radiation in malignant disease, the fact must be kept in mind that results up to the present moment have been obtained over a period of time during which the technic of treatment has been constantly changing. This has been due to new discoveries and inventions of apparatus and to a constantly widening experience. During most of this time the general attitude has been, and rightly so, that radiation was in an experimental stage. Except in the field of skin cancer, up to very recent times it was considered unjustifiable to treat by radiation any but the most advanced and hopeless cases and to use it

as an adjunct to whatever surgical methods were thought advisable. Because of results obtained in large numbers of primary inoperable and seemingly hopeless conditions and in recurrences after operation, and because of improvement in results when used in addition to surgery, the attitude toward radiation has radically changed during the past three or four years. Some conditions that were formerly entirely in the surgical field have now been given over to radiation therapy, notably cancer of the uterine cervix and many types of skin cancer, in others wide dissection and removal of regional glands has been replaced by radiation treatment of regional nodes, and perhaps interstitial irradiation of the primary growth, and perhaps removal of glands that persist after such treatment, that is, radiation has become the primary method instead of being used as an adjunct to surgery. In other regions of the body the question of operability is now being scanned with much greater care than formerly, since it has become known that in many cases formerly considered operable, but in which the percentage of cure is very low, much better results may be obtained by radiation alone or by radiation followed by limited surgery.

## PLACE OF RADIATION IN VARIOUS TYPES OF CANCER

Under such circumstances of rapidly improving apparatus and technic and with an almost revolutionary change in the type of cases coming under treatment, statistical evaluation of past results has no absolute value. It serves only to indicate trends and possibilities and to point out probable lines of progress. Great care always must be exercised in interpreting the statistics that are offered in cancer under any method of treatment. General statistics of five year cures of cancer of any particular region of the body are peculiarly valueless unless they contain specific information with regard to numerous factors. For instance, five year cures in cancer of the breast mean very little unless one knows the percentage of cures in each of several age periods and has detailed information with regard to the histologic type and clinical aspects of the disease and the presence or absence of glandular involvement.

With the foregoing preliminary considerations in mind I shall proceed to an appraisal of the place of radiation in various types of cancer. It is obviously impossible to discuss the subject exhaustively in a paper such as this, but I shall try to illustrate all the principles involved by considering somewhat in detail several different regions.

Because they are accessible and usually can be irradiated without great danger to normal structures, cancers of the skin have been treated by radiation methods almost from the time of the discovery of the roentgen ray. The great majority of skin cancers are either basal cell or squamous cell epitheliomas. The basal cell type when it is still small and does not involve cartilage or any other important structures is readily curable by any one of several different methods. It is a local disease without tendency to involve the regional lymphatics or to metastasize to distant parts and can be cured by complete local destruction by the roentgen-ray, radium or electrothermic methods or excision. Which method

used is not so important as thoroughness in destroying the local lesion. When basal cell cancers become very large or involve bone or cartilage they are a more difficult problem, and radiation occupies the most important place in their treatment. A considerable percentage of such lesions can be cured by modern methods of radiation, sometimes assisted by electrothermic destruction of fungating masses. The fractionated method of Coutard constitutes an epochal advance in dealing with lesions involving cartilage. Formerly, destructive doses of roentgen rays or radium about the cartilages of the ear, eyelids, nose or larynx frequently produced a painful perichondritis or necrosis, a condition more difficult to cure than the original cancer. By applying highly filtered roentgen rays daily over a long period, the lesion may be completely destroyed and the normal tissues saved from irreparable damage.

Squamous cell epithelioma is much more important in its menace to life than the basal cell type. It early invades the lymphatics and involves the regional lymph nodes and may metastasize to distant parts of the body. Because of their invasive tendency, it is important to treat and destroy them while they are still localized. When they come under observation, however, there is no means of determining to what distance along the lymphatic drainage system cancer cells have already found their way. Excision of the local lesion is therefore a dangerous procedure, since it must be done blindly, it is only by chance that the limit of excision will extend beyond the invaded area. Whatever method is chosen to destroy the local lesion, the primary treatment should be thorough roentgen irradiation of the entire lymphatic drainage area by the fractional method.

There is a difference of opinion about the advisability of biopsy to settle the diagnosis. Nothing has been more thoroughly established than the fact that trauma by cutting through or otherwise injuring cancer-bearing tissue, greatly increases the danger of dissemination of the cancer cells, both locally and to distant parts. There are important advantages in definitely establishing a diagnosis of malignancy and in knowing the type of histologic structure present, but the added danger of dissemination must be weighed when biopsy is contemplated. Some believe that the importance of the knowledge to be gained outweighs the danger, while others feel that biopsy should be postponed until about two weeks after roentgen irradiation in order to lessen the liability of spread.

Not only is it of prime importance to irradiate the regional lymphatic drainage area as the first step in treatment, but the method of dealing with the primary lesion is also of great importance. I believe that the method of choice in treating the local lesion is a destructive dose of roentgen rays or surface application of radium, administered at one sitting about the time when the series of treatments is begun over the regional lymphatics. Six weeks after such treatment, enlarged lymph nodes may have disappeared and the original lesion may be healed. If there is any residuum of the primary lesion it can then be destroyed by electrocoagulation or by implanting interstitially gold or platinum radon seeds or small needles of radium element. Any lymph nodes that remain palpable may be laid bare by careful incision and radon seeds or radium needles implanted.

The method described is applicable to epidermoid cancer of the squamous or transitional cell type, any-

where on the skin. In cancer of the lip it is a much more rational method than excision followed by irradiation. If excision is to be done at all, it should always be preceded by irradiation. If cancer recurs after simple excision, it is a traumatized cancer with much greater potentialities for harm than the original lesion and with much less chance of cure by radiation therapy.

The reason that roentgen irradiation in a destructive dose or surface application of radium is preferred for the primary lesion rather than interstitial irradiation is that implantation, even of small seeds, produces considerable trauma and increases the drainage from the cancer area. Previous roentgen irradiation can do no harm and may introduce a vital element of safety.

One important consideration in radiotherapy not only of skin cancer but of cancer in any other part of the body is that practically all that is to be done should be accomplished in the first series of treatments. The possibilities of reaction in the surrounding tissues may never again be so favorable after those tissues have suffered the changes produced by irradiation. For this reason it is necessary to plan the initial treatment with the greatest attention to detail and to administer it with meticulous care. It must be realized more fully that radiation therapy of cancer to be efficient is a radical procedure and must not be entered into lightly and casually. It is just as radical a method as surgery and may require even more skill, judgment and experience for its proper use. It is important that both the medical profession and the public understand this.

I have already referred to the long known fact that the degree of sensitivity of cancer to radiation depends on its histologic structure. The cellular, undifferentiated tumors are the most radiosensitive and at the same time the most malignant. The squamous cell epitheliomas, which have just been considered, are moderately radioresistant, but there is a wide range of susceptibility to radiation even within that class of tumors. The more nearly the morphologic changes approach those of normal epithelial tissue, the less malignant they are and the more radioresistant. In more rapidly growing tumors there is less tendency to formation of pearls and connective tissue stroma and more tendency to formation of masses of undifferentiated cells. A single small squamous cell tumor may exhibit several grades of malignancy, parts of it may be highly differentiated and hence radioresistant, while other parts may be composed of masses of cells with no tendency to differentiation and with marked hyperchromatism and variation in cell size, and hence radiosensitive. These facts are of importance not only in the prognosis but also in the treatment.

There are several regions besides the skin in which epidermoid cancer is a frequently occurring lesion. I have already mentioned cancer of the lower lip. Still more important, because of their immediate danger to life, are squamous cell cancers of the oral cavity, including the tongue. Their danger arises not only from the fact that the primary lesions are somewhat more difficult to eradicate than those on the lip but also from their mode of metastasis. Metastasis from the lip affects first the lymph nodes of the submaxillary region and subsequently the superficial and deep superior cervical nodes. The lip has no direct connection with the lower cervical and supraclavicular nodes, although they may become involved in late cases. The tongue, how-

ever, has direct lymphatic drainage into all the glands of the neck even down to the supraclavicular and tracheal nodes. Metastases to the latter are early and frequent. Statistics from various clinics indicate that about two thirds of the cancer cases of the cheek, gum of the mandible, floor of the mouth and the tongue have metastases when they first come under observation. It is apparent, therefore, that the matter of primary importance in treatment is the lymph node involvement rather than the original lesion. The first indication in all cases of cancer of the oral cavity, including those of the tongue, is to give thorough roentgen irradiation by the fractionated method over both sides of the neck from the submaxillary to the supraclavicular region. This will occupy a period of at least three weeks, during which time efforts should be made to clean up infections in the mouth and to treat any intercurrent disease, such as syphilis, which interferes greatly with the healing of cancer. At the end of about a month from the beginning of the roentgen treatment the local lesion may be dealt with by implantation of highly filtered radon or radium element, or by electrothermic destruction. After about three months, when the roentgen reaction has entirely subsided, any palpable nodes in the neck may be destroyed by implantation of radon or radium through an incision. Statistics are becoming available from numerous clinics which indicate a great improvement in the results of treatment of intra-oral cancer. Whereas the best results of surgery in good hands is from 10 to 20 per cent of cures in operable cases, reports of radium and roentgen treatment indicate that from 20 to 35 per cent of cure in all cases may be expected, including those that are inoperable. It seems reasonable to believe that results will be somewhat further improved by the general use of thorough roentgen treatment by the fractional method preliminary to treatment of the primary lesion.

Another region in which epidermoid cancer is common is the tonsil, where surgical treatment is hopeless. There is no doubt that primary regression of these malignant growths and at the same time complete disappearance of cervical nodes may be brought about by prolonged fractionated roentgen irradiation. What percentage of permanent cures can be expected is as yet unknown, but squamous cell carcinoma of the tonsil, even with glandular involvement, is no longer a hopeless disease. The lymphosarcomas and the so-called lympho-epitheliomas of the tonsil are among the most radiosensitive of all tumors, and their complete regression along with any glandular extensions may be secured by relatively small doses of roentgen radiation. They metastasize very early, however, and unless they can be treated before this takes place there is little chance for ultimate cure. A somewhat more hopeful class of tumors for radiation therapy, which occur in the tonsil and the parotid, are the mixed cell tumors of embryonic origin. External irradiation is the method of choice in their treatment.

The great majority of cancers of the larynx, especially those which arise entirely within the larynx, are squamous cell epitheliomas. A real advance has been made in the treatment of these cases by the use of the Coutard method. The use of radium within the larynx has always been hampered by the danger of injury to the cartilages whenever the dosage was sufficient to destroy the cancer. Many reports have been published recently of good results obtained by external irradiation

by the prolonged fractional method. Even in far advanced, inoperable cancer of the larynx much good can be accomplished. In early cases the indications now are that the percentage of cures by irradiation will compare so favorably with those for radical operation that the disability due to the latter may be avoided in the future.

A very inadequate picture of the present use of radiation therapy in epidermoid cancer would be presented were consideration of cancer of the uterine cervix to be omitted. A small percentage of cancers in that location are adenocarcinomas, but the great majority are squamous cell epitheliomas. Irradiation is now the generally accepted treatment for all cases of cancer of the cervix. A great variety of methods of applying radiation therapy in this region have been used. The following general procedure recommended by William P. Healy, which is now widely used, has gradually evolved from extensive experience. It is not suggested that it is the only effective method, but it has been found highly successful in practice and is in accord with present knowledge of the action of radiation in cancer.

- 1 Roentgen irradiation of the entire pelvis with high voltage and heavy filtration, spread over suitable time. This recognizes the importance of dealing first with metastases into the regional lymphatic areas and of preventing dissemination of the disease from subsequent manipulation of the local lesion.

- 2 Approximately ten days after completion of the roentgen series the radium treatment in the vagina and cervix is begun. Applicators containing radon or radium well filtered (0.5 mm of platinum or equivalent and rubber) are placed against the cervix and in the lateral fornices for a total dosage of from 3,000 to 4,000 millicurie or milligram hours. This deals with the superficial cervical lesion and extensions into the base of each broad ligament.

- 3 A day or two after the vaginal application, tubes in tandem are inserted into the cervical and uterine canal for a total dosage of about 3,000 millicurie or milligram hours.

- 4 About a month or six weeks after the beginning of the treatment the patient is carefully examined for any small remaining lesions and these are treated by the interstitial application of radon seeds or small radium needles.

Emphasis must be laid on the necessity for the utmost care in carrying through the radiation treatment in all its details, external roentgen irradiation must be thorough, the vaginal applicators must be so applied that the cervix and bases of the broad ligaments receive adequate dosage but with care to avoid damage to the bladder and the rectum, intra-uterine applicators must be so inserted that extension of the disease into the fundus will receive adequate dosage and, finally, any remaining uncured lesions must receive interstitial irradiation.

After this primary course of irradiation further radiation treatment is almost absolutely contraindicated. If the disease recurs, further irradiation is likely to cause irreparable damage to the bladder or rectum. Everything that is to be accomplished should be done at the first series of treatments.

The results of radiation therapy in cervical carcinoma constitute a great advance over previous methods of treatment, and these results are constantly improving as experience accumulates. There is quite general agreement that external roentgen therapy is of distinct value and that its use is resulting in an increased percentage of cures.

Up to this point I have considered only the epidermoid type of carcinoma. Most of the principles involved in radiation therapy of cancer are illustrated by the methods employed in the epitheliomas, which I have discussed, but some of the special problems of radiation therapy can be set forth more clearly by a brief consideration of a few other types of cancer.

Cancer of the breast until very recently was subjected to radiotherapy only when hopelessly inoperable or as a postoperative measure. The fact that about 70 per cent of the total number of breast cancers are not curable by surgical means presents a constant challenge for the persistent trial and development of radiotherapy, the only other means that at present offers any hope for the cure of cancer.

The following points with regard to the treatment of carcinoma of the breast are now quite generally accepted among experienced radiotherapists:

1 The initial treatment in all cases of breast carcinoma should be a thorough course of high voltage roentgen irradiation over the breast and lymphatic drainage areas, a total dosage of about 5,000 roentgens spread over at least three areas over a period of twenty-one days.

2 If the tumor is inoperable because of fixation, extensive glandular involvement, the age of the patient or the type of the cancer (inflammatory type, cancer en cuirasse or acute duct carcinoma), the subsequent treatment will depend on the condition present from six to eight weeks after the roentgen treatment. In very extensive involvement the palliation resulting from the initial treatment may be all that it is possible to accomplish. In others it is often possible to destroy localized nodules or ulcer by interstitial application of radon or radium. Much can be accomplished in seemingly hopeless conditions for the comfort of the patient and prolongation of life.

3 If the tumor is operable, the logical time for operation is from six to eight weeks after the roentgen irradiation. Nothing but good is accomplished by this delay, the devitalization of cancer cells and sealing of the vascular channels greatly lessens the liability of dissemination of the disease at the time of operation. Preoperative irradiation in breast cancer as a routine measure is undoubtedly a real advance in treatment of this disease. When the roentgen treatment is administered by the Contard method, the injury to normal structures is not such as to create any difficulties or untoward complications in the operation.

4 The question of postoperative irradiation is in a somewhat unsettled condition at present. There is good evidence that it has substantially increased the percentage of cures over what is possible with the radical breast operation alone. Now that the more rational method of preoperative irradiation is coming into use, the question must arise as to the necessity for additional irradiation after operation. If the preoperative irradiation has been given to the point of maximum tolerance, as it should be in all cases, care must be exercised in administering subsequent radiation therapy. The important point is that the total amount of radiation, preoperative and postoperative combined, must remain well within the tolerance of the normal structures.

There remain to consider the types of cancer in which very few cures have been reported, those in which only palliation may be expected and those in which radiation has no beneficial effect whatever.

In the first class are cancers of the urinary bladder, in which Burnam has reported 20.5 per cent of cures by a combination of external and implantation radiation. Good results have been reported by Barringer by suprapubic implantation of radium, and a considerable number of cures are also reported by roentgen irradiation alone by the newer fractional dosage. There seems

no doubt that further improvement in results may be expected from combined radiologic methods in these distressing and difficult cases of cancer of the bladder. Lately Waters has reported hopeful results in preoperative roentgen treatment of hypernephroma and carcinoma of the kidney.

In the great field of malignant bone tumors, irradiation has made little headway except as a palliative and to control pain in metastatic carcinoma. Osteogenic sarcoma appears to be completely radioresistant. The only radiosensitive primary bone tumor in the malignant group is Ewing's endothelioma, complete cure however, is difficult because of its tendency to distant metastasis.

Other fields in which irradiation has made little headway are bronchiogenic carcinoma, carcinomas of the gastro-intestinal tract, including the esophagus, stomach and rectum, and malignant disease of the liver or pancreas.

In spite of the large unconquered field, there is ground for much satisfaction in the improvement that has taken place in the treatment of cancer by irradiation in the years immediately past. The percentage of cures in a number of the most dangerous of the epidermoid cancers has been markedly increased and some that were formerly entirely hopeless now show a substantial number of cures.

#### PROGRESS IN KNOWLEDGE OF CANCER

The principal additions to knowledge in recent years which have improved results in the fight against cancer may be summarized as follows:

1 The fractional method of roentgen irradiation with high voltage, heavy filtration and protracted time of administration has been perfected and constitutes an important advance.

2 A better understanding has developed concerning the role of the normal tissue environment of a malignant growth and the necessity of securing a proper relation between destruction of the cancer cells and reaction in the cancer bed.

3 There is a gradually increasing knowledge of the value of preoperative irradiation.

4 A better appreciation is evident concerning the danger of traumatizing a cancer and also of the fact that such danger can be lessened by preliminary irradiation.

5 There is a better grasp of the role of the regional lymph nodes and of the necessity to preserve them as intact as possible as a barrier to the spread of cancer cells, and at the same time to destroy cancer cells already lodged there.

Hope for further advance in the immediate future lies in increased application of the knowledge already at hand. Early diagnosis and treatment are just as important for radiation therapy as in surgery, although many patients with far advanced cancers which are hopeless for surgery may be cured or materially benefited by radiation treatment. It is particularly important that cancer patients be given the benefit of the latest methods of radiation therapy, especially in those conditions in which surgery has been used for many years and has shown only a small percentage of permanent cures.

There is also hope that improvements in roentgen apparatus which permit a better relation between destruction of malignant cells and effects on normal tissues will bring an additional number of cancer cases into the curable range.

1835 Eye Street N.W.

## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.  
CHICAGO

*NOTE—In their elaboration these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The series of articles will be continued from time to time in these columns.—ED*

#### THERAPY OF DISTURBANCES DUE TO HEAT

Excessive exposure to heat is liable to result in one of three rather specific conditions: heat cramps, heat prostration or heat stroke. In addition to these, it must be appreciated that, when a person is exposed to excessively high external temperature, a strain is put on the entire system, most especially the circulatory mechanism and the excretories, so that persons handicapped by almost any systemic disease are prone to suffer from an aggravation of their symptoms entirely because of this functional strain. All such persons are in greater need of protection against such exposures than are normal persons and they can be relieved of distresses due to heat exposure, even though the distresses are not of a specific type, by measures directed against the excessive heat and its results rather than by digitalis, diuretics or hypnotics that might otherwise seem indicated. Even relatively normal persons differ greatly in their ability to tolerate heat. Least able to do this are the very young, the very old and the obese. Alcohol addicts and persons who have once had sunstroke are particularly predisposed and require especial protection.

#### PROPHYLAXIS

Preventive treatment is identical for the various disturbances due to excessive heat. It must embrace (1) increasing heat elimination, (2) lessening heat production and (3) minimizing exposure to heat, while (4) maintaining the heat regulating center in optimum functional condition.

1 When the human body must maintain its normal temperature in spite of an external heat near to or even above that of the system, its chief defense is the evaporation of sweat. Therefore the production of sweat should be favored. This requires the ingestion of an abundance of water, maybe from twelve to fifteen glasses a day. The frequent taking of small quantities is better than of large drinks at long intervals. This is especially true when the circulation is enfeebled. Carbonated drinks are preferable because they leave the stomach more rapidly, as the stomach does not absorb water. Profuse sweating robs the body of large amounts of salt. As much as 2 or 3 Gm. may be lost in an hour. Therefore sodium chloride should be taken in unusual amounts (from 15 to 20 Gm. daily) with the food or the drink, a level teaspoonful to a quart of water or a 1 Gm. tablet of sodium chloride with each tumblerful. This becomes less necessary after acclimatization has occurred, which in part consists of the ability to secrete extremely dilute sweat. The liberal use of fruit juices is particularly important when it is also

necessary to maintain good kidney elimination, for the fruit acids direct some of the water to go out in this way.

When sweat production is not free enough, the skin—most especially the head and hair—should be kept wet with cold water, and frequent cool baths may be required.

Sweat cools a person only when it evaporates. The sweat that runs off "in streams" is lost as far as heat regulation is concerned. Sweat evaporation must therefore be favored by loose, light, thin, nonconstricting clothing or practically no clothing at all and by exposure to air currents produced by fans or between open shaded windows.

2 Heat production should be minimized by reducing muscular exertion as much as possible when the heat is intense. The midday siesta is a hygienic necessity in hot climates. Work should be done in the cooler part of the day. Work that must be done during very hot weather should be carried on in short periods alternating with rest.

Food should be light and highly digestible, moderate in amount and largely consisting of carbohydrate, with avoidance of fats (because of their high caloric value) and of protein because of the large amount of heat freed during its assimilation. Juicy fruits should be especially favored.

3 Exposure to the direct rays of the sun should be avoided, for the visible and the ultraviolet rays are the most dangerous, especially when they impinge directly on the head. Should such exposure be unavoidable, tropical helmets should be worn. Forced marching in heat and sunshine should be done in open formation so as to prevent heat and humidity stagnation, and it necessitates frequent halts in the shade. During a halt one should, if possible, avoid resting directly on the ground, for the air just above the sunned ground is hottest.

4 The heat regulating mechanism should be protected against intoxication by liquor and other narcotics, as well as by coffee or tea, or tobacco, for all these have an unfavorable effect on it and, in the last analysis, on the heat regulating center devolves the business of maintaining the normal body temperature.

#### TREATMENT

*Heat Cramps* (stoker's cramps) — These painful spasms, particularly of the abdominal muscles and of the extremities but which may be generalized so as to simulate epilepsy, are induced by excessive sweating due to hard labor in furnace rooms, foundries or such places. They are usually accompanied by pallor, nausea, dizziness and mental depression. The pulse is rapid but strong and the temperature is normal.

The three fundamental indications in all heat induced disturbances are removal of the patient to the coolest place available, rest in the recumbent posture, and the supplying of salt and water. The patient should be encouraged to quench his thirst with salt solution (a level teaspoonful to a quart). He should, in addition, receive by rectum as much as he can retain by slow rectal injection of 1 per cent sodium chloride solution. If the symptoms are urgent, Physiologic Solution of Sodium Chloride may be injected by hypodermoclysis and even by phleboclysis, for which 5 per cent of dextrose may possibly be added to advantage. Milk, orangeade and lemonade should be given every two hours.

As this treatment does not give complete relief from the muscle cramps for a few hours, there is no sense in withholding a hypodermic injection of morphine (10 mg) for prompter action, if the pains are severe. If convulsions are present Chloral Hydrate 1 Gm and Sodium Bromide 2 Gm should be given by mouth or in starch water by rectum, and repeated in four hours if required. If they are very severe, sufficient chloroform should be used to produce muscular relaxation at once and this may be repeated as required.

#### *Chloral and Bromide*

R Chloral hydrate	15 00 Gm
Sodium bromide	30 00 Gm
Fluidextract of glycyrrhiza	30 00 cc
Water	to make 60 00 cc
M Label Teaspoonful in milk every four hours as required (For restlessness or convulsions)	

**Heat Prostration** (heat exhaustion) —The symptoms of depression of the nervous system and of collapse predominate. The temperature is usually normal or even subnormal. It seldom exceeds 101 F. The onset may be sudden and it may occur even hours after the exposure. Recovery may not be prompt, but it is usually complete, excepting of course for preexisting disease, which is often present.

To the three fundamental indications as outlined in the treatment of heat cramps should be added stimulation (a) Caffeine Sodio-Benzoylate from 0.25 to 0.50 Gm, should be injected subcutaneously every four hours, alternating with (b) Strychnine Sulphate, 2 mg every four hours, if there is no tendency to convulsions. (c) Strophanthin, 0.5 mg, should be given intravenously if the pulse is very rapid, but this should not be repeated for twenty-four hours. (d) Camphor in oil, 2 cc intramuscularly, or metrazol, 1 cc, intravenously may be used if there is no excitation state. (e) Aromatic Spirit of Ammonia, 1 cc in water by mouth, by intramuscular injection or by inhalation, should be given. Its prompt though fleeting effect may favor the absorption of a hypodermically deposited stimulant.

If the body temperature is subnormal, warm baths and hot drinks should be given, but with care to avoid sudden induction of a high temperature. If the temperature is above 102 F it should be reduced to this point by "cool ablution," as described under Fever Regimen.

Preexisting disease accompanying the condition should be taken cognizance of, as it may modify the treatment. It is the dominant factor in the after-care.

**Heat Stroke** (sun stroke) —Pyrexia predominates. The onset may be gradual with mental excitement or depression, dryness of the mouth and skin, dizziness and headache, and frequent micturition. It may be sudden, the patient being struck down with delirium, stupor or coma and a hyperpyrexia (temperature up to 107-110 F) with an intensely hot skin, which is usually dry but may be moist. In the semicomatose patient the superficial reflexes are abolished, in the comatose, all reflexes are absent.

To avoid erroneously treating sudden prostration from pernicious malaria for heat stroke, blood examination should be made as a routine procedure in malarial districts.

In the treatment of sunstroke, one must add to the three fundamental measures described under heat cramps, most especially while plying the patient with the administration of fluid and some salt, the reduction of the hyperpyrexia. This assumes the greater importance the higher the temperature.

The procedure that should be employed at once wherever the patient is found, is to lay the patient in the coolest possible shady place on a table or otherwise keeping him off the ground, the head elevated, applying cold compresses to the head and neck continually, to remove most of the clothing and to sprinkle the patient with a sprinkling can or watering hose, while maintaining a constant current of air by fanning and keeping the blood in the skin by vigorous friction. This process should be kept up until the temperature taken by rectum every few minutes, is reduced to 102 F, or, in the absence of a thermometer, until the skin does not warm up as readily under the friction as it did at first.

The patient should then be transported to the hospital while wrapped in a wet sheet or in wet clothing, with compresses (maintained cold by frequent changing) applied to the head, which should be elevated.

In the hospital, an ice bag should be applied to the head and neck, the head kept elevated, and, if the temperature has risen, a "cold sprinkling sheet bath," as described under Fever Regimen, should be administered. In this procedure, practicing friction continuously and maintaining a constant current of air, preferably by means of an electric fan, is of great importance. Properly given, it is probably superior to the tub bath and much less troublesome. It should be repeated whenever the high temperature recurs, most especially if sweating, once reestablished, ceases. The "sheet rub with ice" might be resorted to in cases presenting an obstinate high temperature. More drastic cooling procedures, such as packing in ice, ice water baths, ice water enemas or ice water gastric lavage, should not be employed, owing to the danger of producing collapse.

These patients should be watched continuously, owing to the danger of recurrence of hyperthermia until consciousness has returned and the temperature stays about 99 F for a few hours.

If the cerebrospinal pressure is found increased, it should be reduced by lumbar puncture, from 30 to 40 cc of cerebrospinal fluid or as much as necessary being slowly abstracted and this being repeated as required. Abstraction of from 400 to 500 cc of blood by venesection or by means of leeches applied to the temples and mastoids is especially indicated in the asphyxial form with cyanosis, distention of the veins and most particularly if there are signs of pulmonary edema.

Stimulation may be indicated by severe depression of the circulation. But stimulants should not be used unless absolutely required, as there is a tendency in heat stroke for extravasations of blood to occur in the brain, meninges or heart. It is these that are responsible chiefly for complications or sequelae, and they may be aggravated by too great a circulatory activity.

Artificial respiration is demanded by respiratory failure and it should be kept up until all hope of resuscitation must be abandoned. Rhythmic traction of the tongue may be employed from time to time to provoke, if possible, spontaneous respiration.

Prolonged bed treatment is required during the convalescence, as it may take many days to recover from the effect of extravasations that may have occurred in the vital organs. Living in a cool climate and absolute prohibition of alcohol are essential in the subsequent conduct of life of the survivors from sunstroke, because of the well known difficulties experienced by them in subsequent exposures to heat.



## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
H. A. CARTER, Secretary

### VESTVOLD'S ORIFICIAL MAGNO-VIBRATOR NOT ACCEPTABLE

The Vestvold's Orificial Magno-Vibrator is manufactured by R. F. Vestvold, Haverford, Pa. It looks like a cylinder three-fourths inch in diameter and 7 inches long over all, with a conical tip and an electric cord connection at the other end. When the cord is attached to a source of alternating current, a vibratory force is set up.

The firm claims that this unit gives instant relief in asthma, stimulates nerve function, and induces sleep. It is also stated that the 'Magno-Vibrator breaks up constriction of rectal tissue and spastic sphincter muscles, an excellent adjunct in the relief of constipation when due to this cause.' Among some of the effects of the magnetic applications, according to the firm, is that "mineral elements of the body, particularly the iron become charged with magnetic force which is distributed by the blood stream uniformly throughout the entire system. Iron acts as a catalyzer, uniting the oxygen to the cell (oxidation). That an added magnetic charge increases oxidation has been proven by clinical results." The claim that it sets up an alternating magnetic stress is not explained.

One unit was tested in a clinic acceptable to the Council. The investigation revealed nothing so far as its therapeutic efficacy was concerned. Furthermore the claims for the device recorded in the advertising matter were unwarranted, misleading and exaggerated. The Council omitted the Vestvold's Orificial Magno-Vibrator from the list of accepted devices.

### VESTVOLD'S PHOTO-ELECTRIC DILATOR NOT ACCEPTABLE

The Vestvold's Photo Electric Dilator, manufactured by R. F. Vestvold, Haverford, Pa., is said to be useful for applying heat and electrical energy in rectal, prostatic and vaginal disorders. The unit is approximately 8 inches long and three-fourths inch in diameter and the assembly may be attached to an ordinary light socket. The surface metal looks like polished aluminum.

In the promotional literature for this outfit the following statements are recorded:

Here is a way to administer soothing, safe and controlled heat (infra red rays) in a direct way. Besides the well known virtue of heat you have in this dilator a photo electric effect (conversion of light into electrical energy) this combination of heat and the steady flow of electrical (non shock) energy you will find is an excellent treatment for many Rectal and Vaginal Disorders; its emanations are instantly absorbed by the tissues.

With the Photo Electric Dilator Vaginal, and Uterine Disorders are usually treated through the rectum.

The Photo Electric Dilator is used with the blood pressure as an indicator and is especially recommended in the treatment of hemorrhoids, menstrual disorders and prostatitis.

In addition to specific relief for the conditions indicated above treatment with this dilator brings about a general relaxing of the nervous system and often relieves such symptoms as headaches, mental depression, nervousness, backache and frequent urination.

Just the thing for the busy practitioner. No waiting for the Photo Electric Dilator to get hot; it is ready for use in a minute's time after it has been plugged in on the electric circuit.

The unit was examined in a clinic acceptable to the Council. The report reads as follows:

The instrument is called a Photo-Electric Dilator. This name is regarded as a misnomer. The circular contains a parenthetical statement implying that this instrument converts light into electric energy, or makes use of the photo electric effect. Farther along the directions explain that this particular instrument works by plugging it into an electric circuit. It seems, therefore, that one deals with electric energy directly as converted into heat. There is no attachment through which light energy is converted into electric energy. This instrument has a red light in series which works, apparently, as a rheostat

and this light does actually convert electric energy into light, but so far as can be determined it has nothing to do with any therapeutic action.

It is difficult to understand how this instrument can give specific relief for hemorrhoids, menstrual disorders, prostatic trouble, headache, mental depression, backache, and frequency of urination. It is difficult to perceive how this instrument effects a cure of backache due, for example, to tuberculosis of the spine, or how it cures frequency of urination due to a stone in the bladder, or frequency due to or associated with tuberculosis of the bladder and kidneys.

The use of heat by rectum as an adjunct to other forms of treatment in cases of infections of the prostate gland and seminal vesicles has been recognized for many years. The heat may be supplied by hot rectal irrigations. The statement is made in the circular that the heater supplies heat to the prostate, and this is probably true. However, the claim that applying heat through the vagina or heat through the rectum can cure mental depression is questionable. In other words, instruments of this kind supply heat to the prostate through the rectum and as such they may be valuable adjuncts.

Because the aforementioned claims for the unit have not been substantiated by critical evidence and since they are regarded as unwarranted, exaggerated or misleading, the Council voted to omit the Vestvold's Photo Electric Dilator from the list of accepted devices.

## Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
RAYMOND HERTWIG, Secretary

### ACCEPTANCE WITHDRAWN PROTEO BREAD

Distributor—Proteo Foods, Inc., Chicago

Manufacturer—Holsum Bakery Co., Fort Wayne, Ind.

Description—Bread prepared from water, gluten, soy bean and whole wheat flours, skim milk, yeast, fat, egg, casein salt calcium-acid phosphate and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Analysis (submitted by distributor) —	per cent
Moisture (entire loaf)	38.0
Ash	3.0
Fat	8.0
Protein (N $\times$ 6.25)	24.1
Reducing sugar as dextrose	2.5
Sucrose	0.0
Starch (diastase method)	16.0
Dextrins (acid hydrolysis)	2.0
Pentosans	2.2
Crude fiber	1.3
Carbohydrates available	20.5
Carbohydrates available and nonavailable other than crude fiber (by difference)	25.8
Calcium (Ca)	0.21
Phosphorus (P)	0.39
Iron (Fe)	0.005

Calories—27 per gram, 77 per ounce

Discussion—On the basis of the recently adopted General Decision Special Purpose Foods for Diets Restricted in Dextrose Formers (THE JOURNAL, Sept. 1, 1934, p. 681), the previous acceptance of Proteo Bread is being withdrawn. Under this decision it is required that special breads intended for diets restricted in dextrose formers, to be eligible for acceptance, shall contain dextrose formers in an amount not greater than 3.3 Gm of dextrose per hundred cubic centimeters (the dextrose equivalence being computed as the carbohydrate, plus 58 per cent of the protein, plus 10 per cent of the fat content of the food). Proteo Bread furnishes approximately 10 Gm of dextrose per hundred cubic centimeters.

The label and advertising represent Proteo Bread as a special purpose bread particularly adapted for use in diets of the diabetic and the obese patient for the plausible reason the bread is 'rich in essential proteins' and 'lower in carbohydrates (starches and sugars) than ordinary bread most so called gluten and soy bean breads.' The caloric content of the bread is so high that it is not suitable

for the patient with obesity as claimed and as implied by the sylphlike figure on the label and in the advertising. The fact that the high protein content of the bread yields large quantities of dextrose in metabolism is disregarded. This high ultimate yield of dextrose disqualifies the bread for its alleged usefulness as a special food for patients with diabetes. The following claims are the basis of the advertising:

(Label) Proteo Bread for diets restricted in starches and sugars rich in essential proteins. Proteo Bread is lower in carbohydrates (starches and sugars) than ordinary breads, and lower than most so-called gluten and soy bean breads baked especially for those whose diets must be carefully restricted in carbohydrates.

(Advertising) A bread food prepared especially for carbohydrate restricted diets and used successfully in diets for diabetes, arthritis and obesity. Patients respond gratefully to this appetizing and nutritious food. A slice or two of Proteo Bread will take the place of other more fattening foods.

There is authoritative evidence that commercially prepared special diabetic foods are limited in usefulness to the diabetic patient in that the availability of insulin makes them no longer necessary. The designation of a food as a diabetic food merely because it is low in carbohydrates is now unwarranted and misleading, and gives the erroneous impression either that the food taken in unrestricted quantities in diabetes is harmless or that it has remedial action. Protein may be tolerated almost as poorly as starch by the diabetic patient.

The advertising for Proteo Bread is badly misinformative and deceptive. The bread has no specific value or usefulness in diabetic reducing or ketogenic diets, since volume for volume it contributes approximately as much of dextrose formers to the diet as ordinary white bread. This product therefore will no longer be listed among the Committee's accepted foods.

#### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary

##### (A) TEMPLE STEPHENS BRAND CRYSTAL WHITE SYRUP

##### (B) TEMPLE STEPHENS BRAND GOLDEN SYRUP

*Distributor*—Temple Stephens Company, Moberly, Mo.

*Packer*—Penick & Ford Sales Company, Inc., Cedar Rapids, Iowa.

*Description*—(A) Table syrup, corn syrup sweetened with sucrose. The same as Penick Crystal White Syrup. *THE JOURNAL*, April 9, 1932, page 1268.

(B) Table syrup, corn syrup flavored with refiners' syrup. The same as Penick Golden Syrup. *THE JOURNAL*, April 2, 1932, page 1159.

*Claims of Manufacturer*—Recommended for use as an easily digestible and readily assimilable carbohydrate supplement to milk in infant feeding and as a syrup for cooking, baking and the table.

##### SUNSWEET JUICE OF THE DRIED PRUNE (WITH WATER ADDED)

*Manufacturer*—California Prune and Apricot Growers Association, San Jose, Calif.

*Description*—Pasteurized water extract of dried prunes.

*Manufacture*—Dried prunes are immersed in hot water to dissolve or soften outside organic matter, thoroughly washed, placed in boiling water for from three to five minutes, transferred to a steam jacketed kettle and simmered for two and one-half hours in twice their weight of water, which is drawn off. The drained prunes are boiled for fifteen minutes in a second batch of water. The prunes are removed and the liquid content

is expressed in a cider press. The pulp is boiled in water removed and again pressed. The resulting expressed fluids and water extracts are blended, standardized to 19 per cent sugar content by the addition of water or prune extract concentrate during which time the temperature is maintained at 88 C, filled into bottles, pasteurized for twenty-five minutes at 86 C and cooled.

#### Analysis (submitted by manufacturer) —

	per cent
Moisture	82.7
Ash	0.3
Fat (ether extract)	0.02
Protein (N X 6.25)	0.4
Reducing sugars as invert sugar	12.0
Sucrose	0.6
Crude fiber	0.0
Carbohydrates (by difference)	16.4
Titratable acidity as malic acid	0.2
Aluminum (Al)	0.001
Calcium (Ca)	0.01
Chlorine (Cl)	0.003
Copper (Cu)	0.0003
Iron (Fe)	0.003
Magnesium (Mg)	0.01
Manganese (Mn)	0.00005
Phosphorus (P)	0.02
Potassium (K)	0.17
Silicon (Si)	0.002
Sodium (Na)	0.01
Sulphur (S)	0.008

Calories—0.7 per gram, 20 per ounce.

*Claims of Manufacturer*—Gently laxative. No added sugar or preservative.

#### ILLINOIS VALLEY VITAMIN D FORTIFIED PASTEURIZED HOMOGENIZED MILK

*Distributor*—Illinois Valley Ice Cream Company, Streator, Ill.

*Description*—Bottled pasteurized homogenized milk fortified with vitamin D (vitamin D concentrate prepared from cod liver oil), contains 400 U. S. P. X (Revised, 1934) vitamin D units per quart.

*Preparation*—The milk complies with legal requirements, is pasteurized by the standard holding method, and is homogenized at a pressure of 2,500 pounds per square inch. See *THE JOURNAL*, July 1, 1933, page 34, for description of fortification with vitamin D.

*Vitamins*—The vitamin D concentrate used and the fortified milk are regularly tested biologically. Clinical investigation shows this milk to be a reliable antirachitic agent if the proper amount is used.

*Claims of Distributor*—A vitamin D fortified antirachitic pasteurized homogenized milk having otherwise the flavor and food values of usual pasteurized milk. The cream does not separate.

#### HAWAIIAN FINEST QUALITY PINEAPPLE WAPCO BRAND BROKEN SLICES (VACUUM PACKED), GRATED SLICED (VACUUM PACKED), TIDBITS (VACUUM PACKED)

#### WHITE SWAN BRAND SLICED (VACUUM PACKED), CRUSHED, GRATED

*Distributor*—Waples Platter Grocery Company, Fort Worth, Texas.

*Packer*—Hawanan Pineapple Co. Ltd., San Francisco.

*Description*—Canned pineapple packed in concentrated pineapple juice with added sucrose. The same as Dole Hawaiian canned pineapple products. *THE JOURNAL*, April 8, 1933, page 1106 and April 29, 1933, page 1338.

#### QUAKER BRAND GELATIN VOGT BRAND GELATIN

*Distributor*—Cherry-Burrell Corporation, Chicago.

*Packer*—Swift and Company, Chicago.

*Description*—Granular plain gelatin, unsweetened and unflavored. The same as Swift's Gelatins. *THE JOURNAL*, Jan. 16, 1932, page 231.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 29, 1934

## NUTRITION AND RESISTANCE TO INFECTION

During the last thirty years the science of nutrition has shown such a rapid and sound development that at present it is accepted as one of the disciplines on which depends the welfare of man and his domestic animals. The intimate relation of nutrition to such processes as growth, reproduction and activity is taken for granted. As a logical outgrowth of the extensive investigation on which this point of view rests, it is now common to hear diet referred to as one of the important factors in preventive medicine. It can readily be demonstrated that such features of physiologic economy as acid-base balance, deficiency diseases and bone development are more or less closely associated with diet, the effect of nutrition on resistance to infection is not so obvious, although the mass of alleged evidence is enormous. Clausen<sup>1</sup> has recently reviewed the subject, confining himself to a consideration of infections of bacterial origin.

A survey of the results of studies designed to demonstrate the influence of diet on the transmission of antibodies by way of colostium and milk as well as on the level of antibodies in the serum shows much confusion and little evidence for the thesis. In discussing the resistance of tissues to infection, it is pointed out that more carefully planned experiments are necessary before definite conclusions can be reached. It does appear, however, that scurvy lowers the resistance of guinea-pigs to tuberculosis and that a deficiency of vitamin A may decrease it in the rat and mouse. Clinical observations have been exceedingly difficult to interpret and there is little convincing evidence that there exists a specific relation between the recognized dietary factors and resistance to tuberculosis in man. Throughout Clausen's discussion it is evident that in human experience the available information of the infection invariably far exceeds the knowledge of the dietary fault involved and that conclusions are made difficult, in addition, by the inability to subject patients to controlled nutritional programs.

Another extensive survey with emphasis on the relation of the vitamins to resistance to infection has been written by Robertson<sup>2</sup>. The available evidence was subjected to four criteria: determination of any change in natural immune bodies or cellular reactions due to the deficiency, the evaluation of antibody responses after injection of appropriate antigens into experimental animals, the liability to spontaneous infection shown by poorly fed animals, and the susceptibility of individuals maintained on inadequate rations to experimentally induced infections. Despite the fact that vitamin A is called the anti-infective vitamin, there is a paucity of really cogent experimental results or clinical observations regarding this alleged function of vitamin A. It is concluded from the summary both of immunologic studies and of spontaneous infections that rachitic animals are more susceptible than are normal ones to spontaneous as well as artificially induced infections. Judged by immunologic reactions, neither scurvy nor deficiency in vitamin B is attended by consistent variations in resistance to infection. It has not been shown that, in early vitamin B deficiency before symptoms become severe, there is a decrease in resistance to artificially induced infections.

It should be borne in mind that these reviews have approached the subject of infection as a more or less specific biologic phenomenon. Secondary infections commonly seen after tissue damage has been brought about by the dietary deficiency are not considered in evaluating the evidence. Despite the many demonstrated correlations between lack of an essential dietary factor and functional and structural change in the organism, there is surprisingly little cogent evidence of a specific relation between these factors and infection.

## CYSTEINE AND THE TENDENCY TO HEMORRHAGE IN OBSTRUCTIVE JAUNDICE

Numerous examples may be found in clinical literature demonstrating that an impaired activity of one organ or tissue may produce an abnormal performance of another, often one having an entirely different physiologic function. The tendency to hemorrhage in obstructive jaundice is a typical example. The distinct susceptibility of jaundiced patients to bleeding introduces a grave complicating factor in the treatment of this malady, as surgical intervention, the only satisfactory remedial procedure, may lead to fatal hemorrhage. The observations of Walters<sup>1</sup> several years ago, that the death of more than half of a series of jaundiced patients subsequent to abdominal operation was the result of large intraperitoneal hemorrhage, emphasizes the importance of this complicating feature.

Several theories postulating a deficiency of one of the clotting elements have been advanced to explain the

1 Clausen S W. *Physiol Rev* 14 309 (July) 1934

2 Robertson Elizabeth C. *Medicine* 13 123 (May) 1934  
1 Walters Waltman. *Preoperative Preparation of Patients with Obstructive Jaundice Surg (Gynec & Obst)* 33 651 (Dec) 1921

abnormal mechanism of coagulation in obstructive jaundice, and each in turn has been largely abandoned. The calcium theory has not proved tenable, repeated analyses having shown that the total and "available" serum calcium of jaundiced subjects usually fall within normal limits. Likewise normal values have been obtained for blood platelets, for plasma fibrinogen, for fibrin, and even for the clotting time of the blood itself. Recent investigators, after confirming the foregoing observations both in jaundiced patients and in experimental animals with ligated biliary ducts, have approached the problem from a different angle. The presence in the blood of a positive agent that inhibits the normal clotting mechanism was considered. Such a possibility seemed particularly pertinent in view of the fact that bile is an important excretory medium for a variety of substances which, as a result of biliary obstruction, might accumulate in the blood stream. In support of this view is the fact that in jaundiced patients the blood clot, although forming as rapidly as normal, is large, friable and nonretractile, as though syneresis of the fibrin had been inhibited. In contrast to the normal compact clot, a porous mesh of this kind might permit the seepage of cells and plasma from a damaged blood vessel and thus lead to the slow, persistent exsanguination encountered in cases of obstructive jaundice.

An observation<sup>2</sup> that cysteine inhibits blood coagulation induced Carr and Foote<sup>2</sup> to study the possible relation of this amino acid to the impaired clotting reaction in obstructive jaundice. Preliminary studies demonstrated that the addition of minute amounts of cysteine to normal blood shortened the coagulation time and changed the clot to a large, friable, nonretractile mass closely resembling that formed by the blood of jaundiced human subjects. The injection of large doses of cysteine into normal animals produced a similar effect. Color tests for cysteine demonstrated that none was present in normal plasma, whereas definite reactions were obtained on the plasma from jaundiced animals. Furthermore, the intensity of the test increased progressively with the tendency to hemorrhage.

The foregoing indications that cysteine or perhaps some related mercaptan is intimately related to the abnormal clotting reaction in jaundiced subjects prompted an investigation of the therapeutic action of brombenzene, a substance that combines with cysteine to form bromphenyl-mercapturic acid, excreted in the urine. The tendency toward bleeding was definitely reduced in the treated animals and they did not die of hemorrhage. Crystals of bromphenyl-mercapturic acid were isolated from the urine.

While this investigation is undoubtedly a valuable contribution to the current knowledge of the etiology

of the hemorrhagic tendency in obstructive jaundice, much more experimental work on the subject is needed before conclusions can be drawn. Likewise, although the beneficial action of brombenzene therapy is at least suggestive, it should be recalled that this substance is definitely toxic and should be used with the greatest caution. Perhaps of most immediate clinical import is the suggestion that an excess of protein, the metabolic precursor of cysteine and related mercaptans, should be avoided in the diet of patients with obstructive jaundice.

#### EXCRETION OF UREA

There is a perennial thrill about the search for the final explanation of the mechanism of renal function. Of the recognized organs of excretion, the kidney would seem to have received its full share of attention, further study has only served to emphasize its manifold connection with the physiology of the organism. Ordinarily, renal function is considered primarily in relation to the formation of urine, the concentration and removal of metabolic waste products with the maximum conservation of water. A recent study by Van Slyke, Rhoads, Hiller and Alving<sup>1</sup> bears significantly on this point, the relationships between urea excretion, renal blood flow, renal oxygen consumption and diuresis are considered. The investigation differs from previous ones in that it was carried out on experimental animals in which one kidney was explanted<sup>2</sup> intact directly under the skin, so that simultaneous samples of urine and blood from the renal vein and femoral artery could be obtained without the use of anesthesia.

This study is concerned directly with the factors controlling the urea clearance test,<sup>3</sup> the introduction of which several years ago marked an important advance both in experimental investigations in renal physiology and in the clinical diagnosis of renal disease. In this test the amount of urea excreted per minute is compared with the concentration of urea in the blood, the "clearance" indicates the quantity of blood, in cubic centimeters, the urea content of which is excreted in one minute. In the normal human adult this is about 75 cc. In severe renal disease the urea clearance may be reduced to 5 per cent of the normal value, at which point uremia usually supervenes. But it has been shown that marked variations in blood urea do not significantly affect the result of this test. If the blood urea is higher, the same amount of blood is nevertheless "cleared" of urea, more of the latter being excreted.

The experiments of the Rockefeller investigators were performed on dogs, in all of which one kidney

1 Rhoads C P, Alving A S, Hiller Alma and Van Slyke D D. The Functional Effect of Explanting One Kidney and Removing the Other. *Am J Physiol* 109:329 (Aug) 1934. Van Slyke D D, Rhoads C P, Hiller Alma and Alving A S. Relationship Between Urea Excretion, Renal Blood Flow, Renal Oxygen Consumption and Diuresis. *The Mechanism of Urea Excretion* *ibid* p 336.

2 Rhoads C P. *Am J Physiol* 109:324 (Aug) 1934.  
3 Möller Eggert, McIntosh J F and Van Slyke D D. Studies of Urea Excretion. II. Relationship Between Urine Volume and the Rate of Urea Excretion by Normal Adults. *J Clin Investigation* 6:427 (Dec) 1928.

2 Carr J L, and Foote F S. Progressive Obstructive Jaundice. Changes in Certain Elements of the Blood and Their Relation to Coagulation. *Arch. Surg* 29:277 (Aug) 1934.  
3 Mueller J H and Sturgis Sommers. Prevention of Blood Coagulation by Cysteine. *Science* 75:140 (Jan 29) 1932.

had been explanted, in some the other organ was removed. Following a fast of twenty-four hours, a solution of sodium chloride in constant proportion per unit of body weight was administered by stomach in order to maintain the rate of urine excretion above the "augmentation limit," that rate below which the blood urea clearance ceases to be independent of urine volume and decreases with decreasing urine output (about 2 cc per minute in man). The observations in each experiment covered three or four successive periods, each of about an hour. The dog was catheterized at the beginning of the experiment and at the end of each period. At about the middle of each interval, blood was drawn from the renal vein, this was followed usually after from two to five minutes by withdrawal of a sample from the femoral artery.

From the values of urea concentration in the blood from the femoral artery and renal vein and the total urea excretion in the urine, not only was the renal blood flow calculated but also the proportion of urea in the blood that was extracted by the kidney. When the blood urea was at the fasting level, from 67 to 106 per cent was extracted, when the arterial blood urea concentration was increased as much as ten times, the extraction values still varied from 86 to 104 per cent. This uniform efficiency in the face of greatly augmented work performed was maintained without a significant increase in renal blood flow. It appears then that the kidney may remove a constant proportion of the urea in the blood flowing through it, regardless of the concentration of urea in that blood within the limits studied. This was found to maintain over a range of from 8 to 137 mg of blood urea nitrogen per hundred cubic centimeters. The mechanism by which the kidney tends to keep the urea clearance at a constant level under these conditions therefore appears not to be dependent on changes in blood flow. However, changes do occur spontaneously in the clearance and these were found to parallel alterations in rate of circulation of blood through the kidney. The latter observations are of interest in view of a recent report by Goldblatt<sup>4</sup> who found in a study of experimental hypertension that mechanical interference with flow through the renal arteries may cause diminution in urea clearance if the flow is sufficiently reduced, but that moderate constriction of the renal arteries sufficient to induce persistent arterial hypertension, may not produce an appreciable change in the clearance.

Van Slyke and his co-workers found in a few instances that blood from the renal vein contained even more urea than that from the femoral artery, observations made before and after these occurrences showed normal comparative levels. Such variations these investigators believe may have been due to reflexes initiated by venipuncture, but it was not found possible to repro-

duce these effects at will. They suggest that this phenomenon, which apparently involves reabsorption, may be an occasional factor in other cases of diminished urea clearance.

Access to blood in the renal vein permits the ready determination of oxygen consumption by the kidney. Removal of one kidney brought about an increase in the oxygen used by the remaining organ, a change that parallels the speeding up of other activities already noted. On the contrary, neither diuresis nor excretion of increased amounts of urea was accompanied by rise in oxygen consumption. Renal blood flow and use of oxygen by the kidney tended to vary in a parallel manner, presumably in response to similar or common metabolic demands. That the cells of the kidney ordinarily require a higher oxygen tension than do most other organs is indicated by the fact that the blood in the renal vein is usually more than 85 per cent oxygenated. After removal of one kidney, observations made one week later showed that the blood flow through the remaining organ was increased about 68 per cent, oxygen consumption rose 81 per cent and urea clearance 43 per cent. Beyond this period no further significant changes were observed, the kidney apparently takes over a large share of the work previously performed by its mate but not all of it.

The studies of the Rockefeller group have demonstrated anew the efficiency of the kidney, as far as the excretion of urea is concerned, and facile adjustments, which permit the maintenance of renal function after unilateral nephrectomy. The observations made under experimental physiologic conditions so little removed from normal provide a point of departure for elucidation of the details of abnormal renal activity.

## Current Comment

### PHYSICAL ALLERGY

The problems of physical allergy, particularly the relationship of cold to sensitivity, are under investigation in many places. The manifestations are striking and, to the patient, a serious problem. A survey of the available literature on the subject offers some interesting comments by older observers. Thus, Salter<sup>1</sup> in 1882 said in commenting on asthma: "Until lately I felt no doubt that the asthma was, in these instances, a mere reflex nervous phenomenon, but of late I have seen some cases, not asthmatic, that have shown me how quickly—how immediately, indeed—cold to the surface and extremities may derange the vascular balance of the bronchial mucous membrane, and which suggest, therefore, that even in these asthmatic cases the vascular condition of the bronchial mucous membrane may be the link between the external cold and the bronchial spasm." A case of urticaria due to cold was reported

<sup>4</sup> Goldblatt, Harry, Lynch, James, Hanzal, R. F. and Summerville, W. W. *J. Exper. Med.* 59: 347 (March) 1934. An investigation into the Cause of Hypertension. Editorial. *J. A. M. A.* 102: 1610 (May 12) 1934.

<sup>1</sup> Salter, Hyde. *Asthma Its Pathology and Treatment* first American Edition 1882.

by Fraser<sup>2</sup> in 1905, and in the same year Osler<sup>3</sup> noted urticaria due to exposure to cold. Moreover, Ward<sup>4</sup> in 1905 mentioned a patient who was sensitive to certain spectrums of the sun's rays but not sensitive to heat. At the same time he described a patient subject to angioneurotic swellings on exposure to cold and said that he had observed this phenomenon since 1880. Thus physical allergy has been definitely recognized for about three quarters of a century. If sensitivity to light is included, it is found that Bazin<sup>5</sup> mentioned a disease entity of the skin caused by sensitiveness to light in 1855, an observation that was subsequently confirmed by Hutchinson<sup>6</sup> and by White.<sup>7</sup> THE JOURNAL<sup>8</sup> called attention to the importance of sensitivity to cold as a cause of sudden death in drowning. Now that the possibility of severe bodily reactions from heat, cold, light and other physical agents has been so definitely established, the explanation for many unexplainable symptoms may become apparent.

## Medical Economics

### ALAMEDA COUNTY (CALIF.) PLAN

Before any plan was adopted, the Alameda County Medical Association undertook a study to determine the best method of providing medical care for three classes of the population: (1) the indigent, (2) the individual of moderate means and (3) those who can properly finance their medical care.

Various clinics and other institutions supplying medical care were already operating in Alameda County with little cooperation and no coordinating body. In 1917 the county board of supervisors established the Alameda County Institutions Commission for the purpose of taking entire charge of all county institutions wholly supported by county funds and designed for the care of the indigent sick.

In 1930, when the problems of medical care became more acute, another survey was made. The report of this survey recommended that all indigents be referred to clinics operated by the County Institutions Commission, or to county physicians who were regular salaried employees on a part time basis. All pay clinics were abolished.

These changes left in the hands of the Alameda County Medical Association the problem of caring for the low income group, who in the new arrangement were left without medical care. After an extensive investigation, the association adopted the following resolution in October 1932:

*Resolved* That it appears to be necessary to establish a plan whereby certain patients formerly cared for at health centers who do not technically fall under the term 'indigency' and at the same time require attention at the hands of reputable physicians and whose care should be assumed at a fair price within the ability of the patient to pay and be it further

*Resolved* That the Alameda County Medical Association agrees to establish a list of physicians who will volunteer to accept calls for such classes of patients and to render service when called in cooperation with the established official county agencies and centralized social service as established in Alameda County and according to such additional plans as may be adopted.

The call for volunteers to cooperate in carrying out the plan met with practically 100 per cent response from the members of the association.

Arrangements were then made for a cooperative plan by the medical association and the County Institutions Commission.

<sup>2</sup> Fraser T. R. Urticaria a Frigore. Tr. M. Chir. Soc. Edinburgh 25 90, 1905 1906.

<sup>3</sup> Osler William. Visceral Manifestations of the Erythema Group of Skin Diseases. Am. J. M. Sc. 127 16 1905.

<sup>4</sup> Ward S. B. Erythema and Urticaria with a Condition Resembling Angioneurotic Oedema Caused Only by Exposure to the Sun's Rays. New York M. J. 81 742 1905.

<sup>5</sup> Bazin. Hydroa vacciniforme. Cours de semiotique cutanee 1855.

<sup>6</sup> Hutchinson J. Summer Eruption. Clinical Society's Transactions 22 1888.

<sup>7</sup> White J. C. Hydroa Vacciniforme. J. Cutan. Dis. 1898 p. 514.

<sup>8</sup> Cold Allergy and Drowning. editorial. J. A. M. A. 101 1644 (Nov. 18) 1933.

Members of the medical association agreed to treat nonindigent patients privately for whatever fee they were able to pay, provided their ability to pay could be determined by the County Medical Social Service, and provided any necessary social work could be rendered by medical social workers of the clinics.

"The Social Service Department of the County Institutions Commission is responsible for contributing the following types of assistance to physicians participating in the Plan:

- (a) Social study (economic situation, home and work environment, habits and attitudes of patients and family which may have a bearing upon the medical problem).
- (b) Medical Social Case Work (aiding the patient or his family to meet social problems related to his illness and mobilizing the resources of the community to make possible the carrying out of medical treatment).
- (c) Determination of the patient's ability to pay for medical care. The Social Worker's chief contributions here are:
  - (1) Securing adequate data regarding financial status of patient and family.
  - (2) Evaluating this in terms of the social and medical need of the patient.
  - (3) Assisting patient and family to develop an attitude of willingness to pay for medical care and aiding them to develop resources for payment within their means.
  - (4) Securing relevant information from other agencies who have known the patients.

Recommendations as to fees patients can pay naturally become a by-product of the above investigation.

The Medical Worker has the following relationship to any business agency established for the purpose of credit rating:

- (a) She can give a professional opinion as to the patient's financial resources, and his attitude of cooperation with the physician.
- (b) She cannot take the place of the credit agency in investigation of the patient's past records as to credit rating and the risks involved in extending credit to him."

When a call for service is made at any of the county institutions, the social service department ascertains whether the patient is already receiving relief and, if so, or if known to be indigent the patient is referred to county physicians.

If the patient's financial status is unknown or if he is known to be able to pay something for a home visit, the worker explains that a private physician will be sent and that the physician will discuss with him the matter of payment.

The worker then refers the call by telephone to the next physician on the rotating list, giving him the data for Section A and B of Form 2538. She stamps the date on the physician's card and places the card at the end of the list. She records this call on the 'Report of Patients Referred to Private Physicians.' In case the first physician called cannot go, she continues down the list until she finds a physician who can make the call.

The physician makes at least one visit and renders the necessary service regardless of the patient's ability to pay any part of his fee. He then fills out a form giving certain social information and sends this to the social service department, which notifies the local clinic if a social investigator is requested by the physician.

Part-pay patients are referred to private physicians only after their financial status is known, and in accordance with the following procedure:

- 1 The social worker who has investigated the patient secures the name of the next physician on the list from the worker in that agency who keeps the list. The latter is responsible for stamping the date on the physician's card and records the referral on the 'Report of Patients Referred to Private Physicians.'
- 2 The social worker discusses with the patient the matter of payment and an understanding of the amount to be paid is arrived at before the case is referred to the private physician. The patient is also told that he will be expected to pay cash.
- 3 The social worker secures from the patient the signed consent for transfer of information and files this with the social case sheet.
- 4 She communicates with the private physician and arranges an appointment for the patient.
- 5 The patient is given a Refer Slip signed by the worker, on which is recorded the name and address of the physician and the date and hour of the appointment.
- 6 The social worker is responsible for sending to the physician any medical or social data contained in the clinic records which might be helpful to him in treating the patient.
- 7 The case is then closed at the clinic for that complaint and considered a private patient until such time as the physician may refer it



back or until some other medical condition arises for which the patient cannot afford private care

It is understood that the physician may request and receive assistance from the clinic social worker at any time

Full pay patients are referred to the Secretary of the Alameda County Medical Association, for names of physicians from her own list

During the year 1933, 2,077 referrals to private physicians were made by social workers, clerks, nurses, doctors and others in the Alameda County agencies. These referrals were made to the three groups of physicians listed in table 1 (a) those who were members of the Alameda County Medical Association and had agreed to take patients at reduced fees, (b) those who were not members of the Alameda County Medical Association and whose names therefore, were not on the list, (c) referrals made to the secretary of the Alameda County Medical Association with the understanding that the patients could pay a full fee

TABLE 1—*Distribution of Referrals for Medical Services Under the Alameda County Plan, Made to Physicians in the County in 1933*

	Number Per Cent	
Total Referrals	2 077	100 0
To County Medical Association	1 898	91 3
	Number Per Cent	
To Co Med Asso	1 898	100
For Part pay care	1 812	95
For Full pay care	56	5
To Physicians not on list	158	6 5
To Physicians names not given	51	2 2

Of the total number of referrals made, 1,898, or 91 3 per cent were made to physicians of the Alameda County Medical Association, only 158, or 6 5 per cent, were made to physicians not on the list, the remaining 22 per cent of the referrals were to physicians whose names were not stated but who might possibly have been members of the Association

Of the 1,898 referred to the medical association, 95 per cent, or 1,812 referrals, were for part-pay medical care, and 5 per cent, or 56 referrals, were for full-pay medical care

The following study has been made of the results of the first year's referrals

Questionnaires were sent, March 1, 1934, to the 400 physicians whose names were on the part-pay lists and who were members of the Alameda County Medical Association. Information was requested on only the 1,812 cases referred for part-pay care

Returns were received from 279 doctors, or 70 per cent of the number to whom questionnaires were sent. These returns gave information about 1 304 referrals, or 71 96 per cent of the referrals about whom information was desired

TABLE 2—*Patients Actually Seen*

	Number Per Cent	
Total number about whom information has been received	1 304	100
Patients seen by doctor	969	74 3
Patients not seen	335	25 7

The table shows that, of the 1,304 patients about whom some information was received, 969, or 74 3 per cent, were actually seen by various physicians, and 335, or 25 7 per cent, were not seen by the doctors to whom they had been referred

Of the 969 patients seen, table 3 shows the percentage and the number of patients who paid no fees

TABLE 3—*Number of Patients Paying Fees*

	Number Per Cent	
Total number of patients seen	969	100
Patients pay fees	736	76
Patients paying nothing in fees	233	24

It can be seen from this table that 76 per cent of the patients actually seen paid something for their medical services, while only 24 per cent paid nothing. A complete study of the amounts received from these 736 patients has not yet been made, but the total is slightly over \$5 000

## Association News

### MEDICAL BROADCASTS

#### Columbia Broadcasting System

The American Medical Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4 30 to 4 45, central standard time. The next three broadcasts will be as follows

October 4	Autumn Leaves	W W Bauer	M D
October 11	Multiple Births	W W Bauer	M D
October 18	Keep Fighting Diphtheria	W W Bauer,	M D

#### National Broadcasting Company

The American Medical Association broadcasts on a Blue net work of the National Broadcasting Company each Tuesday afternoon from 4 to 4 15, central standard time. The next three broadcasts will be as follows

October 2	Curiosities of Medicine	Morris Fishbein	M D
October 9	School Health Problems	W W Bauer	M D
October 16	Research in Medicine	A C Ivy	M D

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION PUBLIC HEALTH ETC)

### ARKANSAS

**Society News**—At a meeting of the Sixth Council District Medical Society in Hope, September 11, speakers were Drs Philip M McNeill, Oklahoma City, on complications and treatment of pneumonia, Davis W Goldstein, Fort Smith, common skin diseases, Willis C Campbell, Memphis, osteomyelitis, Millington Smith and Joseph W Kelso, Oklahoma City, cancer of the cervix and Samuel E Thompson, Kerrville, Texas, diagnostic problems in diseases of the lungs. The Mississippi County Medical Society was addressed at Blytheville August 7, by Drs Lorenzo D Massey, Osceola, on 'Use of Sodium Thiocyanate in Dysentery' Percy H Wood Memphis, Tenn, 'Practical Points in Gynecological Treatment,' and Thomas D Moore, Memphis Tenn. The Obstructing Prostate.—Speakers before the Tri-County Clinical Society in Arkadelphia, July 26 included Drs Solomon F Hoge on early syphilis, Paul L Mahoney differential diagnosis between otitis media and external ear infection, Francis W Carruthers, fractures, and J O Hall, DDS, oral health. All were from Little Rock

### ILLINOIS

**Encephalitis Decreases**—That epidemic encephalitis on the wane in Illinois is indicated in reports of twenty-four new cases of the disease for the week beginning September 10. This number compares with a total of forty-nine for the preceding week. The Illinois State Department of Health reports that the bulk of the cases continue to occur in the three main epidemic centers Vermilion County, eight, Fulton County four, and Peoria County, three

**Society News**—At a meeting of the Peoria City Medical Society, September 18, Dr Max Thorek, Chicago, discussed a new method of obliterating the gallbladder by electrosurgical means.—The St Clair County Medical Society was addressed in Belleville, September 5, by Dr Edmund Bechtold on "Economic Conditions as I Found Them in the Scandinavian Countries and in Russia" and by Dr Frederick V Emmert, St Louis, in East St Louis September 6, on "Diagnosis and Treatment of Cervical In Office Practice"

### Chicago

**Founders' Day at Northwestern**—Ceremonies on Tuesday October 2 will mark the opening of the seventy-sixth annual session of Northwestern University School of Medicine. The Founders' Day address will be delivered by Leslie B Arey, PhD Robert L Rea professor of anatomy, on "Old Ideals in Modern Medicine." A feature of the celebration will be the unveiling of an oil portrait of Dr William C Morgan emeritus professor of surgery and clinical surgery. Loyola Uni-

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University School of Medicine, and a graduate of Northwestern class of 1882. The portrait, presented by Dr. Charles F. Sawyer, clinical professor of surgery at Loyola, will be placed in the Archibald Church Library. Dr. Sawyer graduated from Northwestern in 1904.

**Dr. Bachmeyer Succeeds Dr. Houghton at University Clinics**—Dr. Henry S. Houghton, who since January 1 has been associate dean of the Division of Biological Sciences and director of the University Clinics, University of Chicago, has resigned to become advisory representative of the China Medical Board, effective January 1. The new director of clinics is Dr. Arthur C. Bachmeyer, who until his resignation, September 15, had been dean of the University of Cincinnati College of Medicine, Cincinnati, for nine years. Dr. Bachmeyer, following his resignation as dean, continued as superintendent of the Cincinnati General Hospital and as professor of hospital administration. He has been head of the hospital for twenty years. Dr. Houghton, until his affiliation with the University of Chicago, had been dean of the University of Iowa College of Medicine since 1928. The China Medical Board, an agency of the Rockefeller Foundation, owns and supports the Peiping Union Medical College.

centers in the eastern section of the state and the surgical course in three centers in the central part. Two hours one evening each week will be devoted to the courses, which will run for ten weeks. The fee for each is \$10.

## MAINE

**Clinical Meeting**—Dr. Timothy Leary, Boston, will be the speaker at the dinner of the Maine Medical Association during its clinical session, October 4, at the Eastland Hotel in Portland. His subject will be "Coronary Sclerosis—A Metabolic Disease, with Analogies to Diabetes, Gout and Obesity." The Cumberland County Medical Society will be host at the dinner. Previous to this, a reception will be held at the home of Dr. Edville G. Abbott, Portland, for members of the state association. No formal papers will be presented at the clinical session. The program to be devoted to the clinical demonstrations in medicine and surgery.

## MASSACHUSETTS

**Society News**—The Plymouth District Medical Society was addressed in July, among others, by Drs. Arrial W. George on x-ray diagnosis of fractures, John D. Adams, back sprains, Herbert H. Howard, prostate and backaches, Charles A. Knowles, rupture of the spleen, and Cadis Phipps, diagnosis and treatment of vascular diseases. Dr. Francis T. Hunter, Boston, spoke on hematology before the Worcester District Medical Society in Worcester, September 12.

## MICHIGAN

**State Medical Election**—Dr. Grover C. Penberthy, Detroit, was chosen president-elect of the Michigan State Medical Society at its annual meeting in Battle Creek, September 11-13. Dr. Richard R. Smith, Grand Rapids, was inducted into the presidency. At this session, the house of delegates decided to defer action on its "Mutual Health Service Plan." A few days before the meeting, the committee on medical economics released its report on "Post Graduate Medical Education and the Needs of the General Practitioner," a brochure of sixty-four pages, an attempt to consider the subject in a comprehensive form.

**Centers of Graduate Study**—The establishment of three additional teaching centers has been announced by the department of postgraduate study, University Hospital, Ann Arbor. In these centers, Flint, Grand Rapids and jointly in Battle Creek and Kalamazoo, a course of instruction will begin the first week of October to continue for eleven weeks. Five hours one day each week will be devoted to the course. Intended especially for the general practitioner, the program is identical for each center, consisting of case demonstrations and bedside clinics in traumatic and emergency surgery, fractures, cardiology, metabolic diseases, gynecology and obstetrics, pulmonary disease, gastro-enterology and pediatrics.

## MINNESOTA

**Midwife Also Practices Medicine**—Mrs. Regina Krzan Dlugi, a licensed midwife who lives on a farm near Little Falls, was recently warned to stop practicing medicine without a license, following an investigation by the state board of medical examiners. Mrs. Dlugi had been selling roots and herbs and medicines.

**Hobby Exhibit**—Members of the Olmsted-Fillmore-Houston-Dodge County Medical Society held a "hobby show" at the Rochester Country Club in July, consisting of an exhibit of etchings, paintings, unusual photography, wood carving sculpture, coins, pottery and guns. Included among those participating were:  
Dr. Porter P. Vinson, hobby of gardening depicted by a figure of a man made up from a dark shirt with garden instruments.  
Dr. Laurence F. V. Sutton, Mazeppa a 200 year old Belgian print.  
Dr. Charles G. Sutherland, notebook containing records of stories heard.  
Dr. Duncan M. Masson and Arthur H. Sanford, Leica photographs.  
Dr. John E. Crewe, paintings.  
Dr. Frederick A. Willius, pen and ink sketches of old streets, quaint architecture, home scenes and bridges.  
Dr. Albert A. Snell, old coins from Europe, Asia and the United States.  
Dr. Monte C. Piper, pioneer relics, namely an old millstone, a gramophone and a solid handmade walnut mold used for casting metal wheels.  
Dr. Louis B. Wilson, old firearms from Italy, Austria, Germany, Czechoslovakia and elsewhere.  
Dr. Walter H. Judd, Chinese embroidery and clothing.

**Society News**—Dr. Lewis S. Jordan, Granite Falls, superintendent of the Riverside Sanatorium, was elected president of the Minnesota State Sanatorium Association at the recent annual meeting in Cannon Falls. Dr. George I. Badeau,

## INDIANA

**Cancer Program**—Dr. Marcus W. Lyon Jr., South Bend, will open the meeting of the St. Joseph County Medical Society, October 2, with a paper on "History and Etiology of Cancer." This is the first paper in a series to be given in a cancer education program sponsored by the society, newspapers reported.

**Indiana in Morbidity Reporting Area**—Indiana was recently made a part of the U. S. Public Health Service morbidity reporting area, according to the state medical journal for September. Only those states that have a complete and reliable record of communicable diseases are included in this reporting area.

**Deaths from Encephalitis Increase**—Twenty-one cases of encephalitis with eleven deaths were reported in the outbreak in Evansville up to September 19, according to the Chicago Tribune. One death and twenty-nine cases of the disease had been reported for Washington and vicinity, September 19. Earlier reports stated that seventy cases had been treated in Hartford City.

**Lilly Research Laboratories to Be Dedicated**—The formal opening of new headquarters for the Lilly Research Laboratories, Indianapolis, will take place October 11. The program will open with an informal luncheon at the laboratories which will begin at 2 o'clock. This program will include as speakers Mr. J. K. Lilly, on "Research in Manufacturing Pharmacy," Irving Langmuir, Ph.D., Schenectady, N. Y., "Unpredictable Results of Research," Sir Frederick Banting, Toronto, "The Early Story of Insulin," and Sir Henry Dale, London, "Chemical Ideas in Medicine and Biology." At a formal dinner in the evening at the Indianapolis Athletic Club the speakers will be Sir Henry Dale, Dr. George H. Whipple, Dr. Charles R. Minot, Boston, Frank R. Lillie, Ph.D., Joslin and Dr. Charles R. Stockard, New York, Dr. George H. Whipple, Rochester, N. Y., Carl Voegtlin, Ph.D., Washington, D. C., and George H. A. Clowes, Ph.D., Indianapolis.

## IOWA

**Secretary Honored**—Dr. Harry W. Vinson Ottumwa for many years secretary of the Wapello County Medical Society was guest of honor at a dinner, September 5. He was presented with a desk set by Dr. Smith A. Spilman, Ottumwa on behalf of the society, and an album containing the signatures of all those who attended the meeting, by Dr. William C. Newell, Ottumwa.

**Outbreak of Malaria**—Newspapers announced an epidemic of malaria in and about Booneville, September 6, nineteen cases having been reported in a CCC camp. Inspection showed larvae of mosquitoes in the drainage system, which was connected with two other sewerage systems from Booneville. A drive to clean up breeding places of mosquitoes was begun as the result of the outbreak.

**Graduate Courses**—Diagnosis and treatment in internal medicine and surgery will be the principal subjects of consideration in two courses to be given by the speakers' bureau of the Iowa State Medical Society this fall. Members of the faculty of the State University of Iowa College of Medicine will present the courses which this year will be run separately in three different centers instead of together as has been done in the past. The medical course is to be offered in three

Brainerd, was elected president of the Northern Minnesota Medical Association at its annual meeting in Brainerd September 10-11, Dr Arthur N Collins, Duluth, vice president and Dr Oscar O Larsen, Detroit Lakes, secretary. The next annual meeting will be held in Duluth.

## NEW YORK

**Hospital News**—Dr Louis Faugeres Bishop Jr, New York, began a series of lectures on electrocardiography, August 14, at John T Mather Memorial Hospital, Port Jefferson.—Drs Henry G Hollenberg Cincinnati, and Luther W I Oehlbeck, Rochester, have recently been appointed to the staff of Clifton Springs Sanitarium and Clinic, Clifton Springs.

**Society News**—Charles W Ballard, PhD, New York, addressed the Westchester County Medical Society, September 18, at Grasslands Hospital, Valhalla, on "Prescriptions and the Pharmacopoeia"—Medical record librarians of twelve hospitals in Westchester County have organized the Association of Medical Record Librarians of Westchester County, with Edith T Fields of Grasslands Hospital, Valhalla, as president and Martha Davidson, Mount Vernon Hospital Mount Vernon as secretary.—The New York State Association of Public Health Laboratories will hold its midyear meeting at the state laboratory in Albany, November 2.

## New York City

**Personal**—Dr Bruno Gebhardt, director of the German Museum of Hygiene, Munich, was guest of honor at a luncheon given by public health officials, August 24, he attended the meeting of the American Public Health Association in Pasadena.—Dr John C Jennings Brooklyn, has been appointed a member of the New York City Board of Health.

**Examination of Food Handlers Discontinued**—Through an amendment to the sanitary code adopted September 18, the New York City Department of Health has abolished the yearly examination of food handlers except for those engaged in the milk industry. Dr John L Rice, city health commissioner emphasized in a statement that hereafter greater attention would be given to the personal hygiene of food handlers and to the entire matter of food sanitation. The action, reversing a policy adopted eighteen years ago, was based on two objections. First it was said that a clean bill of health given to a food handler may have no significance a week later. A second objection arises from the fact that the presence of certain infectious conditions can be determined only by repeated painstaking examinations, which are practically impossible; the cost would be very great and the benefits to the public small. Dr Rice declared in that hundreds of thousands of dollars would be spent to discover at most only a few potential spreaders of disease. It is also pointed out that the health department has more effective measures available for dealing with the possible spread of infection by food handlers. Over reliance on the physical examination of food handlers has brought with it a diminishing emphasis on personal hygiene and matters of general sanitation, Dr Rice continued. It is proposed now to lay more emphasis on the simple matter of frequent hand washing and on sterilization of eating and drinking utensils. The commissioner stated that during 1933 the department had issued 361,289 cards to food handlers, the activity taking up the full time of a considerable number of clerks as well as the time of a physician supervisor. To keep the cards on which the results of the examinations are recorded filing cabinets and valuable space are required. Altogether the commissioner feels that this is an unprofitable procedure for the records, he says, have little value. Judged by the criterion of reducing disease and death, the cost of the health examination of food handlers is enormously out of proportion to the returns yielded to the people of the city.

## OHIO

**Year Book Available**—The Hundred Year Book of the College of Medicine, Ohio State University will be ready for delivery during the annual meeting of the Ohio State Medical Association October 4-6. It contains a complete history of the medical school from 1834 to 1934, including the report of the hundredth anniversary celebration and the addresses made on that occasion. Subscriptions to the book are \$10, and checks may be made payable to A J Linn secretary to the dean of the college of medicine, Columbus.

**Diphtheria Campaign in Toledo**—The Toledo Academy of Medicine announces a campaign for the immunization of all Toledo children against diphtheria, to be carried on from October 7 to November 7 in cooperation with the city health department and various organizations. It is planned that pri-

vate physicians shall do the work for children of their own patients and that the children of indigents will be taken care of through relief funds. Dr Walter W Beck is chairman of the committee in charge of the campaign.

**District Society Meeting**—The Northwestern Ohio Medical Association will hold its ninetieth session in Toledo, October 2, at the headquarters of the Toledo Academy of Medicine. Guest speakers will be:

Dr Douglas Quick New York Diagnosis of Malignancy Treatment of Malignancy  
Dr Frederic Maurice McPhedran, Philadelphia Diagnosis of Tuberculosis in Infancy and in Grade School Age Diagnosis of Tuberculosis in Adolescence and Adult Life  
Dr Raphael Isaacs Ann Arbor Mich Newer Developments in Diagnosis and Treatment of Diseases of the Blood Forming Organs  
Dr Milton B Cohen Cleveland Principles and Practices in the Management of Patients with Allergy  
Dr Alvin R Morrow Chicago Head Injuries

**Society News**—Dr Frank C Huth, Cambridge, addressed the Guernsey County Medical Society, August 16, on mammary tumors.—Dr Claud R G Forrester, Chicago, addressed the Summit County Medical Society in Akron, September 4, on "Reduction of Acute Fractures Under Local Anesthesia Together with Ambulatory After-Care"—Dr Hugh Cabot, Rochester, Minn, addressed the Academy of Medicine of Cleveland, September 21, on "New Conceptions of the Diagnosis and Treatment of Urinary Tract Infections"—Dr Carl J Wiggers, professor of physiology, Western Reserve University School of Medicine, Cleveland, gave a series of lectures on recent advances in applied physiology before the Mahoning County Medical Society, Youngstown, during the past month.—Drs Grover C Penberthy and William H Gordon, Detroit, addressed the Hancock County Medical Society, Findlay, September 6 on surgical management of burns and treatment of diabetes during pregnancy, respectively.

## RHODE ISLAND

**Society News**—At the quarterly meeting of the Providence Medical Association, September 6, speakers were Drs George A Elliott, Middletown, Conn, on "Paraldehyde and Other Hypnotics Recent Developments", Arthur H Ruggles, Providence "Function of a Hospital for Children with Nervous Diseases," and Charles Bradley, East Providence, "Nervous and Mental Problems of Childhood"—Dr Ellen A Stone, Providence, has retired after twenty-one years as superintendent of child hygiene in the city health department.

## TENNESSEE

**Health at Memphis**—Telegraphic reports to the U S Department of Commerce from eighty-six cities with a total population of 37 million for the week ended September 15 indicate that the highest mortality rate (171) appears for Memphis, and that the rate for the group of cities as a whole was 99. The mortality rate for Memphis for the corresponding week of 1933 was 157 and the group of cities 95. The annual rate for the thirty-seven weeks of 1934 was 115, as compared with 11 for the corresponding period of last year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

**Society News**—Drs William C Chaney and John L Jelks Memphis, addressed the Tri-County Medical Society (Carroll, Henry and Weakley counties) at McKenzie, August 14, on "Practical Considerations of Gastro-Intestinal Allergy" and "Rectocolonic Diseases" respectively.—Speakers at a meeting of the Roane McMinn Monroe, Blount and Loudon Counties Medical Society at Kingston August 22, were Drs John B Youmans, Nashville on "Noninstrumental Diagnosis of Common Cardiac Arrhythmias", James E Carson, Maryville, "Permephric Abscess," and William J Cameron, Sweetwater "Treatment of Endocervicitis by Electrocoagulation"—At a meeting of the Nashville Academy of Medicine, September 4 Dr James Frazier Binns discussed "The Management of Diarrhea of Infancy."

## TEXAS

**Bill Introduced**—H 55-XXX proposes to forbid the sale of barbituric acid derivatives and compounds thereof under any copyrighted or chemical name, except on the prescription of a licensed physician. The proposed act however, is not to affect the sale of such drugs by wholesale drug houses to retail pharmacies or to physicians. A licensed physician is free to dispense these drugs but apparently, will be able to buy them from retail pharmacies only on prescription.

## VERMONT

**State Medical Meeting at Burlington**—The one hundred and twenty first annual meeting of the Vermont State Medical Society will be held in Burlington, October 4-5, at the Flemming Museum. A symposium on the kidney will be presented by four New York physicians: Drs. Arthur M. Fishberg, Paul W. Aschner, Moses Swick and Albert A. Epstein. Dr. Dean Lewis, Baltimore, will give an address and other guests will be Drs. John M. Bergland, Baltimore, on "Obstetrical Complications", Henry D. Chadwick, Boston, "Prolongation of Life", Winchell McK. Crug, Rochester, Minn., "Physiology, Pathology and Treatment of Craniocerebral Injuries". Vermont physicians on the program are Drs. Maurice N. Belterose, Rutland, "Intervertebral Pressure", Clarence F. Ball, Rutland, "Radiation Treatment of Tumors—Late European Developments," and Charles K. Johnson, Burlington, "Atrophic Fever in Early Infancy". The annual banquet will be at the Ethan Allen Club Thursday evening, October 4.

## WASHINGTON

**Half a Century in Medical Practice**—More than 100 physicians attended a dinner in honor of Dr. Lewis R. Dawson, Seattle, August 13, marking his fiftieth anniversary in medical practice. Dr. Dawson was graduated from the University of Michigan Medical School, Ann Arbor, in 1882 and licensed to practice in 1884.

**Society News**—Drs. William C. Woodward, Chicago, and Walter C. Woodward, Seattle, will address the King County Medical Society, Seattle, October 1 on malpractice and malpractice suits. Drs. Clyde W. Countryman, Spokane, and James E. Hunter, Seattle, addressed the society, September 17, on "The Postoperative Enema" and "Functional Disorders of the Colon," respectively.

## WISCONSIN

**State Medical Election**—Dr. Ralph M. Carter, Green Bay, was chosen president-elect of the State Medical Society of Wisconsin and Dr. Thomas J. O'Leary, Superior, was installed as president at the annual session in Green Bay, September 10-13. Dr. Gunnar Gunderson, La Crosse, was elected speaker of the house of delegates to succeed Dr. Carter. The 1935 convention will be held in Milwaukee.

## GENERAL

**Changes in Status of Licensure**—The following action was taken at the meeting of the Florida State Board of Medical Examiners in Jacksonville, June 12:

Paul C. Ronning, Lake Worth, license revoked on the ground that he had been fraudulently obtained.

**Shoe Companies Stop Using the Title "Dr."**—Six shoe companies in New York and New England have signed agreements to discontinue misrepresentation in the sale of shoes; the Federal Trade Commission has announced complaints against the companies charged that all used the word "doctor" or abbreviation "Dr." in such manner as to lead buyers to believe the shoes were designed under a physician's supervision and contained special orthopedic features; the report stated:

**News of Epidemics**—Eighteen cases of malaria occurred in Aurora Portage County, Ohio, in the two weeks preceding September 8.—Opening of schools in Spokane, Wash., was delayed indefinitely in an order issued by the city health officer, August 30, because of the prevalence of poliomyelitis. A report of the state health department stated that eighty-five cases had occurred in the state in July and fifty-seven during the first two weeks in August.—Fifty-seven cases of poliomyelitis were reported in Montana during the week ended September 1, 179 cases have occurred in the state since June, centered principally in Helena, Billings and Great Falls.

**Bequests and Donations**—The following bequests and donations have been announced:

Lenox Hill Hospital \$33,333. St. Vincent's Hospital \$25,000. New York Foundling Hospital \$25,000. Home for Incurables \$25,000. Presbyterian Hospital \$20,000 for cancer research. Seton Hospital \$15,000 by the will of the late Mrs. Madeline L. Ottman. Jewish Hospital, Brooklyn \$2,000 by the will of the late Gittle Kartz. St. Catherine's and Bethany Deaconess hospitals, New York \$1,000 each by the will of the late Amelia A. Scheidt. The Tuberculosis Preventorium, Farmingdale, N. Y. \$1,000 by the will of Marcus M. Marks. Hospital for Joint Diseases, New York \$15,000. New York Academy of Medicine \$10,000. American College of Surgeons \$1,000. Gorgas Memorial Institute \$1,000. New York Physicians' Mutual Aid Association \$1,000 by the will of Mrs. Perla A. Brickman. St. Vincent's Hospital, New York \$1,050 by the will of Elizabeth Thompson. Huntington Hospital, Huntington, L. I. \$5,000 by the will of the late Miss Abbie E. Jones. White Plains Hospital Association, White Plains, N. Y. \$1,000 by the will of the late Ambrose F. McCabe.

**Society News**—Dr. John H. Hale, Nashville, Tenn., was elected president of the National Medical Association at its recent annual meeting in Nashville; the next annual meeting will be held in New Orleans in 1935.—Officers elected at the recent annual meeting of the Thirteenth Annual Convention of the International Association of Police and Fire Surgeons in Philadelphia were Drs. Harry M. Archer, New York, president, George L. Wright, Syracuse, N. Y., vice president, and Arthur Wildman, Brooklyn, secretary.—Dr. John S. Hibben, Pasadena, Calif., was chosen president-elect of the American Congress of Physical Therapy at the annual meeting in Philadelphia recently. Dr. William L. Clark, Philadelphia, was installed as president and the following were elected vice presidents: Drs. William Bierman, New York, Frederick L. Wahrer, Marshalltown, Iowa, Walter P. Grimes, Kansas City, and Frank H. Krusen, Philadelphia. The gold key of merit of the congress was awarded to Dr. Leroy W. Hubbard, Mount Vernon, N. Y., William W. Coblenz, Ph.D., Washington, D. C., Henri Bordier, Lyons, France, Oscar Bernhardt, St. Moritz, Switzerland, and Franz Nagelschmidt, formerly of Germany, now of London.—Dr. Walter H. Brown, Palo Alto, Calif., was chosen president-elect of the American Public Health Association at the annual meeting in Pasadena, September 4-7. Dr. Eugene L. Bishop, Nashville, became president.—The thirteenth annual congress of anesthesiologists will be held in Boston, October 15-19. Societies that make up the congress are the Associated Anesthetists of the United States and Canada, the International Anesthesia Research Society, Eastern Society of Anesthetists and the Mid-Western Association of Anesthetists.

## HAWAII

**Aloha Picnic**—The Honolulu County Medical Society held an "Aloha picnic" at Lanikai, Oahu, September 9, in honor of Col. Ernest L. Ruffner. The picnic was preceded by a golf tournament. Colonel Ruffner has been department surgeon of the Hawaiian Department of the U. S. Army for several years.

**Graduate Lectures**—Dr. David P. Barr, Busch professor of medicine, Washington University School of Medicine, St. Louis, gave three lectures before the Honolulu County Medical Society, September 12-14, under the auspices of the committee on postgraduate instruction. His lectures were entitled "The Pituitary Gland," "Hypoglycemia and Related Conditions" and "Parathyroid Gland and Calcium Metabolism."

## CANADA

**Institute of Parasitology**—The official opening of the new Institute of Parasitology at Macdonald College, McGill University, Montreal, took place June 27. The government of Quebec provided the building and the National Research Council has undertaken the maintenance. Henry M. Tory, LL.D., president of the National Research Council, made the official address at the opening ceremony and Thomas Wright Moir, Cameron, Ph.D., director of the institute, accepted the keys. A part of the building has been in operation for about eighteen months (THE JOURNAL, Aug. 27, 1932, p. 771).

**Endowment for Department of Neurology**—Science reports that the Rockefeller Foundation has appropriated \$1,000,000 to McGill University, Montreal, as an endowment for the department of neurology. This fund is to take the place of \$50,000 contributed annually to carry on work in neurology under the direction of Dr. Wilder G. Penfield. The foundation has previously contributed \$232,000 toward the erection and equipment of a building for the department (THE JOURNAL, June 18, 1932, p. 2220). The province of Quebec also makes an annual grant of \$20,000 and the city of Montreal, \$15,000 to the institute.

## FOREIGN

**Prize for Encephalitis Research**—The University of Bern, Switzerland, announces that a prize of 1,000 francs will be awarded for research on epidemic (lethargic) encephalitis through a foundation recently established. Information may be obtained from the dean of the medical faculty of the university.

**Personal**—Dr. Samuel James Cameron has been appointed regius professor of midwifery at the University of Glasgow to succeed Prof. J. M. Munro Kerr who retires September 30.—Prof. George Grey Turner, professor of surgery in the University of Durham, England, has been appointed to the chair of surgery in the new British Post-Graduate Medical School at Hammersmith.

**Obstetrics Prize**—A prize of 10,000 Belgian francs is to be awarded every four years by the International Foundation of Gynecology and Obstetrics, originated by the International Congress of Gynecology and Obstetrics and the Societe Belge de Gynecologie et d'Obstetrique, the latter being legal managers of the fund. The prize will be given to the author of the best paper in gynecology or obstetrics published in the four years preceding the award. Two copies of the paper, which must be in German, English, Spanish, French or Italian must be sent to the secretary of the Belgian society (Dr Max Cheval, 16 Alphonse Hottat Street, Brussels, Belgium) twelve months before the date fixed for the award, July 1938.

**International Neurologic Congress in 1935**—Plans for the second International Neurologic Congress, to be held in London July 29-Aug. 2, 1935, have been announced by the committee for the United States, of which Dr Bernard Sachs, New York, is chairman and Dr Henry Alsop Riley, New York, secretary. Four topics have been chosen for consideration: the epilepsies, physiology and pathology of the cerebrospinal fluid, functions of the frontal lobe, and the hypothalamus and the cerebral representation of the autonomic system. These subjects will be presented at morning sessions, and afternoon sessions will be devoted to discussion of miscellaneous topics. Any recognized neurologist or psychiatrist may submit titles for presentation at the miscellaneous sessions. Such titles, accompanied by brief abstracts, must be submitted to the United States committee before Jan. 15, 1935, in English, French or German. Those accepted will be forwarded to the secretary general in London for final consideration. The maximum time for presentation will be ten minutes. Candidates for membership may apply either through the national committee or through the secretary general of the congress. Dr S. A. Kinnier Wilson, 14 Harley Street, London. Thomas Cook and Son are official travel agents for the congress, and arrangements for traveling and hotel accommodations may be made through them. Requests for application blanks and the submission of titles should be made as soon as practicable. In addition to Dr Sachs and Dr Riley, members of the committee are Drs Harvey Cushing, New Haven Conn., Charles L. Dana, Woodstock, Vt., Adolf Meyer, Baltimore, and Frederick Tilney, New York. Dr Riley's address is 117 East Seventy-Second Street, New York.

#### Deaths in Other Countries

Georges Dreyer, professor of pathology, University of Oxford, England, since 1907, died August 17, in Solstedgaard, Laaland, Denmark, of heart disease.

## Government Services

### New Home of Public Health Service

The National Institute of Health of the U. S. Public Health Service is now occupying its new buildings, the transfer from the old structure to the new quarters having taken more than a year. The buildings comprise a two story administration building housing the library and the director's office, and an I-shaped laboratory building, 234 feet long, three stories high with a basement. Both are constructed of Indiana limestone and form the western end of the government's building program at Washington. The new laboratory building is entirely occupied by the division of pathology and bacteriology. The old north building will be remodeled for other research activities and the housing of animals while the south building will continue to be occupied by the divisions of pharmacology, chemistry and zoology. (THE JOURNAL, June 17, 1933, p. 1946)

### CORRECTION

"Modern Clinical Syphilology"—The review of "Modern Clinical Syphilology," edition 2, by Dr. John H. Stokes (Philadelphia, W. B. Saunders Company, 1934) published in THE JOURNAL, August 25, page 627, contains the erroneous statement that figure 115 has numerous errors which should be corrected in the next revision. The impression of error arose from a misunderstanding of the captions of certain columns by the reviewer. The figures as given in the table are correct. The reviewer is also in error in stating that lymphogranuloma inguinale was not even mentioned in connection with the anorectal syphiloma. A brief discussion of this relationship occurs on pages 590 and 958.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Sept. 1, 1934

### Restriction on Use of Automobile Horns

The formation of the Anti-Noise League and other efforts to check noises, which have become such an evil of modern life, have been described in previous letters. An official move in the matter has been made at last. In a broadcast address Mr. Hore-Belisha, minister of transport, announced an innovation for the benefit not only of motorists and pedestrians but also of that section of the population whose point of view has heretofore not been adequately considered—those who live along the roads and whose tranquility is much disturbed by mechanical noises at night. Between the hours of 11:30 p. m. and 7 a. m. the sounding of motor horns will be prohibited in London over a radius of five miles from the central point of Charing Cross. Any motorist who sounds his horn during those hours will be liable to a fine of \$8. After this experiment has been made, other localities will be invited to follow suit. This new silent zone should be a relief to those who find it difficult to get a good night's rest. Will the risks of motor traffic be increased? It is thought not, as the pedestrian before stepping on to the road will be warned by the oncoming lights of the vehicle. As to foggy nights, statistics show that low visibility tends to diminish accidents, because the motorist naturally goes more carefully. To eliminate noise altogether is impossible, but the minister of transport will do all in his power. He has appointed a committee of scientists and motor manufacturers to consider and report on the principal causes of noise in mechanically propelled vehicles and the steps that can be taken to limit them. The government is placing at the disposal of the committee the resources of the National Physical Laboratory. The aim will be to discover the means of making automobiles and motorcycles with as silent a mechanism as possible. It is already an offense to use one that causes any excessive noise. It is equally an offense to sound a horn, even in the daytime, on a stationary vehicle except when necessary on the ground of safety.

This prohibition, which was suggested by the Anti-Noise League a year ago, proved an immediate success. The "zone of silence" contains the principal London hospitals, and the evil of interfering with the night's rest of the patients was used as a strong argument. Many letters approving of the regulation have been received by the ministry. Before it came into force Capt. J. H. Johnson, secretary of the Royal Westminster Hospital, wrote to the ministry asking whether consideration could be given to "the dire necessity" of mitigating to some extent the unpleasant condition with which the patients of his hospital had to contend. He said that the skill of the surgeons was vitiated to a great extent by the disturbance of the patient's rest and that a deleterious effect on the efficiency of the resident staff was also produced. As an experiment he occupied for a night a private room in the hospital. Though in full health and strength, the experience proved a nightmare. A total of 408 vehicles passed in six hours, more than one a minute. These included heavy motor vehicles, such as milk trucks. During his vigil the secretary noticed that forty-four omnibuses stopped outside a neighboring theater and that at least 90 per cent of them hooted vigorously.

The success of the prohibition in London has been so great that after a delay of only a few days, the minister of transport has extended the regulation forbidding the sounding of horns or other instruments of warning to all roads in Great Britain in built-up areas—that is to say, all roads on which there is provided a system of street lighting by lamps placed

not more than 200 yards apart. But the order does not apply to vehicles used for fire department, ambulance or police purposes. It is noteworthy that this silencing by night of the warning noises of automobiles has not led to any increase of accidents.

### The Taxation of Surgical Instruments

Since England has adopted protection, all the business interests have been coming forward, one by one, demanding a tax on the articles corresponding to those they produce which come from abroad. Everything used from the cradle to the coffin will soon be taxed, even articles used in medicine and surgery. It has been explained how a tax imposed on imported insulin for unfortunate persons with diabetes proved too much for the protectionist government. But a tax on surgical instruments will fall, at first at any rate only on surgeons. The Import Duties Advisory Committee reports that foreign competition is particularly severe in the more commonly used instruments, which may be regarded as standard lines. It says that "a healthy surgical industry" in this country is desirable in the interest of progress in surgery, and that this depends on the retention by British manufacturers of a substantial proportion of the home market in the standard lines as well as in specialized types. The committee has recommended a tax of 20 per cent.

### The Danger of Using Gasoline for Cleaning Garments

In spite of the fatalities that occur from time to time in the use of gasoline for cleaning fabrics, the danger is not sufficiently appreciated. An inquest has been held in London on two women, aged 36 and 44, who lost their lives in an explosion that occurred while they were cleaning clothing with gasoline. They were doing this in a small area outside a kitchen in which there was a lighted boiler. A double explosion occurred. The husband of one of the women said that he thought the explosion was caused by rubbing. Certain fabrics would ignite by friction. He had known a death caused by a man washing his hands in aviation spirit. An inspector of the London County Council gave evidence. He said that a large amount of gasoline vapor would be released in the cleaning process. There was a space of about a quarter of an inch under the kitchen door and the vapor would flow into the kitchen, where the heat of the stove would set it alight. The coroner said that, if gasoline was used for cleaning, this should be done outdoors and not in the confined space of an area. Though the danger of ignition by friction was mentioned in the evidence, one way in which it has been suggested that this may occur—by the generation of electric sparks—was not referred to.

### The Danger of Anthrax from Foreign Shaving Brushes

In the admiralty orders to the fleet, a warning is given against the use of foreign shaving brushes. It is stated that a case of anthrax has recently occurred which is believed to have resulted from the use of a shaving brush purchased on shore, and personnel are warned that the fact that a brush is marked "sterilized" is no guaranty that it is free from anthrax infection unless it is of British manufacture. In shaving only service shaving brushes and other sterilized British-made shaving brushes should be used. Foreign brushes should be suspected even if they have been in use for some time, as the anthrax spores may be present in the setting and be released as this becomes softened in use. Therefore such brushes should be destroyed and replaced by British-made ones.

### The Undiminishing Maternal Mortality

The report of the health officer for the county of Middlesex, Dr. John Tate, shows that the rate of maternal mortality in the county for 1933 rose from 3.85 deaths per thousand births in 1932 to 4.77 for 1933. Women's deaths from causes connected with pregnancy and childbirth numbered 117, an increase

of 19 compared with 1932, although 936 fewer live births took place. The figure 117 was the highest ever recorded for Middlesex. The maternal mortality for the whole country for 1933 was 4.42 per thousand live births, which, though lower than that of Middlesex, was the highest recorded for England and Wales for more than thirty years. Dr. Tate points out that since the beginning of the century maternal mortality rates have shown no diminution and, if anything, have tended to rise. He outlines great reforms that have taken place and says that but for them the maternal mortality would have risen to a considerable height. It seems therefore that these favorable influences must be counterbalanced by some growing adverse factor or factors, possibly connected with the changing habits or mode of living, the nature of which can only be a matter for speculation. The birth rate for the county showed a further sharp fall and was the lowest recorded for any year, not excepting the war years. If the fall continued, the time was not far distant when the population would come to a standstill or even begin to decline.

### PARIS

(From Our Regular Correspondent)

Aug. 8, 1934

### The Problem of Expert Witnesses

For some time many psychiatrists have demanded that in court, when the question of a delinquent's responsibility is raised by the prosecutor, another expert witness be present, in addition to the expert appointed by the court, to represent the interests of the defendant. The results of the practice have been unsatisfactory. The judge, having had no training in psychiatry, delivers his opinion without true discernment when he has to choose between two opposing technical opinions. In a criminal action, when the decision rests with the jury, it is still worse. An expert witness proposed by the attorney for the defense conducts himself in essentially the same manner as the attorney who selects him, and his mission consists in awakening a doubt in the minds of the jurors with regard to the conclusions of the official expert, and in saving the accused from being sentenced. If the accused is rich, he can pay for an expert, possibly a professor of legal medicine, whose influence impresses the judges or the jurors, which latter are commonly persons with little legal experience. The appointment of an expert witness for the defense is not a right that can be demanded. But a large number of psychiatrists want the appointment of an opposing expert witness to be made compulsory and it is not difficult to divine that they envisage the prospect of ample fees, whereas, when they function as official experts, the legal schedule allows them only modest fees.

The question was brought up recently by the Congress of Legal Medicine, at Lille, where it received prolonged consideration. Drs. Raviart and Vullien in their paper emphasized that the penal code does not provide a solution of such delicate problems—responsibility or irresponsibility, prison or psychiatric hospitals. To remedy this state of affairs, it was proposed to permit the appointment of an opposing expert witness to aid in passing on the sanity of the defendant. This innovation, the speakers stated, does not appear to solve the difficulties. The opponents of the reform urge that an expert witness should be above all influence of party considerations. He is the appointee of the court and not of the defense. There should be no confusion between the two issues. His mission is to promote justice impartially. But the expert witness of the defense will always have the set task of bringing up all important facts and all symptoms suitable for casting doubt on the mentality of the accused. The expert witness of the court, mindful of both the interests of the accused and the needs of social defense, and animated by a true medicolegal spirit, will continue, as in the past, to base his conclusions on recognized scientific beliefs. Between the two expert witnesses,



with such widely different points of view, agreement will seldom be possible. An arbiter will be indispensable in a large majority of cases, and as it will often devolve on the judge to choose between the conflicting opinions, there would soon be a lapse back into the present state of affairs. It appears therefore, the speakers stated, that efforts must be directed in another quarter. An entirely different reform must be brought about. A law should be passed similar to one in Belgium, which effects a harmonious accord between charitable ideals and the requirements of social protection. In the discussion that followed this presentation, Charpentier of Paris, Crouzon of the Salpetriere Hospital, Guillaud of the Charite-sur-Loire, Dide of Toulouse, Stanesco of Bucharest, and likewise Me Kah, participated. The congress approved these opinions. 1 The appointment of an opposing expert witness to promote the cause of the defendant is desirable. 2 A larger list of experts should be available. 3 The adoption of a law of social defense patterned after the Belgium law is recommended. These resolutions will be sent to the Society of Legal Medicine, which will hold its congress in Paris at an early date.

#### Laboratory for the Examination of Aviation Pilots

At the Bourget aerodrome, near Paris, a physiologic laboratory called the Pavillon Paul Bert has been established and placed in charge of Dr Garsaux. The new laboratory is provided with modern equipment for research on disorders occurring in pilots as the result of flying, and for the examination of pilots. An enormous caisson in which pilots can be enclosed enables the examiner to study what effects changes in barometric pressure have on them. Other types of apparatus record on charts their emotional reactions, the degree of fatigue, and the like.

#### Dr Auguste Marie

The death of Dr Auguste Marie, at the age of 68 is announced. Dr Marie was an eminent psychiatrist of the contemporary French school. Until his retirement, three years ago, he had been director of the large St Anne Hospital, the most important of its kind in Paris. He was the first physician in France to apply malaria therapy in the treatment of dementia paralytica. In association with Levaditi, he introduced the distinction of neurotropic syphilitic viruses. His published works include research on the doctrines of Freud, sensory perversions, and the nature of artistic productions of mental patients. He organized exhibits of drawings and paintings of patients in the St Anne Hospital and caused thereby no little confusion in the ranks of the art critics. During the war, in spite of his age, he served as physician in a crew of stretcher bearers and suffered a gunshot wound of the cranium. He was the founder of a society for the rendering of aid to mental patients discharged from psychopathic hospitals and a Commander of the Legion of Honor.

#### BERLIN

(From Our Regular Correspondent) Aug 6, 1934

#### New Regulations Concerning the Universities

In addition to the changes previously described, further provisions affecting the universities and higher institutions of learning have been enacted. Rust, the federal minister of education, has elaborated plans to secure, at all German universities and higher institutions of learning, a uniform administration, in line with the national-socialist conception of the state, in the prosecution of learning and research, and in the selection of professors. In accordance with this decree, every vacant professorial chair must be reported to him, with an exact description of the nature of the subjects treated, and, after completion of negotiations in connection with the selection of a new occupant his approval of the appointment must

be secured. Before any scientific institutes can be closed or new ones opened, his consent must be obtained. Also any fundamental changes in the curriculums or in the stipulated forms of examinations must have his endorsement.

R Hess, the representative of the "leader," has issued a decree providing for a special "university commission" of the national-socialist party, in order to bring about a close understanding between the federal administration and the ministries to whose realm the various decrees, appointments and habilitations belong. This commission will investigate all proposals made by the German Hochschulverband or arising from the national-socialist movement and, if approved, will forward them to the proper ministries. The commission will pass on all plans that are developed by the ministries. Hess will be the head of this commission. Alfred Rosenberg, the representative of the "leader" for the supervision of public education, and Dr Wagner, the director of the council on public health, are ex officio members of this commission.

Dr Wagner has the public health service solely in his charge. *Weg und Ziel*, the journal of the national-socialist Aerztebund, has described Wagner's duties in plain terms. "All groups and organizations of the national-socialist party and the public works association, which have to do with the public health, are under the control of Dr Wagner in his capacity of confidential adviser of the representative of the 'leader'." That signifies that in this important field, today the will and the opinions of a single man exert an absolute control. From questions concerning the filling of vacancies in the medical faculties to problems affecting the fee schedules and the organizations of nurses, the decisive national-socialist authority is in the hands of one person—a fact whose significance will not be fully understood until later."

Measures have been adopted to check the flood of new university students (THE JOURNAL, March 3, p 710). In the summer of 1934 the number of students showed a decline of 13,884, or 10.4 per cent of the total matriculation of the summer semester of 1932. Of the total number of students at German universities, 97,687 were males and 18,035 were females. This shows a marked decline since the summer semester of 1931. The new matriculations for the summer semester 1931 were males 17,119, females 4,664, or a total of 21,783; for 1932 they were males 15,259, females 3,508, or a total of 18,767, and for 1933 they were males 10,412, females 2,586, or a total of 12,998.

The decline in the number of new students matriculating for the summer semester of 1933 was 5,769, or 30.7 per cent. As the result of an agreement entered into in March 1933 by the various German *lander*, a total of 8,341 graduates (about 19.9 per cent) of secondary schools were advised to forego university study. The percentage of graduates thus dissuaded varies greatly in the several *lander*, the total range lying between 7.47 and 32.23 per cent. The total number of foreign students matriculated for the summer semester of 1933 was 5,484, which denoted a decline of 1,074 (16.38 per cent) as compared with the summer semester of 1932.

There has been considerable talk about the reorganization of the student body. There is to be a general work service plan for the German student body, the chief requirement of which is that it shall bring the need of scientific work into harmony with the storm troop service, the emergency work service, comrade training, demands of the student organizations, the *fachschaftsarbeit* and the work of the national-socialist league. The first attempts to establish a work service for students were fraught with difficulties. An endeavor is being made to create next semester a work service that will take account of the necessities of scientific work. After entering on his duties, the newly appointed leader removed from office (to take effect at once) all the leaders of the German student

body. At the end of August the various local leaders will meet in a *reichsführerlager* (federal camp), where they will receive the new instructions for the work of the next semesters. Such "camps" are now frequently organized. Special camps for medical students have not been provided as yet, although "scientific camps" have been created. In a report on such a camp one reads: "The conception of science in the nineteenth century was based on objective, freedom of speech and independence of thought and action, while the form of organized academic work was protected by the idea of 'academic freedom'." This academic freedom has now been rejected by the German university, and likewise the associated individualistic student type. The conception of political science, the beginnings of which are now recognizable, demands also new forms of academic work and academic instruction, and a new student type. Hence the *wissenschaftslager*, or science camp, is an important working principle of the future German university. Such a camp, for example, may be held for several days in a training school for sport, is characterized by soldierly bearing and a spirit of camaraderie, the language of the camp forbids the use of all forms of address based on academic degrees. Sports and hikes have their place beside mental activities. Each day is spent according to a fixed schedule, planned in advance. For example, in the seminar for political science, carefully directed discussions on the seminar lecture are held, also political talks—for instance, on the state and the intellectual life of the nation. The student who holds himself aloof and does not take part in this community endeavor in which the teacher takes the part of a leader, loses quantitatively the advantages that he hopes to attain by his individual labors, also his scientific conclusions are false. The success of the scientific camp depends on antecedent factors that are not always available as yet. The most important presupposition is a new type of academic teacher, of which there are as yet but few representatives, and they are found chiefly in the younger generation. The scientific camp will be a success only to the extent that it shall prove possible to produce a new type of university instructor.

#### Hereditary Factors in Gynecology and Obstetrics

Before the Berlin Medical Society, Prof. G. A. Wagner pointed out that the literature contains few extensive observations on the significance of hereditary factors in gynecology. The simultaneous appearance of menarche and menopause in different members of a family is frequently observed. One occasionally observes familial disturbances of menstruation affecting large numbers. With respect to myomas, the question of heredity is difficult to decide. Wagner cited instances in which several siblings were subjected to an operation at a relatively early age. Evidence of racial predisposition to myomas has been noted, for instance, in Jewish women. Abnormalities with respect to the endocrine glands are found in certain families. Wagner himself discovered in 1930 the case of two sisters with pseudohermaphroditism.

In obstetrics, disturbances of the birth mechanism, such as weakness due to labor, placenta praevia and placental hemorrhages have not been sufficiently studied to determine their tendency to hereditary manifestations. Much more is known, however, concerning the hereditary nature of rickets. Researches on rachitic twins have established beyond doubt the influence of a hereditary predisposition. The question of sterilization in the presence of a rachitic narrow pelvis should be earnestly considered. A narrow pelvis commonly becomes a grave impediment to birth if there is a marked difference between the size of the father's body and head and that of the mother's for the size of the child's head, which is a decisive factor in the indications for cesarean section, depends, for the most part, on the form of the father's head. Along with chondrodys-

trophia a child often inherits also a chondrodystrophic narrow pelvis. This deformation is no slight matter, although persons with such a deformity are usually rather intelligent (acrobats, clowns and the like). In harmony with Gütt, Rudin and Ruttké, commentators on the sterilization law, sterilization should, after all, be carried out. Chorea gravidarum is subject to hereditary influences, also Osler's disease, or telangiectasia hereditaria. Many family trees point to a distinctly hereditary character of this disease. Deformations due to intra-uterine amputation by amnion strands are doubtless nonexistent in spite of the ancient beliefs of many obstetric assistants to that effect. Such deformations are more likely the result of a pathologic hereditary predisposition. In deciding for or against interruption of pregnancy or sterilization the question of heritability is extremely important and each case must be decided on its own merits so long as knowledge of the subject is so incomplete. Wagner warns against drawing too radical conclusions from existent limited knowledge, for in every sterilization one must be conscious of tremendous responsibility toward the patient and toward society.

#### Experiments on Animals

It will be recalled (*THE JOURNAL*, Feb. 17, p. 551) that the new legislation for the protection of animals contains special provisions concerning scientific experiments. The federal minister of the interior has now announced detailed instructions concerning special permits, issued to scientific laboratories. The semiannual inspections shall be unannounced and shall be made jointly by physicians and veterinarians. Research experiments may be undertaken only if they hold out the prospect of definite scientific gains or serve to clarify unsolved problems. Experiments for purposes of instruction are permitted only when other methods of instruction (pictures, models, specimens, films) are inadequate. During inspections, attention should be given to the equipment used in conducting animal experiments and to the mode of housing the experimental animals. Inquiries must be made in regard to the number of experiments done since the issuance of the permit and concerning the experimental animals employed, with a differentiation of the higher animals (horses, dogs, cats, monkeys) and the lower animals (guinea-pigs, rats, mice, frogs), concerning the duration of the experiments, and as to whether the experiments were performed on anesthetized or unanesthetized animals, whether general or local anesthesia was used, and whether the animals following experiments (during anesthesia or later) were killed in a painless manner. All observed irregularities must be reported at once to the competent ministry, which reserves the privilege of making unannounced inspections. Institutes granted permits must send in regular reports on the scientific animal experiments performed during the previous two years, covering all the details mentioned.

#### BELGIUM

(From Our Regular Correspondent)

Aug. 3, 1934

#### Meeting of International Bureau of Bibliography of Military Medicine

The fourth session of the Office international de documentation de médecine militaire was held at Liege, June 27-30. Twenty-eight governments sent official delegates: Belgium, Brazil, Bulgaria, Belgian Congo, Czechoslovakia, France, Great Britain, Greece, Haiti, Hungary, Italy, Latvia, Lithuania, Luxembourg, Mexico, Monaco, Netherlands, Paraguay, Peru, Poland, Portugal, Rumania, Switzerland, Turkey, the Union of Socialist Soviet Republics, the United States and Uruguay. The delegates from the United States were Lieut. Walter G. Kilbury, Medical Corps, U. S. Navy, and Dr. Hugh de Valin, medical director, U. S. Public Health Service.

Mr Albert Deveze in a stirring discourse pointed out the importance of the medical corps in war. He hoped to see developed, for the benefit of the civil populations, zones of safety in which protection may be given to the wounded and to old men, women and children. He is planning to request the Belgian government to convoke an international conference for the purpose of promoting the movement recently launched at Monaco. Lieutenant Colonel Voncken of the Belgian army medical corps emphasized the importance of the plans for humanizing war, launched through the initiative of the prince of Monaco. By creating a commission of jurists and physicians, he has merited the gratitude of the world. Professor de La Pradelle called attention to the heavy duties that rest on those who assume charge of international conferences. He recalled the efforts made in 1874, 1904 and 1907 at The Hague and Geneva and expressed the view that the codification of the rules of warfare is indispensable. In case of violations of accepted rules by a belligerent, he demanded reprisals authorized by the neutral powers.

Among the most important communications may be mentioned first, "Organization of the Sanitary Service Back of the Lines," by Colonel Schickel of the French army. About two thirds of the men evacuated from the front are conveyed to the interior of the national territory in order that they may find the best conditions for recovery.

The large number of casualties resulting from modern warfare demands extensive hospital facilities, which must be organized in accordance with an approved industrial plan, with specialization and division of labor. Such installations cannot be made rapidly unless adequate resources are immediately available. Important differences may exist in the various countries. In France the organization is according to military regions, each of which comprises three or four departments of France. Each region is divided into a number of hospital sectors, usually one for each department, each sector having from 4,000 to 5,000 beds. Each sector must have six technical centers, three of which should be medical and three surgical. The centers are all under the direction of qualified specialists. One of the hospital sectors of the region contains, in addition, eight technical centers for the medical and surgical specialists and a laboratory of bacteriology and chemistry. Then, finally, certain regions have interregional centers for the less common specialties.

All persons evacuated from the front are brought to a technical center, where they are examined by a specialist who may either retain them for treatment in his department or may transfer them to a branch functioning under his supervision. This system is in use in both the permanent and the temporary hospitals. The smooth working of the whole system is effected through the aid of technical and administrative heads, who work in close connection with one another. The persons evacuated from the armies must follow a line of communication on which function the various control and revision outfits of the sanitary trains. The first of these outfits encountered in the territory of a region constitutes a "distributing station." A physician serving as distributor meets all the transport trains from the front, and being informed as to the hospital accommodations in each sector, distributes the trains in such a manner that the train load may be entirely absorbed by one or more hospitals, in which the persons evacuated may be hospitalized and treated without loss of time.

The risks of aerial bombardment will increase the needs of hospitalization in the interior. It is impossible to estimate the needs at present, but they might be great. The problem of securing an adequate technically trained personnel will arise which opens the question of the possible utilization of medical aid of nonbelligerents. It is eminently desirable that the laws

of future warfare shall protect civil populations against aerial bombardment.

All these problems, first launched at Liege, Brussels and Madrid, received serious consideration at Monaco. Movements for the practical solution of these problems were set on foot, and great honor is due the permanent committee of the *Congres internationaux de medecine et de pharmacie militaires* for having played a prominent part in elaborating the plans.

#### MOTORIZED UNITS IN OPEN WARFARE

General Ilesco of the Rumanian army presented a paper on the use of motorized units in open warfare. Motorization permits not only a reduction of necessary equipment and saving of time but also rapid transportation of the wounded and the gassed to points outside the bombarded area. Mechanical traction, however, cannot be applied to the sanitary equipment of all the units. It is inapplicable to regimental units because of the rough terrain. To the divisions and to the army corps, on the other hand, motorization can render great service by accelerating the distribution and the transportation of the wounded and the gassed to points of safety back of the front lines. Such equipment will make it possible also to station the division and army corps ambulances much farther back where they will be less exposed to artillery fire.

#### VACCINATIONS

Col Clement Zrunek of the Czechoslovakian army presented a paper on "Vaccinations from the Point of View of Legislation." Vaccination for soldiers is only exceptionally prescribed by law. Usually it is based on ministerial orders. Under these conditions, what action should be taken if a soldier refuses to allow himself to be vaccinated? An inquiry on the subject sent to various countries, in connection with smallpox vaccination, makes it possible to divide the armies into three groups: (1) countries with revaccination prescribed by law for all subjects aged 20 to 21 (France, the Union of Socialist Soviet Republics, Uruguay), (2) countries having the same law but with special stipulations for the army (Norway, Brazil, Rumania, Sweden and Turkey), and (3) countries in which vaccination is prescribed only by ministerial decrees and military regulations (most of the other countries). France and the United States were about the only countries that made vaccination obligatory against diseases other than smallpox. Czechoslovakia is about to enact a law making smallpox vaccination obligatory and permitting the minister of national defense to adopt such measures as he shall deem necessary for protection against other infectious diseases.

#### THE TRAINING OF MILITARY PHYSICIANS

Commandant Jimenez Arrieta of the Spanish army presented a paper on the "Professional Training of Military Physicians." The methods used in Spain have given good results not only from the point of view of recruiting but also as to the quality of the physicians enlisted. Since 1908, special courses in bacteriology, surgery, otorhinolaryngology, ophthalmology, and the like, have been regularly established for the benefit of medical officers. The courses in surgery given at the Military Hospital in Madrid extend over two years and are divided into five periods. The courses in radiology and electrotherapy given in Madrid extend over a period of six months. The medical specialists trained in these courses are used in their several capacities as need arises. The personnel specializing in bacteriology, laboratory analysis and disinfection is handled, however, in a special manner and is held to the study of the following problems: hygiene, alimentation, housing, and choice of clothing and other equipment for the soldier; bacteriologic histologic and physicochemical analysis, medicolegal relations, prophylaxis, elaboration and preparation of various vaccines and serums and veterinary hygiene.

In addition to these courses, in order to enable the medical officers to practice in a military environment, they must attend the special continuation courses that are obligatory for the heads of departments and for the officers of all armed units and all army corps, which comprise three periods: one preparatory, one of practical execution, and a third of advanced training.

In addition to technical papers, the meeting was devoted to the preliminary plans for an international convention, as elaborated in Monaco last February, the purpose of which is to 'humanize war', that is to say, to diminish, in the event of a future war, the evils and rigors not only for the belligerents themselves but also for the civil population from the use of engines of war with frightful powers of destruction.

The question was first brought up in 1933 at the seventh Congress of Military Medicine, in Madrid. The congress passed several resolutions endorsing the idea. To work for its realization, the prince of Monaco summoned a commission of fourteen members, composed chiefly of the delegates of the permanent committee of the Congress of Military Medicine and in addition, of several eminent specialists in international law. The conference resulted in a plan for an international convention to be submitted to the various countries for acceptance at a diplomatic conference to be held later. Five features of the plan are worthy of examination.

#### ORGANIZATION OF "SANITARY CITIES AND LOCALITIES"

The proposed plan provides for the creation of 'sanitary cities' at some distance back of the fighting area, and localities near the battle front, which will enjoy special protection on condition that they are used exclusively for the needs of the army medical corps.

#### SANITARY AID FURNISHED BY NONBELLIGERENTS

Lest the sanitary units find themselves unable to cope with their stupendous task, the Monaco commission proposed that they be permitted to solicit aid from neutral nations as regards both personnel and equipment.

#### TREATMENT OF PRISONERS OF WAR

The proposals in connection with the treatment of prisoners of war supplement the Geneva Convention of July 27, 1929. The sanitary aid to be given prisoners should be furnished as soon as possible by the army medical corps of the nationality of the prisoners or, in its absence, by the army medical corps of a neutral country.

#### PROTECTION OF THE CIVIL POPULATION

Protection of the civil population would be assured in part by the organization of "cities of safety" in which the civil population might find refuge and protection against the dangers of military operations.

#### PENALTIES FOR VIOLATING THE CONVENTION

The chief penalties for violation of the convention would be reprisals after confirmation of the facts by a commission consisting of nonbelligerents, the possibility of appeal to the permanent court of international justice and withdrawal of sanitary aid from the country violating the convention.

The faculty of law of the University of Liege aided in preparing the way for the diplomatic conference proposed. Mr. Ernest Mahaim, professor of international law at the University of Liege, was elected chairman of the special section and Mr. Fernand Dehoussé, assistant professor of international law at the same university, was appointed secretary. The proposed plan is not a thrust against the rights of belligerents. To say that violence cannot be made subject to rules and regulations is moreover, untenable. It is the essential purpose of all law—international law as well as domestic—to react against violence. There is an increasing trend toward international organization and toward the juridical organization of the world.

At the close of the session of the "juridical section, the permanent committee of the International Congress of Military Medicine and Pharmacy, desirous of retaining and of developing further the collaboration of the physicians and the jurists which has given such good results, decided to establish the Commission medico-juridique d'études charged with arousing the public opinion necessary for the success of the conference to be held in 1935. This commission, which comprises six physicians and four jurists, belonging to seven nationalities, is under the chairmanship of General Castillo Najera of the Mexican army medical corps and ambassador from Mexico at Paris and Vienna.

## AUSTRALIA

(From Our Regular Correspondent)

Aug 14, 1934

### The Hospital Lottery Racket in Australia

Economic stress has driven an ever increasing proportion of the population to the public hospitals in Australia. In spite of the efforts at collection of fees from the inmates by the hospital authorities, these institutions have found themselves in financial difficulties. Voluntary subscriptions have almost dried up, and an appeal to the government was the only alternative. The government, in its turn, was also in difficulties and was not prepared to increase the load of taxation.

In Queensland since 1920 the government has conducted a lottery known as the golden casket which has provided a total sum of over £3,000,000 for medical "charities." It is interesting to note that of the total receipts from the lottery 53 per cent is returned as prizes, 20 per cent is absorbed in expenses, and 27 per cent is available for distribution. A considerable portion of the money collected came from New South Wales and in fact, all over the world.

In 1932 the New South Wales government, in face of considerable opposition from the churches, commenced lottery operations on its own account. The opposition has had the effect of curtailing the activities of the director of the lottery. No advertising is permitted and the tickets are limited to five shillings and threepence. The Queensland lottery suffered when New South Wales commenced operations but, taking advantage of the restrictions fettering the latter, Queensland instituted a second lottery with £1 tickets. Five of these were held, and £50,000 in each was subscribed in New South Wales.

This has given considerable anxiety to the minister for health and others, and demands have been made that the restrictions should be removed from the New South Wales lottery so that it may be able to withstand the competition. Statements have been issued in the press strongly defending the lottery on the grounds of expediency and urging that, since it is much less likely to cause ruin to the public than betting and horse racing, these should first be eliminated.

Another aspect of the lottery that is causing concern is the number of lottery shops that have sprung up. These sell one-seventh share in a ticket for a shilling, thus making a profit of 1/9d on each ticket. It is estimated that at least £100,000 a year is lost to the lottery in this way. An attempt was made to prevent this practice, but on an appeal to the courts it was upheld as being perfectly legal. It is stated to be the intention of the state parliament at its next sitting to declare the sale of share tickets in this way illegal and also to prohibit the gift of shares in lottery tickets as bonuses to those buying goods in shops, at present a common practice.

In Queensland the sale of share tickets of one shilling upward has assumed the proportions of an industry. About every tenth shop in the state is engaged in this business.

As a means of financing capital and maintenance funds of hospitals the lottery system is a definite success, but there is a strong body of "silent" opinion that is ashamed of the method.

## Marriages

GEORGE EDGAR ROY ANTHONY, Detroit to Miss Helen Elizabeth Rose Burgess of Port Lambton, Ont., September 5

J. FRANK HICHSMITH JR., Fayetteville, N. C., to Miss Cornelia Murdock McIntyre of Bennettsville, S. C., July 25

GERALD WELDON HAYES, East Orange, N. J., to Miss Florence Margaret Auth of South Orange, September 15

SVEN MARTIN GUNDERSON, Brookline, Mass. to Miss Harriet Elizabeth Adams of Hancock Point, Maine June 21

GILBERT B. SALTONSTALL, Charlevoix, Mich. to Miss Charlotte C. Mathauer of Grosse Pointe Park July 2

ROBERT C. THOMPSON, Cumberland, Wis. to Miss Alberta Shelby of St. Paul at Duluth, Minn., June 9

WILLIAM C. HICHSMITH, Fayetteville, N. C., to Miss Margaret Parker Bridger of Bladenboro, July 25

WILLIAM MCNEILL CARPENTER to Miss Nena Martin McSwain, both of Greenville, S. C., July 21

GEORGE ARLIN BAVIR, Pennsburg Pa., to DR. FAITH FRANCES HOPKINS of Boston, September 1

HOMER MILTON FARLE, Orangeburg, S. C., to Miss Claribel Croswell Parham of Charleston July 12

LAWRENCE FRANCIS DUGAN, Faribault, Minn., to Miss Margaret Lucille Malone of Owatonna July 13

FRED HIGGINS BEALMONT, Council Bluffs Iowa, to Miss Virginia Kiddoo of Elmwood, Ill., July 21

ROCCO JOHN ROMANELLO, Hartford, Conn. to Miss Alice Bermydine Gaffney of New Britain, July 16

THEODORE DWIGHT STEVENSON to Miss Beatrice Elmor Scott both of Holyoke, Mass. September 8

PALMER R. KUNDERT, Madison Wis. to Miss Kathryn Elizabeth Mauermann of Monroe, June 19

WILLIAM JACKSON COPLAND, Cary, Ill., to Miss Jennie Alme of Rhinelander, Wis., September 7

FLETCHER GORDON KING, St. Augustine, Fla., to Miss Evelyn Walters of Lavonia, Ga., recently

LEWIS J. GREENFELD, Center Colo. to Miss Rosemary Kalb of Brooklyn in New York June 23

ROBERT C. ANDERSON, Newark, N. J., to Miss Elsie May Parker of Washington, D. C., June 12

JEROME PIERCE WEBSTER to Miss Geraldine Rockefeller McAlpin both of New York, July 14

CHARLES FRANKLIN FISHBACK, Sharon, Wis. to Miss Katherine Williamson of Madison June 24

CHARLES SOL STERN, West Allis, Wis. to Miss Ruth Schoenkerman of Milwaukee, June 17

TAYLOR WOOD GRIFFIN, Quincy Fla. to Miss Helen Ethridge of Idabel, Okla., June 20

WILLIAM A. CARRIGAN, Beaufort, S. C., to Miss Beulah Womack at Society Hill, July 28

JOHN HENRY DOUGHERTY to Miss Florence Mabel Boone both of Asheville, N. C., July 28

PORTER CORNELIUS PENNINGTON Findlay, Ohio to Miss Cleo Elizabeth Slagle, August 6

ALBERT JEFFERSON MCILWAIN to Miss Virginia McKinsey both of Merigold Miss., June 6

LOVETT MARTIN REAVES, Dallas, Texas to Miss Allan Wells in Hope, Ark., July 15

HENRY LEWIS GREENE to Miss Isabelle Winterbotham both of Madison Wis., August 7

NORRIS H. FRANK, Buffalo, to Miss Donna Gilliland of Conneaut, Ohio, August 12

LOUIS RICHARD BOWEN, Eustis Fla., to Miss Myra Sadler of Jacksonville, August 10

WILLIAM L. HOBART, Lakewood, Ohio to Miss Eunice Reed of Pomeroy, July 11

JOSEPH RAY JOHNSON, Cleveland to Miss Madge Webster of Shaw, Miss. recently

ARTHUR R. SIMON to Mrs. Mary J. Gardner both of La Porte, Ind., July 19

LAMAN ALEXANDER GRAY, Baltimore to Miss Alice Virginia Crothers, June 4

THEODORE M. PAULBECK to Miss Helen A. Schulze, both of Milwaukee, May 12

CLIFFORD JAMES PITTMAN, Ruleville Miss. to Mrs. Addie Sue Young July 29

## Deaths

Edward Francis Kilbane ☉ New York, Cornell University Medical College, New York, 1901, member of the American Urological Association and fellow of the American College of Surgeons, served during the World War, on the staffs of the Misericordia Hospital, City Hospital, Roosevelt Hospital, St. Mary's Hospital for Children, Flushing (N. Y.) Hospital and Dispensary and the Lincoln Hospital, aged 57, was killed August 18, in an automobile accident in St. Albans, Vt.

James Wilson Du Comb, Carlyle, Ill., Barnes Medical College, St. Louis, 1905, member of the Illinois State Medical Society, formerly mayor and member of the board of education of Beckemeyer, aged 62, died, July 24 of arthritis as the result of injuries received in an automobile accident which occurred several years ago

Samuel S. Coe, High Point, N. C., University College of Medicine, Richmond, 1911, member of the Medical Society of the State of North Carolina, physician to the High Point College on the staff of the Guilford General Hospital, aged 53, died, August 6, of complications following an operation for appendicitis

Charles Richard Marsh, Oneonta, N. Y., Albany Medical College 1903 member of the Medical Society of the State of New York, fellow of the American College of Surgeons, aged 54 on the staff of the Aurelia Osborn Fox Memorial Hospital, where he died, July 11, of chronic nephritis and heart disease

James Fitz Taylor, Sioux City, Iowa, Bellevue Hospital Medical College, New York, 1892, member of the Iowa State Medical Society, fellow of the American College of Surgeons on the staffs of St. Joseph's, Mercy, St. Vincent's, Lutheran and Methodist hospitals, aged 67, died, July 1, of heart disease.

William Oakley Kemper, Reading, Ohio, University of Cincinnati College of Medicine, 1932, member of the Ohio State Medical Association and the Associated Anesthetists of the United States and Canada aged 26, died, July 30, in the Christ Hospital, Cincinnati, of septicemia

Grover Cleveland Blake ☉ Cumberland Md., College of Physicians and Surgeons, Baltimore, 1910, fellow of the American College of Surgeons, aged 50, on the staff of the Allegany Hospital of the Sisters of Charity, where he died, recently of carcinoma of the stomach

Harvey W. Garrison, Hillview, Ill., Barnes Medical College, St. Louis, 1906, also a pharmacist, member of the Illinois State Medical Society formerly member of the school board, aged 53 died August 6, of carcinoma of the rectum with metastases to the liver and lungs

Samuel Edward Teague, Hamlet N. C., Tulane University of Louisiana School of Medicine, New Orleans 1921, member of the Medical Society of the State of North Carolina aged 37, on the staff of the Hamlet Hospital, where he died August 10 of osteomyelitis

William LaFayette Gossage, Kennett Mo. St. Louis College of Physicians and Surgeons, 1905, member of the Missouri State Medical Association, past president of the Dunklin County Medical Society, aged 67 died, July 9 of pulmonary tuberculosis

Benjamin Gutmann ☉ New Brunswick, N. J., Jefferson Medical College of Philadelphia, 1897, fellow of the American College of Physicians, on the staffs of St. Peter's General and Middlesex General hospitals, aged 56, died August 7, of bronchogenic carcinoma

Walter J. Foster, Lansing Mich., Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster 1884 aged 72 died, August 17, in the Edward W. Sparrow Hospital, of injuries received when he fell from the roof of his home

James Davidson Iglehart, Baltimore, University of Pennsylvania School of Medicine Philadelphia, 1875, member of the Medical and Surgical Faculty of Maryland, aged 84, died July 14 in the Union Memorial Hospital, of broncho pneumonia

Victor Joseph Girardi ☉ North Adams, Mass., Harvard University Medical School, Boston 1924 member of the school board on the staff of the North Adams Hospital, aged 34, was drowned August 1 in the Windsor Pond at Plainfield

Chester L. Stocks, Bushong Kan., University Medical College of Kansas City 1896, member of the Kansas Medical Society, aged 66 died suddenly, August 3, in the Newman Memorial County Hospital Emporia of diabetes mellitus

**John Edward Connor**, Rochester, N Y, Georgetown University School of Medicine, Washington, D C 1904, member of the Medical Society of the State of New York, aged 55, died, August 10, of chronic nephritis and myocarditis

**George Tucker Spencer**, Dallas, Texas, Baylor University College of Medicine, Dallas, 1920 member of the State Medical Association of Texas, served during the World War, aged 43, died, August 6, of heart disease

**William David Guttery**, Pilger, Neb., Lincoln (Neb.) Medical College of Cotner University 1901, at one time superintendent of the Norfolk (Neb.) State Hospital aged 82 died, July 11, of prostatic obstruction

**John Louis Moorhead** ♂ Neodesha, Kan. Kansas Medical College, Medical Department of Washburn College Topeka 1896 for many years member of the board of education, aged 64, died, July 13, of heart disease

**John Albert Kimzey** ♂ Detroit, College of Physicians and Surgeons, Baltimore, 1910, veteran of the Spanish-American War, aged 57, died suddenly, July 23, at the Belle Isle bathing beach, of coronary thrombosis

**Moses Wolff Gordon**, Jamaica, N Y, Rush Medical College, Chicago, 1933, member of the Medical Society of the State of New York, aged 25, died, August 5, of coronary sclerosis and acute myocarditis

**Frederick W Stewart**, Coldwater, Mich., Cleveland Medical College, 1891, at one time city health officer formerly on the staff of the Branch County Infirmary and Hospital aged 73, died, August 14

**Henry Chester Jackson**, Woodstock Vt., Dartmouth Medical School Hanover, N H, 1897 member of the Vermont State Medical Society, aged 70, died, July 13, of prostatitis and myocarditis

**Herbert Arthur Rhoades** ♂ Foster Mo. Kansas City (Mo.) Medical College, 1897, bank president aged 65, died August 3 in the Mercy Hospital, Fort Scott, Kan, of uremia and chronic nephritis

**Eugene Aloysius Sturm** ♂ Jasper, Ind. Kentucky School of Medicine, Louisville, 1904, past president of the Du Bois County Medical Society, served during the World War aged 55 died, August 10

**Henry A Broad**, Chicago, Illinois Medical College, Chicago 1909, on the staff of the Lutheran Memorial Hospital aged 63, died, September 6 of hypostatic pneumonia and coronary thrombosis

**George Arthur M Eychaner** ♂ Nahma, Mich., University of Nebraska College of Medicine, Omaha, 1926 aged 33 died suddenly, July 23, in the Pinecrest Sanatorium, Powers of diabetes mellitus

**William Jeremiah Taylor**, Everett Mass. Tufts College Medical School Boston, 1932, intern at the Brooklyn (N Y) Eye and Ear Hospital aged 31, died, July 12, in the Malden (Mass.) Hospital

**Charles Harris Latimer**, Laurel Md. College of Physicians and Surgeons, Baltimore, 1881, on the staff of the Laurel Sanitarium, aged 73, died, July 29, of heart disease and arteriosclerosis

**Charles Henry Jahn**, North Milwaukee, Wis. Rush Medical College, Chicago 1895, formerly on the staff of St Joseph's Hospital Milwaukee, aged 65 died suddenly, July 25 of heart disease

**John Williamson Price**, Denver, Memphis (Tenn.) Hospital Medical College, 1903, aged 53, died, August 6 in Colorado Springs, of chronic nephritis, pneumonia and chronic myocarditis

**Ralph Henry Goldberg**, New York University of Vermont College of Medicine, Burlington 1895 aged 62 died August 8 in the Veterans' Administration Facility of chronic myocarditis

**Gustav Koehler** ♂ Chicago, Julius-Maximilians-Universität Medizinische Facultät, Würzburg Bavaria 1895 aged 68 died, August 5, in the Grant Hospital, of carcinoma and embolism

**Otto John Gutsch**, Sheboygan Wis. College of Physicians and Surgeons, Medical Department of Columbia College New York 1886, aged 69, died August 11 of cirrhosis of the liver

**George Myers Godfrey**, San Antonio Texas, National University Medical Department Washington D C 1896 aged 64, died June 26, of pulmonary tuberculosis and nephritis

**Allen T Hays**, Vernon, Texas (registered by Texas State Board of Medical Examiners under the Act of 1907) aged 46 died in August of a skull fracture sustained in a fall

**George L Madison**, West Chicago, Ill., Bennett College of Eclectic Medicine and Surgery, Chicago, 1877, aged 85, died, June 7, of acute hepatitis, jaundice and acute cholecystitis

**James Henry Thompson**, Pittsburgh, Hahnemann Medical College and Hospital, Chicago, 1886, aged 75, died, July 12, in the Homeopathic Medical and Surgical Hospital

**Charles E Frost**, Cottage Grove, Ore. (licensed in Oregon in 1912) served during the World War health officer, aged 57 died suddenly July 30, of coronary thrombosis

**Eugene K Whidden**, Pensacola, Fla., Georgia College of Eclectic Medicine and Surgery, Atlanta, 1910, aged 45, died, July 30 in the Pensacola Hospital, of pellagra

**Leo F Towers**, Toledo, Ohio. Physio-Medical College of Indiana, Indianapolis, 1880 aged 74 died, August 13, of carcinoma of the colon and coronary thrombosis

**John Melvin Thompson**, Graham, N C. University of North Carolina School of Medicine, Chapel Hill, 1909, aged 46, died, July 14, of pulmonary tuberculosis

**John Calhoun Griffies**, Carrollton, Ga., Atlanta Medical College, 1890 member of the Medical Association of Georgia aged 74, died, July 26 of acute nephritis

**George Brinton McClellan**, Weir, Kan. Northwestern Medical College St Joseph 1894, aged 69, died, July 22, in the Mount Carmel Hospital, Pittsburg

**James Thomas Suggs**, Cleveland, Howard University College of Medicine, Washington, D C, 1903, aged 56, died, August 20, in the Lakeside Hospital

**Max Henry Bracker**, New York Columbia University College of Physicians and Surgeons, New York, 1902, aged 56, died, August 8, of heart disease

**Hamlin Collier Cook**, Cedartown, Ga., Georgia College of Eclectic Medicine and Surgery Atlanta, 1888, aged 75, died July 3, of chronic myocarditis

**Frederich Gustave Eidman Sr** ♂ Houston, Texas, University of Texas School of Medicine, Galveston, 1896, aged 59, died, August 4, of chronic nephritis

**John Maxwell Heading**, Johnstown Pa., College of Physicians and Surgeons, Baltimore, 1886, aged 78, died, August 15, of chronic myocarditis

**James Enos Butler**, Dallas, Texas, Kentucky School of Medicine, Louisville, 1895, aged 77, died, August 8, of coronary disease and arteriosclerosis

**Walter Brainerd Allen**, Red Bank, N J., University of Vermont College of Medicine, Burlington, 1900 aged 61 died, August 11, of heart disease

**James Peyton Curlee**, Woodbury, Tenn., Vanderbilt University School of Medicine, Nashville, 1879, aged 76, died, August 15, of chronic nephritis

**William R Mizell**, Shelbyville, Ill., Miami Medical College Cincinnati, 1874, Civil War veteran, aged 94 died, August 1, of senility

**Ernst Zille**, Egg Harbor City, N J., Baltimore University School of Medicine, 1897, aged 83, died, July 25, of chronic myocarditis

**John Cearnas Jolly**, Rockport, Ind., Kentucky School of Medicine, Louisville, 1885 county auditor, aged 76, died, July 23, of heart disease

**Alfred Gates**, Lebanon Pa. Hahnemann Medical College and Hospital of Philadelphia, 1890, aged 64, died, August 10, of heart disease

**Alfred T Wright**, Waynesville Ohio Jefferson Medical College of Philadelphia, 1876, aged 81, died, August 15, of myocarditis

**George Michael FitzGerald**, Brooklyn, Long Island College Hospital, Brooklyn, 1892, aged 64, died, July 29, of leukemia

**Hyram G Brooks**, Likhorn, Tenn. University of Tennessee Medical Department, Nashville 1890, aged 75, died, July 20

**Charles Edward Cutler**, Magnolia Iowa, Pulte Medical College Cincinnati 1878, aged 83, died August 8, of hemiplegia

**Joseph Henry Gerass** ♂ Westfield, N Y., University of Buffalo School of Medicine, 1927, aged 35, died July 8

**Charles Alexander Shaeffer**, Lees Creek, Ohio, Baltimore Medical College 1893 aged 67, died, August 17, of carcinoma

**Bernard Anthony Maffucci**, Dunmore, Pa., Temple University School of Medicine, 1923 aged 35 died July 22

**Gus A Hardwick**, Utica Ky., Louisville Medical College 1874 aged 83 died July 21 of senility



## Correspondence

### ANTIQUITY OF QUINTUPLETS

*To the Editor*—The following excerpt from Rolfe's "Attic Nights of Aulus Gellius" (volume II, p 217), a judge in the courts during Galen's residence in Rome, appears apropos

The philosopher Aristotle has recorded (Cf Hist Anim vii, p 584 29) that a woman in Egypt bore five children at one birth; thus, he said was the limit of human multiple parturition more children than that had never been known to be born at one time and even that number was very rare. But in the reign of the deified Augustus the historians of the time say that a maid servant of Caesar Augustus in the region of Laurentum brought forth five children and that they lived for a few days that their mother died not long after she had been delivered whereupon a monument was erected to her by order of Augustus on the via Laurentina and on it was inscribed the number of her children as I have given it

JOSEPH WALSH, M.D., Philadelphia

### FEES FOR CWA SERVICE

*To the Editor*—Dr Leslie W Beebe's communication regarding chiseling insurance companies (THE JOURNAL, September 15) interests me because of a similar recent experience with the U S government

February 1, a man who operates an elevator in the building of the Workmen's Compensation Department at 80 Eighth Avenue, New York, was referred to our office for a roentgen examination of the left little finger because of an injury that produced a fracture. The report was made to the referring physician and a duplicate sent to the medical supervisor and documents were filled out in triplicate, not only once but several times. This was the first of eight cases referred to us by the CWA, and after getting nothing out of any of them except more and more documents to fill out in triplicate, some of them with the physician's name inserted by the CWA office in the space where the claimant's name belonged, I wrote to the CWA office and said 'Both Dr Lewis and I will be most grateful if you will see that our names are taken off of the list of x-ray men for CWA work because the red tape involved in getting paid for these cases is more trouble than the small receipts are worth'

Except for an occasional request for more documents to be executed in triplicate, we heard nothing from the CWA on any of these cases until September 14, when the bill for \$5 for roentgenographing the man's finger was rewarded with a check from the Office of the Chief of Accounts, U S Employees' Compensation Commission, in the amount of \$3 15, together with the following mimeographed slip

The Commission is allowing your voucher rendered in this case at a lower rate than charged by you. It is realized the fees allowed in this case may be lower than the usual fees charged to the average private patient. However it must be borne in mind that the setting up of the Civil Works Administration program with the allowance of compensation benefits will to some extent relieve the medical profession of the burden of free treatment. In view of the Federal employment of these people as a relief measure it is not believed the average fees generally charged in each locality are warranted. You will probably find the fees allowed in this case are not less than the fees you charge a private patient in the same income class as the injured employee or the minimum fee schedule of your county Medical Society. They can be compared favorably with fees allowed for medical treatment of the unemployed under authority of the Federal Emergency Relief Administration

The casualty insurance companies operating in New York City are not noted for their benevolence toward the medical profession, but they always pay \$5 for a roentgen examination of a finger, even when it is only the little finger. I was once favored with the x-ray work of the New York Edison Company until an advertising commercial laboratory took it over, and it never paid less than \$5 for a roentgen examination of any part of the body. For the U S government to imply that \$3 15 is as much as I ought to expect to get for roent-

genographing a finger impresses me therefore as nothing but the vaporings of some bureaucratic mind

I have accepted the \$3 15 on account, and endorsed the check to that effect, though I do not expect to live long enough to get the other \$1 85. (There are seven other cases yet to be heard from.) \$3 15 is 63 per cent of \$5. When the next income tax payment is due, I intend to submit 63 per cent of the amount assessed by the government and tell them that as they have reduced my claim in this proportion it is surely only fair play for me to reduce their claim in the same degree. I shall report later on how I make out on the test case.

RAMSAY SPILLMAN, M.D., New York

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### ELECTROCARDIOGRAPHY

*To the Editor*—For no special reason except that I had about two months experience with an electrocardiograph four years ago I have been appointed to a committee to study the advisability of the purchase of such a machine by our local hospital. Ours is a city of some 25 000 with a rather high general average population. Twenty miles away there are three or more able heart specialists with electrocardiographs. Our hospital has about 125 beds. It is the feeling of some of the men that at least a thousand dollars a year is going to heart specialists in another city that might well stay here. Furthermore there are numerous cases in the wards in which we would benefit, we think by having a machine. Of course we realize that even though we had a machine a considerable number of residents would continue to go elsewhere for electrocardiography as they do for other medical services. We realize also that far from making a profit for the hospital our first care would be to cover the interest charges. I would appreciate your listing the conditions in which you feel that an electrocardiograph is relatively essential for diagnosis or prognosis. Do you feel that the city and the hospital are large enough so that we could reasonably expect to cover expenses? I would appreciate your naming a book or monograph that presents the subject in a satisfactory manner. If we purchase a machine I may be the one who runs it and tries to interpret the results. As I have stated I have had just enough experience to make me realize how little I know about the subject. Please omit name and town.

M.D., Massachusetts

ANSWER—An electrocardiograph is by no means a necessity and gives relatively little of clinical importance that cannot be gained by the hand and ear aided by clinical experience. Perhaps its greatest value is in confirming the clinical experience. It gives a graphic record which confirms the clinical diagnosis and serves as a check on what one does and does not know. Its teaching value in differentiating arrhythmias would be a sufficient reason for its installation. There are some conditions in which it is essential for diagnosis, as in bundle branch block, and is of great assistance, as in coronary disease and coronary accidents. It is frequently difficult or impossible to make a positive diagnosis of a number of the more frequent arrhythmias without its use. Premature auricular and premature ventricular contractions can often be differentiated clinically but not always with accuracy.

An institution of the type described should have an electrocardiograph. A portable string galvanometer is the best when only one machine is to be installed. Its operation is not difficult and can be mastered in a short time. The new instruments are easy to manipulate and almost impossible to damage. The interpretation of the electrocardiograms offers more difficulty but can readily be mastered with time and experience. If one confines oneself to the data of known clinical value, the interpretation is not a difficult task.

The cost of operation is small and the apparatus should not only pay maintenance and interest charges but pay for itself in a short time. It is much better for financial reasons, as well as from the standpoint of service to the physician and the patient to make the cost to the patient small and depend on a large volume of work.

The operator should familiarize himself with and have available for constant use 'The Mechanism and Graphic Registration of a Heartbeat' by Thomas Lewis. In addition there are many other excellent works that he may use.

# AMENORRHEA AND MENSTRUAL IRREGULARITIES

*To the Editor*—A patient white aged 19, started to menstruate at the age of 13. The menstruation has been of an irregular type. An apparently normal flow of moderate amount lasting for from four to five days is usually followed by a period of three to four months in which no menses occur. There is nothing abnormal in the past generation so far as is known the mother and sisters menstruate normally. The patient measures 5 ft 6 in (167.6 cm) in height and weighs 118 pounds (53.5 kg). She has no physical defects. Examinations of the neuro-muscular respiratory and circulatory systems are negative. The blood examination shows red blood cells 4,800,000 white blood cells 6,200 hemoglobin 85 per cent, and the differential count is normal. Urinalysis is negative. The gastro-intestinal and genito-urinary systems are normal. There have been no operations. Bimonthly pelvic examination reveals no pathologic masses or discharges. Treatment during the past eighteen months has consisted of a drug to stimulate the formation of hemoglobin two hormone tablets taken three times a day following the use of 300 hormone tablets 100 progynon tablets were given. The treatment has produced no results and the patient has not menstruated since February 2 to February 7. Are endocrine dysfunctions usually the cause of functional amenorrhea? What suggestions have you for the management of this type of case.

M D Wisconsin

*ANSWER*—In the process of menstruation at least three organs are involved the pituitary gland, the ovaries and the uterus. Rhythmic bleeding from the uterus is nearly always dependent on the proper functioning of the ovaries, and the latter in turn are controlled by the anterior lobe of the pituitary gland. The pituitary gland is therefore the regulator or as Zondek called it, the motor of the ovaries. It is not known why some women have a twenty-eight day menstrual cycle, others a thirty day cycle, and still others further variations in the menstrual cycle. To produce uterine bleeding in women with amenorrhea is generally easier than to change the interval at which menstrual periods occur. Furthermore, it must be understood that not all bleeding that follows medication is actual menstruation. Likewise, in most cases in which bleeding is produced by medical measures the flow of blood is only temporary and does not recur unless more medication is employed. Estrogenic preparations, such as theelin, progynon and others do not stimulate the ovaries. On the other hand estrogenic substance administered to women with functioning ovaries may do harm. In the case cited there is no need to employ expensive and unproved remedies in an attempt to bring about more frequent menses. This patient does not have amenorrhea (complete suppression of the monthly flow). She may be honestly told that she is as healthy as women who menstruate every month and therefore nothing need be done to make her menstruate more often.

# TELANGELECTASIA AFTER ACTINIC EXPOSURE

*To the Editor*—A woman aged 25 whose history is negative after quite a prolonged exposure to the sun four years ago noticed a red mottled discoloration of the outer surface of both forearms. It looks exactly like a nevus or birthmark, and on close examination the dilated capillaries may be seen. It remains the same winter and summer and seems to be spreading. At present when it is exposed to the sun it burns intensely. It looks something like the telangiectasia seen after the use of x-rays by Tricho operators but she has had nothing of that sort done. I should like to know what this is and if there is any way of getting rid of it. It is quite disfiguring.

KATHRYN M WHITTEN M D Fort Wayne Ind

*ANSWER*—It is possible that the exposure to the sun was the determining factor in causing the patches of telangiectasia but there must have been a predisposition present some weakness of the small blood vessels of the skin, or their nervous apparatus, which made them more than normally susceptible to actinic irritation. Telangiectasia occurs on the face secondary to habitual exposure to the sun, but only in certain skins in which the pigimentary protective apparatus is defective. Areas of telangiectasia on the forearms indicate great susceptibility in the skin of that region.

The patient therefore, should be studied for possible causes of vascular disturbance. Syphilis, liver, cardiac or kidney disease, hyperthyroidism, pituitarism or other endocrine abnormality, Raynaud's disease, arteriosclerosis or leukemia should be considered. If with the dilated vessels there are spots of atrophy and pigmentation causing a close resemblance to roentgen telangiectasia a rare skin disease known as poikiloderma atrophicans vasculare is a possible diagnosis. Some of the cases have been associated with internal malignant growths. Others show no such relationship (Lane, J E Poikiloderma Atrophicans Vasculare, *Arch Dermat & Syph* 4 563 [Nov 1921]).

If the telangiectatic patches cannot be improved by treatment of some etiologic factor, roentgen treatment on fourth erythema dose (75 roentgens) of lightly filtered (1 mm of aluminum) roentgen rays once a week for four doses may be tried. If this fails, a mercury vapor quartz lamp may be pressed on a

small area long enough to produce a sharp erythema. This may result in reduction of the dilated vessels. Carbon dioxide snow is another possibility. A small stick should be applied with firm pressure for one or several seconds to many areas, causing a mild reaction not severe enough to cause checkering.

Electrolysis may be used if the vessels can be entered by the needle carrying the negative current. From 1 to 15 milliamperes should be allowed to pass for a half minute or more until the vessel turns white then one should remove the needle without breaking the circuit in order to prevent hemorrhage. Sodium morrhuate, 3 per cent in oil, may be injected into the vessels with a fine needle. At points at least 2 cm apart on the border of the patch 0.1 cc is used. The reaction from one treatment should be allowed to subside before another attempt is made in the same area.

# PAINFUL STUMP AFTER AMPUTATION

*To the Editor*—A man aged 30 had a crushing injury of both feet Aug 15 1932. August 17 the right foot was amputated at the junction of the middle and upper thirds of the leg. It was four months before complete healing took place in the incision. At the end of six months he started to wear an artificial leg with the weight bearing just below the knee. About three weeks after he began to use this leg an ulcer formed in the incision. The incision had a serous drainage, and he complained of burning at night when the artificial leg was off. Because the ulcer steadily increased in size he insisted on a reamputation Aug 15 1933. At the time of operation a neuroma was found. Reamputation was done 2 inches of the stump being removed. The wound healed in ten days. In November he started wearing a new artificial leg and in December two ulcers formed on the incision. These have a serous drainage but do not cause pain. He does complain however of severe pain at the end of the tibia which is covered by a good pad. Roentgen examination of the bone and blood examinations are negative. General examination is negative except for a highly nervous state. His past medical history is negative. The patient's family has been described by another doctor as highly neurotic. Boric powder in the bearing ultraviolet rays and scarlet red ointment have produced no change. Please omit name.

M D Pennsylvania

*ANSWER*—The problem is a double one. In the first place, an orthopedic surgeon has advised that when the amputation is below the knee it is important that the anterior edge of the tibia at the site of amputation be properly leveled off, that the fibula be amputated about 2½ inches above the level of amputation of the tibia and that the flap be so planned that it is neither too rigid nor too tight. Recurring ulceration may be caused by the failure to observe any one of these instructions. If the pain persists after the employment of proper orthopedic measures the nerve should be resected for 2 or 3 inches above the point of amputation. At the time the orthopedic measures are being carried out, the nerves, such as the peroneal and posterior tibial, could be exposed, dissected free ligated with fine ligature catgut and amputated so that they will draw back in the muscle planes 2 or 3 inches above the line of amputation. Occasionally, alcohol may be injected into the severed ends of the nerves, as this usually reduces the size of the subsequent neuroma.

# PREGNANCY AND HYPERTENSION

*To the Editor*—A married woman aged 42, had the usual diseases of childhood and scarlet fever while in college. Cholecystitis with stones developed and a cholecystectomy was performed in 1927. Since then she has had five or six attacks of what was apparently gallstone colic requiring morphine for relief. She has had three pregnancies two since the cholecystectomy. These pregnancies were normal except that two of the deliveries were by forceps for occiput posterior presentations which would not rotate. Recovery was normal in each case. She had two spontaneous six to eight week abortions none have occurred since the last pregnancy. The patient is now between five and six months pregnant and has a persistent systolic blood pressure of 160 to 176 mm of mercury and a diastolic pressure of 86 to 94. The urinalysis is negative. The average specific gravity is 1.018. There is no edema. There are no subjective complaints. The blood pressure has been elevated since the third month of pregnancy. About four months before she became pregnant the blood pressure was 122/80 and the pulse rate about 80. Economic conditions force this woman to do more physical work than I think advisable. A moderate amount of rest (an hour after meals) and a milk fruit and vegetable diet seem to have no effect on the blood pressure. Would you care to give me advice on the facts as stated? Please omit name and address.

M D Iowa

*ANSWER*—The patient's present condition need not give concern. Since there appear to be no objective and subjective disturbances other than an elevation in blood pressure, the outlook for continuation of the pregnancy without serious occurrences is not bad. The diet prescribed is satisfactory but there would be no harm in adding more proteins in the form of meat and eggs. It is advisable to eliminate all salt from the food. Mild sedatives, such as the bromides, should be pre-

## EXFOLIATIVE DERMATITIS IN INDUSTRY

To the Editor—The following is a report to an oil company concerning one of the men whom I examined who has dermatitis exfoliativa. His condition has continued to improve since the time of the last writing. I have the ingredients of coal tar and pine tar been known to cause a condition like this one before when one mixes them up and melts them with asbestos for insulating purposes as in this case? About April 3, the patient helped prepare some insulating material which consisted of commercial pine tar, coal tar and asbestos. The pine tar and coal tar were melted and then prepared in a box with the asbestos and stirred. On Thursday April 5 he first noticed little pimples on his fingers and both hands and they extended up the arm and over the body. On April 6 he first saw a doctor because of the rash on his hands and arms. The rash continued to spread over the body involving the legs and face last. The skin became greatly swollen and erythematous and he developed large quantities of serum oozed out. At no time was there any involvement of the kidneys or bowels. The mucous membrane of the nose and throat was never seriously involved. At present he is very much better. The swelling and edema having largely if not completely left. The skin is very rough, dry and scaly. Large flakes of skin even larger than the palm of the hand were peeling off at one time. The patient says he feels well. Since the kidneys and bowels are in good shape there seems to be no toxic involvement of the internal organs.

LELAND BAXTER M.D., Newark, Ohio

ANSWER—It is not possible unequivocally to state that local irritants such as coal and pine tars may be the direct source of dermatitis exfoliativa. Recently there was observed a fatal case of dermatitis exfoliativa in a filling station operator who was brought in contact with ordinary petroleum derivatives. In this instance there was a history of syphilis and recent previous administrations of arsenicals. Also recently a case of dermatitis exfoliativa developed in a worker engaged at the time of the onset of his illness in fruit tree spraying. It is perhaps permissible to take the stand that dermatitis exfoliativa may follow in the wake of ordinary chemical dermatoses. Long ago Stelwagon after mentioning that dermatitis exfoliativa and iodoform has been known to provoke an outbreak in some instances. Benzene is known to have produced this condition. As the essential underlying factor in obscure cases is so often undeterminable it seems necessary in many such instances to associate for legal and compensation purposes this condition with recent antecedent chemical dermatoses.

## NECROSPERMIA AND AZOOSPERMIA AS CAUSES OF STERILITY

To the Editor—A married man aged 35 has consulted me regarding the fact that his wife, an apparently healthy normal woman who gave birth to a son eight years ago, has not been pregnant since that time. No method of prevention of conception is used. They engage in marital relations about once every two weeks. I have had a microscopic examination of his semen within ten minutes after ejaculation. Many spermatozoa are visible but they are apparently immotile. There is no history of genito-urinary disease. Are we probably correct in assuming that the sterility is caused by the immotility of the spermatozoa? If so can you kindly advise what can be done about it? Please omit name.

M.D. Ontario

ANSWER—There is no doubt that the immotility of the spermatozoa is the cause of the sterility. It is however important to rule out a possible artificial immotility of the spermatozoa in the condom specimen. If the condom has been brought to the physician in a jar of warm water, as so often is advised to prevent chilling of the specimen, it may happen that the water is too hot, thus instantly killing the spermatozoa. Sometimes the powder that the manufacturer puts in the condom to facilitate its use contains a chemical that is inimical to the vitality of the spermatozoa.

Assuming that in this case the spermatozoa are immotile when they are ejaculated it is necessary to determine the cause of the necrospERMIA. This is not always easy. The absence of a history of venereal disease does not absolve the genito-urinary system as a cause of the condition. A nonspecific seminal vesiculitis or prostatitis may kill spermatozoa as effectively as gonococci. The fluid obtained by combined prostatic vesicular massage must be carefully examined for pus cells. The presence of pus cells indicates the existence of a pathologic condition which must be found and treated.

In the absence of a pathologic condition of the genito-urinary system, it is important to find out whether at any time the patient has had roentgen treatment applied to the perineum, thighs, lower abdomen or the genital organs themselves. This is a common cause for necrospERMIA and azoospermia. Modern methods must be used to determine whether there is a dis-

scribed for a few days at a time. The patient should be watched carefully. Once a week the blood pressure should be taken the urine examined and the weight recorded. Should untoward signs and symptoms appear such as albuminuria, edema, excessive gain in weight, severe headaches, stubborn constipation and vomiting, the patient should be put to bed and given such sedatives as phenobarbital sodium and magnesium sulphate. The diet at such a time should be high in carbohydrates and it may be advisable to give dextrose intravenously. If improvement does not follow rapidly, the pregnancy should be terminated, preferably by rupturing the bag of waters.

## LUNULA OF FINGER NAILS

To the Editor—Will you please explain the nature of the 'half moon' on the finger nail? I have a patient (coronary disease) who states that he lost all of them about a year ago. His nails and finger tips seem normal otherwise.

WILLIS P. BAKER M.D., Santa Ana, Calif.

ANSWER—The lunula ('half moon') is a more or less convex or half-moon shaped area that appears as a little white crescent in front of the nail fold at the base of the uncovered portion of the nail. It does not really end at the edge of the covering of the nail fold but extends on each side of the lateral edges of the nail. Frequently, especially on the toes, it is necessary to push back the roof of the nail fold before the lunula becomes visible. The lunula is the macroscopic expression of the matrix of the nail (Unna). The difference in color of the lunula and the nail bed is an absolute one, owing to the fact that the latter contains more blood than the former. The difference is undoubtedly due to the fact that the nail bed is covered by a transparent horny substance, whereas there are a number of absolutely opaque elements in the matrix of the nail which completely scatter the light. These are the transitional cells which are covered over and over with points that appear whiter than the granular cells by reflected light. Their presence marks the exact boundary of the lunula. Ranvier ascribes the white color of the lunula to the 'irregularity of the keratogenous cells.'

Changes in the lunula may be noted in a pathologic changes affecting pigmentation of the nails in disease processes that influence the consistence of the nail plate and its structure and in pathologic conditions of the nail bed in which the morbid processes take place in the region of the lunula. The nail changes in heart disease are brought forth through stasis or congestion of the venous system (J. Heller, Die Krankheiten der Nagel, Berlin, 1927). Heller states that the more common changes in the nails in heart disease are bluish discoloration (cyanosis) and hypocratic curvature. He describes a case in a woman of 50 with a patent foramen ovale and ductus botalli as well as a stenosis of the pulmonary ostium in which the finger nails were of a deep blue-black and showed the hypocratic curvature and the lunulae were not visible. Heller states that he has examined many heart cases without establishing the presence of any special changes in the nails.

## SENSITIVITY TO GRASSES AND RAGWEED

To the Editor—I have a patient, a girl aged 12 years who reacts strongly to mixed grass and ragweed. There is no other positive reaction such as food. She had an attack of hay fever and asthma last year August 1. She had hay fever this year beginning in June and asthma this year August 21. The important thing is shall I give the pollen extract for both conditions as a perennial method for one and a pre-seasonal method for the other? Kindly advise me. Please omit name.

M.D., New York

ANSWER—As this girl has both grass and ragweed hay fever there are two possible ways of treating her. She may either be given the ragweed injections now in small doses, preferably intradermally, every day or every other day, followed by increasing amounts of ragweed and continued all the year round about once in two weeks, or the ragweed may be given coseasonally now and then stopped and started again next year. As the grass season is over there is no need of giving grass extract at this time. However, should the perennial treatment for ragweed be decided on it would be wise to give the grass injections at the same time so that when the grass hay fever season starts next May or June the patient will have reached a sufficiently high dosage of grass extract to give more or less protection.

Either method will probably give good results. It is to be understood of course, that the grass and the ragweed extracts should never be mixed because of the difference in the time of the year in which these weeds pollinate. It is best to give the ragweed extract in one arm and the grass extract in the other arm. The two may be given at the same time.

# QUERIES AND MINOR NOTES

1013

## TOXICITY OF VAPORS FROM ASPHALT

To the Editor—What are the harmful effects due to inhalation of gases or vapors from hot or boiling asphalt and what are the gases liberated? Please omit name  
M D Illinois

ANSWER—Asphalt is not a specific chemical. The term may be applied to natural, petroleum or coal tars of certain qualities. Chemically, all varieties are similar but not identical. This answer is directed chiefly to natural Trinidad asphalt. The fossil bituminous substance results from petroleum through the evaporation of the lighter hydrocarbons followed by the slow oxidation of the residue through the ages. When this substance is heated to high temperatures under natural pressure the vapor yield is highly complex but contains hydrogen sulphide, benzene, naphthalene, paraffin oils and various organic acids including phenol or phenol-like substances. An article entitled "Road Tar Poisoning," by Dr. Carey P. McCord (THE JOURNAL March 2, 1929, p. 695) furnishes a long list of chemicals that may be derived from asphalt as used on roads, which, however, may be coal tar rather than natural asphalt. In any event the list of derivatives is similar. These asphaltic vapors are toxic but cases resulting from exposure to them are to be accepted as from mixed poisons rather than from one precise agent.

## INDUSTRIAL HAZARDS IN HAT CLEANING

To the Editor—Kindly tell me what poison may be absorbed through the skin or inhaled in the industry of hat cleaning. I have a patient with retrobulbar neuritis and am trying to trace the cause.  
RODOLPH M. CURTIS, M.D. Brooklyn

ANSWER—In the cleaning of felt hats the chief hazards are those attending the use of solvents. The chief solvents so employed are naphtha, Stoddard's solvent and carbon tetrachloride. A wide variety of other substances are in infrequent use. All the solvents specified by name may irritate the skin locally, may enter the body through the skin, or may be taken into the body through inhalation. In the manufacture of felt hats, mercury is still in some use as the retarding agent. The hazard of mercury poisoning is definite in some hat manufacturing establishments. Quite remotely, it is possible that in hat cleaning work sufficient mercury might be removed from the felt fibers to produce mercury poisoning. Even more remote is a possibility that arsenic poisoning might arise from the occasional use of that substance in the retarding fluid. In some gas burners may give rise to sufficient carbon monoxide to bring about injury to those exposed.

## THERAPY OF CORONARY THROMBOSIS

To the Editor—In three cases clinically diagnosed as coronary occlusion on the first visit the patients were given morphine sulphate hypodermically, amyl nitrite by inhalation and caffeine sodium benzoate hypodermically, and then one or two tablets of nitroglycerin compound five minutes after receiving the nitroglycerin compound tablets. Is it contraindicated to give glyceryl trinitrate in a dosage of 1400 grains (0.6 mg.) in a case of coronary occlusion? In the cases mentioned do you believe that the administration of the nitroglycerin (glyceryl trinitrate) compound tablets was responsible for the sudden deaths? Kindly omit name.  
M D California

ANSWER—It is contraindicated to give either glyceryl trinitrate or amyl nitrite in cases of coronary thrombosis and especially in cases in which the blood pressure has fallen at the onset. Alarming syncopal symptoms occur at times even in apparently normal individuals. There is no certainty that the administration of glyceryl trinitrate in such cases with safety, but it is always inadvisable and dangerous.

## TREATMENT OF SPIDER BURST VARICOSE VEINS

To the Editor—Can you outline a treatment for small spider burst or skyrocket varicose veins in a young woman who seeks relief because of their unsightly appearance on her legs when exposed on the beach? She has had no palpable enlarged or dilated varicose veins such as are suitable for injection. There is no edema present and she has never had phlebitis.  
WILLIS P. BAKER, M.D. Santa Ana Calif

ANSWER—The treatment for a spider burst is difficult and usually unsatisfactory. At times, after distending the veins with the help of a tourniquet, one can find a larger venous pocket, the so-called key-vein, which when obliterated will cause a shrinkage and fading of the small cutaneous varices. Another method is to take a fine intestinal needle, dip it into a 5 per cent solution of sodium morrhuate or 50 per cent dextrose solution, and puncture the individual branches of the spider burst. This may require a great many punctures and

turbance of endocrine function. A metabolism test must be made by an expert to help solve the problem. The anemia found so often in blood donors can easily be diagnosed.

One may often relieve the condition in cases in which painstaking examination fails to reveal the cause by advising an outdoor life with plenty of sunshine and the internal administration of tablets of anterior pituitary substance. Large doses, as much as 5 Gm (80 grains) a day for several months are given. Of late successful results have been reported with the hypodermic administration of anterior pituitary-like principle from pregnancy urine three times a week for several weeks. As there is possibility of producing excessive hypertrophy of the prostate with the latter treatment as reported in monkeys by Geschickter, Lewis and Hartman, this should be employed with care.

## APPLE DIET FOR COLITIS AND INFANT DIARRHEA

To the Editor—Recently I have been hearing of the feeding of scraped ripe apples for colitis and infantile diarrhea. Would you please publish your opinion of the value of this food or treatment in reference to its corrective use in children's diseases.  
R C HUNTER, M.D. Wapakoneta Ohio

ANSWER—The apple treatment consists of a diet of only raw scraped apple. Completely ripe and mellow fruit should be used. From one to four tablespoonfuls is fed every hour or two for forty-eight hours. The amount given varies with the age of the patient. Nothing but water should be given besides the pureed apple. After the forty-eight hours, three meals are resumed as follows: In the morning, farina (cooked for one hour in water), toast and cocoa (made with water). At noon soup with rice, scraped beef and toast with water. After forty-eight hours puree and cocoa made with vegetable puree and finally fruit in small amounts. The diet should not be used for infants. Formed stools usually appear within forty-eight hours after the treatment is instituted. (The method is described by Birnberg T L. Raw Apple Diet in the Treatment of Diarrheal Conditions in Children. Am J Dis Child 45:18 [Jan] 1933).

## SPREAD OF SCARLET FEVER

To the Editor—Reference is made to the spread of scarlet fever and that part of your reply (THE JOURNAL July 21, p. 208). It has been shown that the air in a room occupied by a scarlet fever patient may be contaminated and articles in the room may likewise be contaminated. Will you please cite me a single instance by a reliable authority in which the air of a room has acted as a mode of conveyance in any of the communicable diseases? Apart from the handkerchief secretions and drinking glass how could contamination take place by articles in the room?  
HENRY FARRELL, M.D. McCook Neb

ANSWER—Scarlet fever belongs to the group of air borne diseases. Contamination of air in the immediate vicinity of the patient may be demonstrated by exposure of blood agar plates (Weaver and Murchie (THE JOURNAL Dec 21, 1919, p. 1921) and Matousek (THE JOURNAL, May 28, 1921, p. 1490) reported contamination of door knobs and similar objects as well as contamination of the hands and masks of attendants.

## SYPHILIS OF NERVOUS SYSTEM

To the Editor—I have a patient who contracted syphilis about twenty years ago. He had his blood examined several times and then was told that it was safe for him to get married which he did. About two years later his wife gave birth to a perfectly normal baby girl. About ten years ago he came to me suffering with symptoms of appendicitis. I tested him out thoroughly and found a 4 plus Wassermann reaction and put him on syphilitic treatment for at least six months and he improved gradually. He then moved to another town and took treatment for some time from another physician. Later he developed a type of grandeur imagined he had all kinds of money and commenced to write checks accordingly but was soon stopped. He was sent to a sanatorium and there they tried to give him malarial treatment and the first dose almost proved fatal. Then they put him on tryparsamide weekly. Now he seems to be perfectly normal except for complaints continually of a creeping sensation across his forehead from temple to temple and at night he has to tie his head up in order to sleep. I would appreciate any suggestions you may offer.  
M D

ANSWER—In the first place it is suggested that the patient should keep under treatment with tryparsamide unless there is some definite contraindication until the cerebrospinal fluid tests are all negative. It is not possible to offer a diagnosis as to the cause of the creeping sensations in the forehead on the meager data furnished. Without a diagnosis it is not possible to suggest treatment.

may produce hematomas, which may leave a brownish discoloration. Another possibility is to take a surgical diathermy current and with a very fine tip coagulate the blood in several of the larger varicosities.

Of all these suggestions the only satisfactory method is the injection of the feeder vein. Even this method, however, will not give a cosmetic result.

#### COPPER SULPHATE IN SWIMMING POOLS

To the Editor—In a local salt water swimming tank copper sulphate is used in the proportion of 1 160 000 to retard marine growth. Would 1 80 000 be injurious to the eyes or skin or dangerous if some of it should be accidentally swallowed? Please omit my name.

M D California

ANSWER—The amount of copper sulphate stated is far greater than that usually required to prevent organic growth in swimming pools. However, most of the data available apply to fresh water tanks. If the water is alkaline, much of the copper would be precipitated and larger doses would be necessary under these conditions. The dosage usually employed in fresh water tanks and reservoirs is in the neighborhood of 1 part per million. The dosage must be varied with the type of growth in the tank, since some organisms are far more sensitive than others to copper salt. It is doubtful whether occasional swallowing of a small amount of water containing 1 part of copper sulphate in 80,000 would be in any way dangerous. The government standard of 0.2 part of copper per million would not be applicable to swimming pool conditions because of the relatively small amount of swimming pool water consumed.

#### PHYSIOLOGIC SOLUTION OF SODIUM CHLORIDE INTRAVENOUSLY IN NEPHRITIS

To the Editor—It is I believe fairly well agreed that sodium chloride should not be allowed patients who have nephritis. For a patient with uremia, unable to take much fluid by mouth with no evidence of edema what is the consensus regarding the giving of say 2 000 or 3 000 cc of physiologic solution of sodium chloride intravenously? Would this amount of sodium chloride cause further damage to the kidneys? Would it be preferable to give 5 per cent dextrose? Please omit name.

M D, Mississippi

ANSWER—There is hardly a consensus on this subject. The objections to giving physiologic solution of sodium chloride to a nephritic patient without evidence of salt and water retention are more theoretical than real. However, since the difference in opinion does exist and since the object is to administer needed fluids, it would be preferable to give dextrose solution.

#### TRACING SCARLET FEVER CARRIERS

To the Editor—In the July 21 issue of THE JOURNAL page 208 there is a query concerning the spread and control of scarlet fever. You recommend a quarantine of the patient until cultures on blood agar plates are negative for scarlet fever streptococci. Kindly give the technic for culture and identification of these organisms. Do you consider this procedure of value in tracing scarlet fever carriers? Please omit name and address.

M D New York

ANSWER—Cultures from the nose and throat are made on freshly prepared blood agar plates. The plates are incubated over night and examined for the presence of hemolytic streptococci. If cultures continue to show the presence of hemolytic streptococci over a prolonged period, a specificity test may be made by testing a sterile filtrate from a broth culture of the organism for the presence of scarlet fever toxin.

#### SOLUTION OF ARSENOUS AND MERCURIC IODIDE FOR WARTS

To the Editor—I have been told that a dermatologist in a southern state uses Donovan's solution internally for the treatment of warts claiming that he has marked success with this treatment. Kindly tell me whether there is any scientific basis for such a method or if there is any reliable literature on the subject.

HENRI L DUVRIES M D Chicago

ANSWER—The beneficial use of Donovan's solution (solution of arsenous and mercuric iodide) is dependent on the contained arsenic and mercury. Arsenic and mercury, respectively, have been used for a long time in the treatment of verrucae. Their use, however, is empirical, and there has been considerable discussion as to the role of these drugs in the successful treatment of warts.

More recently the question of sulpharsphenamine in the treatment of warts has been discussed by Allington (*Arch Dermat & Syph* 29 687 [May] 1934), and he concludes that, in the treatment of warts sulpharsphenamine injected intramuscularly appears to have little if any advantage over distilled water given in like manner.

#### CORONARY THROMBOSIS

To the Editor—What is the ultimate prognosis for one (a man aged 44) recovering from a coronary thrombosis? Can it ever be said that he is entirely well and will he ever be able to do arduous work and heavy lifting again? Please do not publish name.

M D, District of Columbia

ANSWER—A definite prognosis cannot possibly be made. There is no accurate method of evaluating the damage done, and it is necessary to keep well within the limits of safety. A great many cases make what is apparently a complete recovery. It is possible that a patient could again do arduous work after a coronary thrombosis, but it is improbable, and he should by no means be allowed to attempt it. Activity should be increased only by small increments after a long period of complete rest and the extent of his future activities judged by his response.

Much of the prognosis will depend on the presence or absence of some underlying cardiac or vascular pathologic change.

#### TREATMENT OF LEAKAGE OF NEOARSPHENAMINE INTO TISSUES

To the Editor—While neoarsphenamine was being injected intra venously a little of the solution escaped into the tissues around the vein. It was only a few drops as the patient immediately complained of pain and burning. It made quite an inflammation and considerable tenderness over a period of two weeks but is now better. Do you know of anything that may be injected into the area immediately to modify the severity of the inflammation something like sterile water or, better something that will make a chemical change?

JOHN RICHARD BOOTH, M D Oakland Calif

ANSWER—The immediate injection of from 20 to 30 cc of physiologic solution of sodium chloride, preferably with the addition of 0.5 per cent of procaine hydrochloride, should give relief. It is well to have this solution always ready at hand when injecting irritative solutions intravenously so that it may be injected immediately after the paravenous leakage while the needle is still in place.

#### TREATMENT OF GLUTEAL HERPES

To the Editor—What remedies used empirically can you recommend for herpes of the gluteal region. So far as can be ascertained there are no pelvic or other pathologic changes except chronic recurrent purulent pansinusitis. All the sinuses have been operated on. The patient is a woman aged 35. Please omit name.

M D, Chicago

ANSWER—In cases in which there is little or no pain or itching, protection by the liberal application of a dusting powder, such as thymol iodide, suffices, which is then covered with several layers of gauze kept in place by adhesive plaster. If there is much itching and burning, sponging several times a day with alcohol gives relief, which may be accentuated by the addition of 1 or 2 per cent of resorcinol or of menthol. A dusting powder of talcum with 3 per cent of camphor may be used in the intervals between the sponging, and the lesion covered with liberal dressing of gauze or cotton. When pain is a prominent symptom, the internal administration of analgesics, such as acetylsalicylic acid, amidopyrine or even morphine, is indicated.

#### TERMINAL EVENT IN AORTIC REGURGITATION

To the Editor—What is the final event in aortic regurgitation? Does one get edema of the extremities and pulmonary congestion? Is it common to get a gallop rhythm? The literature that I have read on these conditions is usually under the heading of mitral stenosis or myocarditis. Please omit name.

M D South Carolina

ANSWER—There is no characteristic terminal event in aortic regurgitation. There are almost always other factors that are valent, as valvular lesions elsewhere, myocardial changes, vascular disease of the coronaries or the aorta, and disease of the kidneys. A case may show edema of the extremities and pulmonary congestion during its course or as a terminal event.

#### RETINITIS PIGMENTOSA

To the Editor—I am seeking information regarding the treatment of retinitis pigmentosa by the method devised by Prof. Joseph Imre of Budapest. If you can send me any information regarding this it will be greatly appreciated.

WILLIAM J HARRINGTON Appleton, Wis

ANSWER—The method proposed by Imre was the inhalation of amyl nitrite every second day for several months or even longer. He published this in the proceedings of the Deutsche Ophthalmologische Gesellschaft forty-eighth meeting, 1930 page 279. The details of three cases that showed marked improvement in vision were recited and a cautious statement as to the therapeutic value of this method was made.

## INDICATIONS FOR INSULIN IN DIABETES

To the Editor—What is the consensus in regard to the use of insulin? Would it be advisable for a sugar free diabetic patient (under restricted diet) to take a small dose in anticipation of a good meal once in a while? If it is true that a more liberal diet is beneficial why not give insulin in all cases, whether mild or severe? Please omit name

M D Massachusetts

ANSWER—It is not considered advisable for a diabetic patient sugar free on a restricted diet without insulin, to break that diet. It is true that he may counteract the harmful effect of breaking the diet by taking insulin, but this is certainly not good treatment. The diet should be made adequate in every nutritional respect, and if the patient cannot tolerate it he should use insulin. On the other hand, adequately nourishing diets can be arranged that will permit many patients with mild diabetes to remain sugar free without insulin. The advantage in this is principally an economy, although many authorities in diabetes believe that moderate restriction of carbohydrates and careful limitation of calories to actual requirements is desirable in most cases of diabetes whether insulin is taken or not

## PROGRESSIVE MYOPIA

To the Editor—Is there any approved surgical treatment of progressive myopia other than enucleation of the crystalline lens? Please omit name

M D Pennsylvania

ANSWER—No

## RUPTURED EARDRUM AND TELEPHONE RECEIVER VIBRATION

To the Editor—In reply to the query by Dr Milton Wolpert of Chester W Va (THE JOURNAL July 28 p 282) I would like to relate my own experience with ruptured eardrum due to sudden excessive increase in telephone receiver diaphragm vibration. In 1925 while intern ing at the Metropolitan Hospital I had occasion to use the telephone booth at the staff house. After I had dropped my coin and while I was speaking to the operator there was a sudden terrific crack (as it seemed to me) she connected my wire with the proper central station. I reeled half way round in the booth, my brain in a whirl. I fell against the door somewhat dizzy. My heart palpitated to a marked degree and I walked out of the telephone booth and asked a doctor friend to examine my ear explaining to several present what had occurred. I was told what I already knew—that there was a rupture of the right eardrum and a drop of blood on the membrane itself. I had some difficulty in hearing for two or three days and forgot about it (using no treatment but a sterile pledget of cotton in the canal). Previously in my boxing matches at college and several months before at the same hospital I had occasion to experience ruptured eardrum when in one case a student landed with an open palm on my left ear. I experienced the same effect. Examination revealed a ruptured drum. The same eardrum was ruptured in a second boxing match when a doctor at the hospital (the doctor weighing 200 pounds and 6 feet tall) landed with an open palm on my much abused ear with exactly the same series of symptoms and signs. I mention these friendly encounters only to suggest that I could recognize a ruptured drum even without otoscopic examination. I intended I might add to institute proceedings against the telephone company had any sort of complication set in. It is surprising the great sudden power set up in that auditory canal if the receiver is pressed tightly to the ear—which I never do any more and which I advise every one not to do

MICHAEL WISHEWGRAD M D New York

## MUSCLE CRAMPS DURING SLEEP

To the Editor—In Queries and Minor Notes in THE JOURNAL August 18 is a communication from a New York physician on muscle cramps during sleep. During years of practice especially with diabetic patients who are very prone to such cramps I have found an almost infallibly successful treatment. Dilute hydrochloric acid from 10 to 15 drops in water with each meal will completely relieve most cases within a day or two. When intestinal putrefaction is present to augment the alkalosis by absorption of the alkaline amines kaolin therapy is advisable in addition to the acid. The kaolin is best given finely suspended in syrup one fourth ounce morning and evening

C A MILLS, M D Cincinnati

Professor of Experimental Medicine University of Cincinnati  
College of Medicine

## DOWELL TEST OF PREGNANCY

To the Editor—M D Pennsylvania (THE JOURNAL August 18 p 510) rightly questions Dr Dowell for exact details of his test. May I call the attention of both to the fact that the test is neither original nor reliable and refer them to an article on the same subject by the writer and printed in the *American Journal of Surgery* (8 1271 [June] 1930). In this article I refer to the originators of the test Drs Porges and Pollatschek of Vienna and claim no originality whatever. However I present a moderate series of cases by this test and prove statistically that it is neither definite nor reliable. In addition a personal communication from the authors is brought out in which their final results do not coincide with their glowing praise in the original paper. The conclusions of a Dr Deutsch of Vienna also coincide with mine as brought out in the paper

HYMAN STRAUSS M D Brooklyn

Council on Medical Education  
and Hospitals

## COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written (Group B candidates)* The examination will be held in various centers throughout the country Oct 1 *Oral (Group A and Group B candidates)* San Antonio Texas Nov 13 16 Sec Dr C Guy Lane, 416 Marlborough St Boston

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written (Group B candidates)* The examination will be held in various cities of the United States and Canada Nov 3 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY San Antonio Texas Nov 13 Philadelphia June 10 Sec Dr William H Wilder 122 S Michigan Blvd Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY San Antonio Texas Nov 16 Sec, Dr W P Wherry 1500 Medical Arts Bldg Omaha

ARIZONA Phoenix, Oct 23 Sec, Dr J H Patterson 320 Security Bldg Phoenix

ARKANSAS *Basic Science* Little Rock Nov 5 Sec Mr Louis E Gebauer 701 Main St Little Rock *Regular* Little Rock Nov 12 Sec Dr A S Buchanan Prescott *Eclectic* Little Rock Nov 13 Sec Dr L L Marshall 820 W 14th St Little Rock

CALIFORNIA Sacramento Oct 15 18 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

COLORADO Denver Oct 2 Sec Dr Wm Whitridge Williams 422 State Office Bldg Denver

CONNECTICUT *Basic Science* New Haven Oct 13 *Prerequisite to license examination* Address State Board of Healing Arts 1895 Yale Station New Haven *Regular* Hartford Nov 13 14 *Endorsement* Hartford Nov 27 Sec Dr Thomas P Murdock 147 W Main St, Meriden *Homeopathic* New Haven, Nov 13 Sec Dr Edwin C M Hall 82 Grand Ave New Haven

FLORIDA Tampa Nov 12 13 Sec, Dr William M Rowlett Box 786 Tampa

GEORGIA Atlanta Oct 9 10 Joint Secretary State Examining Boards Mr R C Coleman 111 State Capitol Atlanta

IDAHO Boise Oct 2 Commissioner of Law Enforcement Hon Emmitt Pfost, 205 State House Boise

ILLINOIS Chicago Oct 16 18 Superintendent of Registration Department of Registration and Education Mr Eugene R Schwartz Springfield

IOWA Des Moines Oct 8 10 Dir Division of Licensure and Registration Mr H W Grefe Capitol Bldg Des Moines

MAINE Portland Nov 13 14 Sec Board of Registration of Medicine Dr Adam P Leighton Jr 192 State St, Portland

MASSACHUSETTS Boston Nov 13 15 Sec Board of Registration in Medicine Dr Stephen Rushmore 144 State House Boston

MICHIGAN Lansing Oct 9 11 Sec Board of Registration in Medicine Dr J Earl McIntyre 202 34 Hollister Bldg Lansing

MINNESOTA *Basic Science* Minneapolis Oct 23 Sec Dr J Charnley McKinley 126 Millard Hall University of Minnesota Minneapolis *Medical* Minneapolis Oct 16 18 Sec Dr E J Engberg 350 St Peter St St Paul

MISSOURI Kansas City Oct 24 State Health Commissioner Dr E T McGaugh State Capitol Bldg Jefferson City

MONTANA Helena Oct 2 Sec Dr S A Cooney 7 W 6th Ave Helena

NEBRASKA *Basic Science* Lincoln Oct 23 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln

NEVADA Carson City Nov 5 Sec Dr Edward E Hamer Carson City

NEW JERSEY Trenton Oct 16 17 Sec Dr James J McGuire 28 W State St Trenton

NEW MEXICO Santa Fe Oct 8 9 Sec Dr P G Cornish Jr 221 W Central Ave Albuquerque

OREGON *Basic Science* Portland Nov 17 Sec Mr Charles D Byrne University of Oregon Eugene

RHODE ISLAND Providence Oct 4 5 Dir Public Health Commission Dr Lester A Round 319 State Office Bldg Providence

SOUTH CAROLINA Columbia Nov 13 Sec Dr A Earle Boozer 505 Saluda Ave, Columbia

TENNESSEE Memphis Oct 12 Sec Dr H W Qualls 130 Madison Ave Memphis

WYOMING Cheyenne Oct 1 Sec Dr W H Hassel Capitol Bldg, Cheyenne

## New York January-February Examination

Mr Herbert J Hamilton, chief, Professional Examinations Bureau, reports the written examination held by the New York State Board of Medical Examiners in Albany, Buffalo New York and Syracuse, Jan 29-Feb 1, 1934. The examination covered 9 subjects. One hundred and ninety candidates were examined, 146 of whom passed and 44 failed. The following schools were represented

School	PASSED	Year Grad	Number Passed
University of Arkansas School of Medicine	(1931)	(1933)	1
Yale University School of Medicine	(1931)	(1932 3)	4
George Washington University School of Medicine	(1931)	(1933 4)	4
Georgetown Univ School of Med	(1930), (1932 4)	(1933)	6
Emory University School of Medicine	(1931)	(1933)	1
Loyola University School of Medicine	(1930)	(1933)	2
Rush Medical College	(1933 2)	(1933)	2
University of Louisville School of Medicine	(1931), (1932)	(1933)	2



# MEDICAL EDUCATION AND HOSPITALS

JOUR A M  
SEPT 29 1933

Louisiana State University Medical Center (1934)	1	George Washington University School of Medicine (1926)	(1926)	N B M Ex	Virginia
Johns Hopkins University School of Medicine (1921)	1	Georgetown University School of Medicine (1932) N B M Ex (1931)	(1932)	N B M Ex	Ohio
University of Maryland School of Medicine and College of Physicians and Surgeons (1929)	(1932)	Howard University College of Medicine (1933)	(1933)	N B M Ex	Carolina
Harvard University School of Medicine (1932)	(1932)	Northwestern University School of Medicine (1931) 2	(1931)	N B M Ex	Penna
University of Michigan Medical School (1932)	(1932)	Indiana University School of Medicine (1931) 2	(1931)	N B M Ex	Iowa
University of Nebraska School of Medicine (1932, 2)	(1933)	State University of Iowa College of Medicine (1932)	(1932)	N B M Ex	Kansas
Cornell University College of P and S (1931)	(1932)	University of Kansas School of Medicine (1932)	(1932)	N B M Ex	Puerto Rico
Long Island College of Medicine (1931)	(1932)	University of Louisville School of Medicine (1932)	(1932)	N B M Ex	Maryland
New York University College of Medicine (1931)	(1932)	College of Physicians and Surgeons Baltimore (1928)	(1928)	N B M Ex	
Syracuse University College of Medicine (1931)	(1932)	Johns Hopkins University School of Medicine and College of Physicians and Surgeons (1932) N B M Ex	(1932)	N B M Ex	
University of Buffalo School of Medicine (1931)	(1932)	Harvard University School of Medicine (1928) 3	(1928)	N B M Ex	
Hahnemann Medical College and Hospital of Philadelphia (1933)	(1933)	Tufts College Medical School (1930)	(1930)	N B M Ex	
Jefferson Medical College of Philadelphia (1933)	(1933)	University of Michigan Medical School (1931) 2	(1931)	N B M Ex	
Temple University School of Medicine (1932) 2	(1932)	University of Minnesota Medical School (1930)	(1930)	N B M Ex	
University of Pennsylvania School of Medicine (1932) 2	(1932)	Washington University Medical School (1930)	(1930)	N B M Ex	
Women's Medical College of Pennsylvania (1932)	(1932)	Albany Medical College (1930)	(1930)	N B M Ex	
Meharry Medical College (1932)	(1932)	Columbia University College of P and S (1927)	(1927)	N B M Ex	
Queen's University Faculty of Medicine (1932)	(1932)	Cornell University Medical College (1930)	(1930)	N B M Ex	
University of Adelaide Faculty of Medicine (1929) 2	(1929)	New York Homeopathic Medical College (1931) 2	(1931)	N B M Ex	
Karl Franzens Universität Medizinische Fakultät (1923)	(1923)	New York University College of Medicine (1932)	(1932)	N B M Ex	
Deutsche Universität der Universität Wien (1932) *	(1932)	Syracuse University College of Medicine (1932)	(1932)	N B M Ex	
Regia Università Karlova Fakultá Lekárská Cze (1925)	(1925)	University of Buffalo School of Medicine (1932)	(1932)	N B M Ex	
Regia Università degli Studi di Roma Facoltà di Medicina e Chirurgia (1931)	(1931)	University of Rochester School of Medicine (1932)	(1932)	N B M Ex	
Facoltà di Medicina e Chirurgia (1931) 2	(1931)	Duke University School of Medicine (1930)	(1930)	N B M Ex	
University of Edinburgh and of the Royal College of Surgeons of Edinburgh (1933)	(1933)	Cleveland University School of Medicine (1932)	(1932)	N B M Ex	
University of Glasgow Medical Faculty (1932)	(1932)	University of Cincinnati College of Medicine and Surgery (1929)	(1929)	N B M Ex	
University of St Andrews Conjoint Medical School (1933) *	(1933)	Western Reserve University School of Medicine (1931)	(1931)	N B M Ex	
Universität Bern Medizinische Fakultät (1933) *	(1933)	University of Oklahoma School of Medicine (1931)	(1931)	N B M Ex	
Université de Genève Faculté de Médecine (1933) *	(1933)	University of Oregon Medical School (1931)	(1931)	N B M Ex	
American University of Beirut School of Medicine (1933) *	(1933)	Jefferson Medical College of Philadelphia (1904)	(1904)	N B M Ex	
FAIRFED				Penna	
Georgetown University School of Medicine (1933) *	(1933)	University of Pittsburgh School of Medicine (1932)	(1932)	N B M Ex	
University of Georgia School of Medicine (1931)	(1931)	University of Pennsylvania Department of Medicine (1906)	(1906)	N B M Ex	
Louisiana State University School of Medicine (1932)	(1932)	University of Pennsylvania School of Medicine (1917)	(1917)	N B M Ex	
University of Louisiana Medical Center (1932)	(1932)	University of Tennessee College of Medicine (1928)	(1928)	N B M Ex	
University of Michigan Medical School (1932)	(1932)	University of Texas College of Medicine (1931)	(1931)	N B M Ex	
University of Nebraska School of Medicine (1932)	(1932)	University of Virginia Department of Medicine (1930)	(1930)	N B M Ex	
Cornell University College of P and S (1931)	(1931)	University of Wisconsin Medical School (1931)	(1931)	N B M Ex	
Long Island College of Medicine (1931)	(1931)	McGill University Faculty of Medicine (1930)	(1930)	N B M Ex	
New York University College of Medicine (1931)	(1931)	Deutsche Universität der Universität Wien (1919) *	(1919)	N B M Ex	
Syracuse University College of Medicine (1931)	(1931)	Université de Paris Faculté de Médecine (1927) *	(1927)	N B M Ex	
University of Buffalo School of Medicine (1931)	(1931)	Albert Ludwigs Universität Medizinische Fakultät (1928)	(1928)	N B M Ex	
Hahnemann Medical College and Hospital of Philadelphia (1933)	(1933)	Freiburg Universität Medizinische Fakultät (1929) *	(1929)	N B M Ex	
Jefferson Medical College of Philadelphia (1933)	(1933)	Christian Albrechts Universität Medizinische Fakultät (1924) *	(1924)	N B M Ex	
Temple University School of Medicine (1932) 2	(1932)	Kiel Universität Medizinische Fakultät (1920) *	(1920)	N B M Ex	
University of Pennsylvania School of Medicine (1932) 2	(1932)	Friedrich Wilhelms Universität Medizinische Fakultät (1922) *	(1922)	N B M Ex	
Women's Medical College of Pennsylvania (1932)	(1932)	Berlin Universität Medizinische Fakultät (1922) *	(1922)	N B M Ex	
Meharry Medical College (1932)	(1932)	Freiburg Universität Medizinische Fakultät (1929) *	(1929)	N B M Ex	
Queen's University Faculty of Medicine (1932)	(1932)	Christian Albrechts Universität Medizinische Fakultät (1924) *	(1924)	N B M Ex	
University of Adelaide Faculty of Medicine (1929) 2	(1929)	Kiel Universität Medizinische Fakultät (1920) *	(1920)	N B M Ex	
Karl Franzens Universität Medizinische Fakultät (1923)	(1923)	Friedrich Wilhelms Universität Medizinische Fakultät (			

and sixty-one candidates were licensed by  
from January 1 to June 1 The following schools

LICENSED BY ENDORSEMENT	Year Endorsement
School of Medicine	(1931) \ N B M Ex
School of Medicine	(1932) \ B M Ex

\* Verification of graduation in process

(1921) \* U S S R  
New Jersey

# Book Notices

**A Practical Treatise on Diseases of the Skin for the Use of Students and Practitioners** By Oliver S. Ormsby, M.D. Clinical Professor and Chairman of the Department of Dermatology, Rush Medical College of the University of Chicago. With Revision of the Histopathology in This Edition By Clark Wylie Flinnerud, B.S., M.D. Assistant Clinical Professor of Dermatology, Rush Medical College of the University of Chicago. Fourth edition. Cloth. Price \$11.50. Pp. 1288 with 622 illustrations. Philadelphia: Lea C. Febiger, 1934.

Recognized as one of the leading textbooks in the field of dermatology, this work represents one of the most complete considerations of the subject anywhere available. Its history goes back many years. In its preparation, all the dermatologic literature is carefully reviewed. In the present edition thirty-six new diseases are described. The accounts of twenty diseases are rewritten and the entire book is reconstructed. One hundred and twenty-four new pictures have been added, since it is recognized that illustration is a vital accessory to any dermatologic publication. This volume is scientifically constructed for the teaching of dermatology, setting forth first a working knowledge of the microscopic anatomy and physiology of the skin and following with a general discussion of symptomatology, etiology, diagnosis and treatment. Then comes the consideration of individual diseases of the skin classified according to both pathologic conditions and etiologic considerations. These are the classifications suggested by Hebra and modified by many others. This textbook has made itself a distinct place in its field. It offers particularly valuable material on all distinctly dermatologic subjects. For occasional conditions with dermatologic manifestations but of a more general character it sometimes is not quite satisfactory. Thus in the consideration of Vincent's disease there is no mention in treatment of the use of sodium perborate and there is the suggestion that arsenophenamine be employed both locally and by injection. Although observers of diseases of the skin have begun to pay some attention to vitamin deficiencies in relationship to skin disorders, the word vitamin is not found in the index. The volume is particularly adequate in its consideration of syphilis and the dermatologic manifestations of that disorder. The choice of the illustrations is for the most part excellent although there are three pictures of vitiligo when one would fully suffice. The volume constitutes altogether one of the best reviews of dermatology available particularly from the point of view of the histopathology of the skin. It should be available to every physician who even attempts to diagnose or treat dermatologic conditions.

**Diseases Peculiar to Civilized Man** Clinical Management and Surgical Treatment. By George Crile, M.D. Edited by Amy Rowland. Cloth. Price \$5. Pp. 427 with 41 illustrations. New York: The Macmillan Company, 1934.

Among the diseases which occur particularly in civilized human beings and which apparently are not found in savages or in the lower animals are peptic ulcer, hyperthyroidism and neurocirculatory asthenia. In considering their causation, Dr. Crile traces the development of the human brain from the lowest form to the highest and elucidates his belief that the diseases mentioned belong to the group of kinetic diseases, which are diseases of pathologic physiology bred in our phylogeny, in which there is a sustained abnormally high activity of the entire brain and suprarenal sympathetic system. He considers the development of the suprarenal glands and the suprarenal sympathetic system and then takes up each of the diseases mentioned, supplying case histories and indicating the value of suprarenal denervation as a means of control. There is also a section devoted to epilepsy and diabetes, including case histories of the method as applied to these conditions, followed further by a discussion of combinations and by a discussion of the psychoneuroses and hypertension. The first suprarenalectomy was performed in October 1913. It was found later that the operation of suprarenal denervation was developed. The author reports operations performed in seventy-six cases of true neurocirculatory asthenia with improvement or cure in 94 per cent, seventy-nine cases of hyperthyroidism with cure in

93.7 per cent, and thirty-seven cases of peptic ulcer with improvement or cure in 96.4 per cent. He feels that this introduces a new principle into medical thought and that the method should have extensive and careful consideration by the medical profession.

**Le sérum normal** Récolte et caractères physiques. Par Denis Brocq, Roussel et Gaston Roussel. Paper. Price 75 francs. Pp. 363. Paris: Masson & Co., 1934.

This is the first volume of a series on normal serum. The second volume will treat of the physiologic characteristics of serum and subsequent ones of the chemical. Much confusion has been caused because in the past certain authors have considered the words plasma and serum as equivalent. In this work the word serum is applied only to the fluid that exudes naturally after the clotting of the blood. And normal serum is the serum of an animal in good physiologic equilibrium not subjected to immunizing injections. The present volume deals with the collection and physical characters of normal serum. The collection of serum from the horse, man and other species, and its conservation, aging and putrefaction are described in detail. Then follow chapters on the physical properties—density, osmotic pressure, electrical conductivity, dialysis, ultrafiltration, electrodialysis, surface viscosity, refractometric index, rotatory power, color, spectroscopy. Each chapter is complete by itself giving the technical methods of study and the results obtained in recent investigations with due regard to variations, physiologic as well as experimental and pathologic. Each chapter is provided with a bibliography, which occupies fifty-six pages. The references number 1,321 in all and will be of much value. To the investigator the bibliography the beginning of a great work on serum of distinguished scholarship.

**Charles Oliver Probst** A Pioneer Public Health Administrator in Ohio. Edited by Robert G. Paterson, F.H.D. Executive Secretary, Ohio Public Health Association. Boards. Pp. 70. Columbus: Ohio Public Health Association, 1934.

The edition of this book, privately printed, is limited to 300 copies. Whether or not one knew the physician in whose memory it is issued, whether or not one is interested in Ohio, it is an interesting and worth-while volume, showing as it does the typical early history of state health departments in the United States. Conceived as so many others were in the minds of public spirited physicians and laymen, growing from tiny nuclei to great organizations in many instances, the health departments stand as the visible evidences of the early efforts of medical societies and lay groups to meet pressing problems of public health. Close cooperation between physicians and the health department was the guiding principle of Dr. Probst's policy, as reflected in the tributes paid to him at the memorial meeting held at Mount Vernon, Ohio, under the joint auspices of the Ohio State Sanatorium and the Ohio Public Health Association, both of which he was instrumental in founding. The state of Ohio has built a splendid health program on the beginnings which Dr. Probst struggled to achieve. The memorial volume outlines the achievements of Dr. Probst in public health work and his character as a physician, a sanitarian and a citizen. The bibliography of his writings indicates a wide interest in medical and public health matters, as well as literary appreciation.

**Praktikum der wichtigsten Infektionskrankheiten** Von Prof. Dr. C. Hegler, Direktor des Allgemeinen Krankenhauses St. Georg in Hamburg. Paper. Price 4.50 marks. Pp. 186. Leipzig: Georg Thieme, 1934.

In the foreword the author states that he presents a condensed book for the practitioner. He makes no pretense of going into great detail with the diseases discussed but hopes that the subject matter will stimulate greater study. The views expressed are based almost wholly on personal experience. Among the infectious diseases, nearly all the common ones as well as those less frequently encountered are referred to. Limited mention in most instances, is made of diseases carried or transmitted by animals. Some of the important food poisonings are mentioned. The author seems to emphasize the importance of the Diazo reaction in the exanthematous diseases and recommends numerous proprietary remedies in the treatment

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937 per cent, and thirty-seven cases of peptic ulcer with improvement or cure in 964 per cent. He feels that this introduces a new principle into medical thought and that the method should have extensive and careful consideration by the medical profession.

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## BOOK NOTICES

of various infections. In regard to scarlet fever the opinion is set forth that the cause has not yet been definitely established also that the frequency and severity of complications are little influenced by scarlet fever serum. There is nothing new in this book that might merit more favorable comment if it were not so lacking in many important details that are really desirable for the practitioner. In most respects statements are much too indefinite to be of practical value. However, if the author's main objective in writing the book was merely brevity, he has succeeded admirably. The contents of the volume amount to little more than a medical dictionary of the subjects mentioned. It is particularly disappointing in view of the author's citation respecting his experience. In striving for brevity an attempt has been made to crowd too large a field into too small a space.

**Rhythm of Life** A Guide to Sexual Harmony for Women. By Sofie Lazarsfeld. Translated by Karsten and E. P. Ham. St. Louis, Mo. 1934. Price \$5. Pp. 329 with 12 illustrations. New York: Greenberg.

Recent years have seen the publication of a considerable number of works attempting to educate the public as to proper sex relations in life. This volume by a woman physician is addressed primarily to women. It discusses the development of marriage among the various peoples of the world. It then outlines the mechanism of sexual intercourse. It considers the position which woman occupies in modern society and calls attention to a rhythm of sex interest which apparently is to be followed carefully by those who wish to make the most of the physical side of married life. The author is inclined to recommend training in eroticism as a concomitant of a successful sex career. The concluding chapters of the book deal with cases from practice and the author's method of handling them. Presumably in an effort to make the book more interesting to its readers, the publisher has supplied a number of illustrations which run the gamut from Rodin sculptures through pictures of various chastity girdles to an apotheosis with a picture of Mae West. While the book is of interest its appeal to sensationalism so vulgarizes its content that one is hardly inclined to recommend it to the general reader.

**A Short History of Some Common Diseases**. By Divers Authors. Edited by W. R. Bett. M.R.C.S. L.R.C.P. Hon. Secretary Section of History of Medicine Centenary Meeting. British Medical Association. Cloth. Price \$3.50. Pp. 211. New York & London: Oxford University Press, 1934.

Here under one cover are assembled numerous references to a vast amount of literature presenting the progress of medicine has made in controlling various diseases. A considerable number of competent British authors have combined in the development of the book. They not only indicate the names of those who have made studies but also the origins of words used in connection with various diseases. Furthermore, short bibliographies are provided for those who wish to read further. One is invariably surprised at the antiquity of much of medical knowledge. The history of appendicitis is one of the most interesting chapters in the book. In this chapter adequate attention is paid to the contribution of Fitz. The author relates the popularity of appendicitis as a diagnosis in England to the operation performed on King Edward VII by Sir Frederick Treves. The volume is a most useful work of reference and also in many parts exceedingly readable.

**Il cancro del retto**. Da Vittorio Pettinari, aiuto e libero docente Istituto di patologia chirurgica della R. Università di Milano. Paper. Price 30 lire. Pp. 225 with 121 illustrations. Bologna: L'Editore, 1933.

This monograph on cancer of the rectum considers malignant conditions of the rectum and rectosigmoid from the clinical as well as the histologic standpoint. Excellent statistics are presented showing the mortality and the clinical results of the various operative procedures, which are clearly and concisely described. The histologic sections collected are illuminating and a study of them can be helpful to maintain one's capacity to interpret the microscopic appearance of malignant growths. With admirable erudition the author has done justice to all the main contributors to the clinical surgery of this important subject. A careful perusal of the monograph will reorganize one's knowledge of the subject and make possible a systematic comprehension of the recent advances that have been made.

**A Textbook of the Practice of Medicine**. By Various Authors. Edited by Frederick W. Price. M.D. 1st ed. Consulting Physician to the Royal Northern Hospital, London. Fourth edition. Cloth. Price 36s. 1p. 1995 with illustrations. New York & London: Oxford University Press, 1933.

This leading British composite textbook of the practice of medicine is comprehensive, containing almost 2000 pages printed on thin paper. The first edition appeared in September 1922, and there were five printings. The second edition was published in 1926 with two printings and the third edition was 1929 with three printings. The present edition has been thoroughly revised and brought up to date, containing new articles on many subjects. The list of contributors to the volume includes twenty-seven British physicians whose names are notable in British medical periodical literature. Thus the vitamins are discussed by Plimmer, syphilis by Harrison, and the gastro-intestinal diseases by Hutchison and Hurst. The volume affords an adequate reflection of British methods of practice.

**Woman as a Sexual Criminal**. By Doctor Erich Wulffen. Translated into English by David Berger. M.A. Cloth. Price \$6. Pp. 528 with 16 illustrations. New York: American Ethnological Press, 1934.

This translation from the German is obviously printed to take advantage of the current especially heightened interest in sex matters. The publishers have circulated the medical profession with lurid circulars indicating the various ways in which women have run afoul of the law in sex satisfactions. The book is not especially well printed nor is it in any sense of the word a modern consideration of the subject. Most of the case reports seem to be taken from records of fifty and a hundred years ago.

**The Span of Life as Influenced by the Heart, the Kidneys and the Blood Vessels**. By Franklin R. Nuzum. B.S., M.D., F.A.C.P. Medical Director Santa Barbara Cottage Hospital. Cloth. Price \$2. Pp. 108 with 9 illustrations. Springfield & Baltimore: Charles C. Thomas, 1933.

Dr. Nuzum prepared these essays as a series of informal talks to the public making understandable the relationships of the heart, the kidneys and the blood vessels and indicating their influence in determining the length of human life. Whereas the vast majority of deaths in a previous generation were due to infectious diseases, the great number of deaths today are due to breakdown of the heart. The kidneys and the circulation The greatest opportunity to increase the length of life still further depends on an understanding of the work of these organs and on the cooperation of the patient with the doctor in the hygiene of these organs. Dr. Nuzum has written in a manner which any intelligent reader can understand. His work should be exceedingly useful for reference by physicians to patients who need this advice in their cooperation.

**The Encyclopedia of Medicine**. George Morris Piersol. B.S., M.D., Editor in Chief and Edward L. Bortz. A.B., M.D., Assistant Editor. Chief Associate Editors: W. Wayne Babcock, A.M., M.D., Conrad Berens, M.D., P. Brooke Bland, M.D., Francis L. Lederer, B.S., M.D., and A. Graeme Mitchell, M.D. Volumes VIII and IX. L.A.R.I.R. Fabrikhold. Price \$120 per set of 12 volumes and index. Pp. 1083, 1166 with illustrations. Philadelphia: F. A. Davis Company, 1933, 1934.

Volumes VIII and IX of this encyclopedia cover medical subjects alphabetically from disorders of the larynx to potassium. The articles represent the work of many leading contributors to medical periodical literature. There is occasional unevenness in the presentation but on the whole the material is sound and adequate. There are some fine articles by Chevalier Jackson dealing with the lungs by Cheney on the gallbladder, and by Boothby, Heiser, Mann and many other distinguished workers in the medical field. The editors have chosen extraordinarily well in their contributors, and the books may be generally recommended as competent and authoritative.

**Medicación local pulmonar por vía intratraqueal**. Por el Dr. Vicente de Iablo. Médico adscrito al Dispensario Nacional Antituberculoso (Zona Norte). Paper. Pp. 57 with 19 illustrations. Buenos Aires: Aniceto Lopez, 1933.

In this book the author describes his modifications in the technic and instruments used by Garcia Vicente of Madrid for local medication of the bronchi and lungs by the transglottic route. After working with Garcia Vicente he was much impressed with the value of the latter's methods and introduced

them in Argentina. However, he felt that the technique and instruments were still not perfect and proceeded to modify them. For example, he changed to a more obtuse angle the tip of the syringe used for transglottic intratracheal injection, as well as the forceps used for introducing catheters. He also replaced the cone-shaped end of the tip of the syringe with a small olive perforated on all sides so as to permit more equal distribution of the medicament over the tracheal mucosa as soon as it is injected. De Pablo advocates the use of semirigid catheters for aspiration of the bronchi, which he regards as preferable, in some cases, to lavage. In conclusion he states that, since it is now possible to reach easily the exact area of lung that is diseased, aspirate it and convey medicaments directly to it, the discovery has been made of what will prove to be the most important avenue of approach for the treatment of pulmonary diseases. The book contains a preface by Garcia Vicente and an ample bibliography.

**Gesetz zur Verhütung erbkrankten Nachwuchses vom 14. Juli 1933 mit Auszug aus dem Gesetz gegen gefährliche Gewohnheitsverbrecher und über Maßregeln der Sicherung und Besserung vom 24. Nov. 1933.** Bearbeitet und erläutert von Dr. med. Arthur Gütt, Ministerialdirektor im Reichsministerium des Innern. Dr. med. Ernst Rüdin, o. o. Professor für Psychiatrie an der Universität in München und Dr. jur. Falk Rüttke, Geschäftsführer des Reichsausschusses für Volksgesundheitsdienst beim Reichsministerium des Innern. Mit Beiträgen Die Eingriffe zur Unfruchtbarmachung des Mannes und zur Entmannung. Von Geheimrat Prof. Dr. med. Erich Lexer, München. Die Eingriffe zur Unfruchtbarmachung der Frau. Von Geheimrat Prof. Dr. med. Albert Doderlein, München. Paper. Price 6 marks. Pp. 272 with 15 illustrations. Munich: J. F. Lehmanns Verlag, 1934.

This book lists and describes the recently enacted laws in Germany for the prevention of hereditary diseases. An introductory chapter deals with the family distribution of several supposedly inherited defects. The eight conditions for which sterilization is now mandatory—born feeble-mindedness, schizophrenia, circular insanity, hereditary epilepsy, Huntington's chorea, hereditary blindness, hereditary deafness, and hereditary bodily deformities—and the further condition of "severe alcoholism" are discussed in detail. It is interesting to note that incurable alcohol craving is believed to rest on a constitutional hereditary psychopathic basis and hence children of these individuals are not to be desired. A chapter on the technique of male sterilization by Lever of Munich and one on the technique for females by Doderlein are added. Whatever one may think of the basis for these enactments in Germany, this book is and will remain an interesting document.

**Constitution and Health.** By Raymond Pearl, Professor of Biology in the Johns Hopkins University, Baltimore. 154 pp. 15 illustrations. General Series No. 60. Cloth. Price 2/6. Pp. 97 with 9 illustrations. New York: Barnes & Noble, Inc. London: Hegan Paul French Trubner & Co. Ltd. 1933.

Dr. Pearl offers here an expansion of a lecture given in 1933 at the Army Medical Center. In this statement Dr. Pearl indicates the present point of view of the relationship of constitution to health. He points out that the constitution of the individual may change during life, listing some of the studies that have been made on the relationship of body form to health and disease. His conclusion is rather striking—namely, that a careful statistical examination of rather accurate, if not very extensive, material does not yield evidence of any very marked or striking association between bodily habitus and general health. He points out that we are only at the beginning of any real knowledge in this field and that many vast statistical studies are necessary before any definite conclusions can be drawn.

**Milton's Blindness.** By Eleanor Gertrude Brown. Cloth. Price \$2.50. Pp. 167. New York: Columbia University Press, 1934.

The poet Milton, like many others afflicted by physical deformities, had a life much modified by his handicap. The author of this book has herself been blind almost from early youth and thus writes with a special sentiment. Portions of the book consider the cause of Milton's blindness, his own references to it, the reflections of his character in his poetry, and a final chapter entitled "Milton's Eyes Take a Holiday." This discusses the effects of the blindness, the autographs of Milton, praise and dispraise of his work and similar topics. A good bibliography makes the book complete.

**Stand Up and Slim Down. Being Restoration Exercises for Women With Chapter on Food Selection in Constipation and Obesity.** By Mrs. Etlie A. Hornbrook (Etlie Rout). Prefaces by Sir Arthur Keith, F.R.S., M.D., F.R.C.S., and Dr. A. C. Haddon, M.A., Sc.D., F.R.S. Second edition. (Cloth. Price \$1.95. Pp. 167 with 16 illustrations.) Garden City: Doubleday, Doran & Company, Inc. 1934.

The author has developed a series of exercises supposed to aid women in getting rid of protuberant buttocks and an over-stuffed waistline. The book provides a series of exercises said to be useful for this purpose and also some diets said to be valuable for overcoming constipation as well as obesity. The author is especially inclined to recommend the dances much used by the savages in their religious and social efforts, commonly called the "danse du ventre" or more vulgarly known as the "belly dance."

**L'immunité par mécanisme physico-chimique.** Par R. Dujarric de la Rivière. Preface du Professeur d'Arsonval. Paper. Price 18 francs. Pp. 73 with 2 illustrations. Paris: Masson & Cie, 1934.

The author summarizes here the results, previously published of investigations by himself and his associates on the role of physicochemical factors in the action of certain disinfectants, on the flocculation of antimeningococcus serum, and on the adsorption of certain substances by the red corpuscles of the blood. The demonstration of the adsorption and transport by the red corpuscles of toxins, anatoxins (toxoids) and certain antisiphilitic medicaments is especially noteworthy.

**The Fundamentals of Personal Hygiene Including Their Practical Application to Healthful Living.** By Walter W. Krueger, Ph.D., Instructor in the Grand Rapids Junior College. Cloth. Price \$1.75. Pp. 291 with 60 illustrations. Philadelphia & London: W. B. Saunders Company, 1932.

This book is planned primarily for elementary students with a view to aiding them to a rational health program for daily living. It is an easily readable, pleasant textbook on personal hygiene, simply prepared, nicely illustrated and altogether sound. The author avoids faddism and follies.

## Medicolegal

**Validity of Regulation of Board of Health Excluding Unvaccinated Children from School.**—City health officers in Indiana are authorized by Burns' Indiana Statutes Annotated, 1926, section 8168, "to establish quarantines and in connection therewith, to order what is reasonable and necessary for the prevention and suppression of disease, to close schools and churches and forbid public gatherings in order to prevent and stay epidemics, and in all reasonable and necessary ways to protect the public health." Further, an Indianapolis ordinance requires the city board of health whenever there is an epidemic of smallpox, or danger thereof, "to take measures and to do and order . . . such acts for the preservation and protection of the public health . . . as said Board may in good faith declare the public health and safety to demand," and to publish in the newspapers a notice of such epidemic or threatened epidemic. After this notice is published it is the duty of every inhabitant of Indianapolis of or over 6 years old, not immune to smallpox, to be vaccinated and a penalty is imposed on any person failing to do so. The Indianapolis Board of Health and Charities published in various newspapers a resolution stating that there was danger of a smallpox epidemic among school children, requiring all school children to be vaccinated, and excluding all unvaccinated children from school. The plaintiff, the father of an unvaccinated child excluded from school, sought to restrain the board from excluding his child from school. The trial court granted the injunction, after overruling the board's demurrer to the bill of complaint, and the board appealed to the Supreme Court of Indiana.

The plaintiff contended that there was in fact no epidemic. But, said the Supreme Court, the power to determine whether an epidemic exists is vested in the board of health and, in the absence of fraud or bad faith, the determination of the board is conclusive. The plaintiff next contended that the state statute authorizes the board to order what is reasonable and necessary for the prevention and suppression of disease only in connection with the establishment of quarantine, and that since no quaran-



## SOCIETY PROCEEDINGS

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time had been established, no right to order vaccination had come into existence. But, answered the Supreme Court, the statute also vests in the board the power 'to close schools and churches and forbid public gatherings in order to prevent and stay epidemics, and in all reasonable and necessary ways to protect the public health.' This language the court regarded as a conclusive answer to the plaintiff's contention.

The Indianapolis ordinance, said the court provides for and requires vaccination of every person over the age of 6 years, without any action by the board of health. The plaintiff contended however, that the board undertook to exercise powers which it did not possess and which were not conferred by the city ordinance, in ordering the vaccination of school children. But answered the Supreme Court the recital in the published resolution of the board that all school children must be vaccinated was merely declaratory of the law as fixed by the ordinance. The part of the ordinance which required initiative on the part of the board of health was the order excluding unvaccinated children from the schools. This the board had ample power to do. The legislature intended to delegate to boards of health ample power to protect and safeguard the health of the community and to vest in them authority to determine what reasonable steps are necessary to that end. The court thought that another statute making it the duty of a parent to send his child to school had no connection with the relation to the statute under which the board of health may exclude a child who has not been vaccinated against contagious disease. Nor was there any merit found in the contention that the resolution of the board violated those provisions of the United States constitution and of the constitution of Indiana prohibiting the abridgment of religious and civil liberties and matters relating to conscience.

The Supreme Court reversed the judgment of the trial court and directed that the board's demurrer be sustained.—*I onnegut v Baum (Ind)*, 188 N E 677

**Evidence Right of Medical Expert to Express Opinion as to Cause of Cerebral Hemorrhage**—The defendant insurance company issued to the insured a life insurance policy wherein it agreed to pay additional benefits if death 'resulted independently and exclusively of all other causes from bodily injuries effected directly from external, violent and accidental means of which there was visible contusion or wound on the exterior of the body.' Additional benefits were not payable if death resulted directly or indirectly, wholly or in part from any kind of illness or disease. The insured was injured in an automobile accident. He was found slumped over the steering wheel with bruises almost surrounding the orbit of his left eye. He died shortly thereafter with out regaining consciousness.

His widow the beneficiary named in the policy brought suit in the district court of the United States for the northern district of Illinois against the insurance company to recover the additional benefits. A physician testified on behalf of the widow that the insured had died from a cerebral hemorrhage, which was probably induced by the insured's face striking the object which caused the bruises. Another physician, who had performed an autopsy on the body testified that the insured died from a cerebral hemorrhage due to high blood pressure and not to any injury from the accident. Another physician testified that there was no connection between the abrasions or contusions on the insured's face and the cerebral hemorrhage. The widow moved to strike the testimony of the latter two witnesses on the ground that it invaded the province of the jury. The motion was denied and later there was a judgment for the insurance company. The widow then appealed to the United States circuit court of appeals seventh circuit contending that the district court erred in admitting the testimony of the two witnesses.

In the trial of this cause said the circuit court of appeals the introduction of testimony was governed by the rules of evidence established by the Supreme Court of Illinois and on the point in question the Illinois rule was clearly stated in *City of Chicago v Didier* 227 Ill 571 81 N E 698 as follows:

There is some apparent confusion in the authorities on the question as to whether in such cases as this a medical expert may be asked his opinion as to whether the physical conditions of the injured party are the result of the injuries complained of. Where there is a conflict in the

evidence as to whether the plaintiff was injured in the manner claimed it is not competent for witnesses to give their opinions on that subject but where there is no dispute as to the manner of the injury and the question is as to whether certain physical conditions were caused by the injury complained of and the determination of the question involves a special skill or trade or a knowledge of science that does not come within the experience of laymen possessing the education or knowledge common to those moving in the ordinary walks and engaged in the ordinary occupations of life then persons possessing the special knowledge skill or science may give their opinions on the subject. Appellant contends that the inquiry should be as to whether the injury might have produced the physical conditions and not whether the injury might have but the weight of authority in some cases tending to support that view does not support appellant's contention.

We think the apparent confusion of the authorities arises from a failure to distinguish between cases where the manner in which the injury is received is admitted and cases where the manner of the injury is denied.

In the instant case, there was no dispute whatever as to the happening of the accident, the manner in which it occurred and the observable bodily injuries. The controversy concerning which the experts were permitted to testify was as to the result of those bodily injuries and in the opinion of the court, under the Illinois rule the questions were proper. The judgment of the district court was accordingly affirmed.—*Alexander v Missouri State Life Ins Co*, 68 Fed (2d) 1

**Hospitals, Charitable Liability for Burn with Hot Water Bottle**—The courts are practically agreed, says the Supreme Court of Errors of Connecticut that a charitable institution is not responsible to those who avail themselves of its benefits for any injuries that may be sustained through the negligence of its agents or servants in the selection of whom it has exercised due care. In the present case the plaintiff a patient in the defendant hospital while under an anesthetic following an operation received a burn from a hot water bottle placed in his bed, apparently by a hospital nurse. He sued the defendant hospital an institution organized and operated for charitable purposes. The trial court overruled a demurrer interposed by the plaintiff to the hospital's plea of nonliability because of its charitable nature and entered judgment for the hospital. On appeal the Supreme Court of Errors of Connecticut affirmed the judgment of the trial court.—*Cashman v Meriden Hospital (Conn)* 169 A 915

## Society Proceedings

## COMING MEETINGS

- American College of Surgeons Boston Oct 15 19 Dr Franklin H Martin 40 East Erie Street Chicago Director General
- American Society of Tropical Medicine San Antonio Texas November 14 16 Dr Henry F Melency Vanderbilt University School of Medicine Nashville Tenn Secretary
- Associated Anesthetists of the United States and Canada Boston Oct 15 19 Dr F H McVeehan 319 Hotel Westlake Rocky River Ohio Secretary
- Association of Military Surgeons of the United States Carlisle Barracks Pa Oct 8 10 Dr J R Kern Army Medical Museum Washington D C Secretary
- Delaware Medical Society of Dover Oct 9 10 Dr William H Speer 917 Washington Street Wilmington Secretary
- Indiana State Medical Association Indianapolis Oct 9 11 Mr T A Hendricks 23 East Ohio Street Indianapolis Executive Secretary
- Inter State Postgraduate Medical Association of North America Philadelphia November 5 9 Dr W B Ick 27 East Stephenson Street Freeport Ill Managing Director
- Kansas City Southwest Clinical Society Kansas City Mo Oct 14 Dr Hugh Wilkinson 750 Minnesota Avenue Kansas City Kan Secretary
- Kentucky State Medical Association Harlan Oct 14 Dr A T McCormack 532 West Main Street Louisville Secretary
- Ohio State Medical Association Columbus Oct 4 6 Mr Don K Martin 1005 Hartman Theatre Building Columbus Secretary
- Omaha Mid West Clinical Society Omaha Oct 29 Nov 2 Dr Joseph D McCarthy 107 South 17th Street Omaha Secretary
- Pacific Coast Society of Obstetrics and Gynecology Oakland and D Monte Calif November 21 23 Dr Clarence A De Puy 230 Grand Avenue Oakland Secretary
- Pennsylvania Medical Society of the State of Wilkes Barre Oct 14 Dr Walter F Donaldson 500 Penn Avenue Pittsburgh Secretary
- Southern Medical Association San Antonio Texas November 13 16 Mr C P Loranz Empire Building Birmingham Ala Secretary
- Vermont State Medical Society Burlington Oct 4 5 Dr W G Ricker 33 Main St St Johnsbury Secretary
- Virginia Medical Society of Alexandria Oct 9 11 Miss Agnes Edwards 1200 East Clay Street Richmond Secretary

## Current Medical Literature

### AMERICAN

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Titles marked with an asterisk (\*) are abstracted below.

### American Journal of Medical Sciences, Philadelphia

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- Story of Development of Our Ideas of Chemical Mediation of Nerve Impulses W B Cannon, Boston—p 145
- Inheritance of Diabetes Mellitus II Further Analysis of Family Histories G Pincus and Priscilla White Boston—p 159
- Nonoperative Versus Operative Measures in Treatment of Pulmonary Tuberculosis F M Pottenger Los Angeles—p 169
- Tuberculosis Case Finding Five Years Experience with Fluoroscopy Ada Chree Reid New York—p 178
- Relationship of Intrinsic Factor to Hematopoietic Material in Concentrated Human Gastric Juice O M Helmer P J Fouts and L G Zerfas Indianapolis—p 184
- Role of Liver in Hematopoiesis S M Goldhamer R Isaacs and C C Sturgis Ann Arbor Mich—p 193
- Relation Between Deficiency of Solar Radiation and Mortality Due to Pernicious Anemia in United States J H Smith Richmond Va—p 200
- \*Bile Pigment and Hemoglobin Regeneration Effect of Bile Pigment in Cases of Chronic Hypochromic Anemia A J Patek Jr and G R Minot Boston—p 206
- Ineffective Use of Thelcin in Case of Hemophilia Note L L Tureen St Louis—p 216
- Abdominal Disease Simulating Coronary Occlusion P S Barker F N Wilson and F A Collier Ann Arbor Mich—p 219
- Initial Ventricular Deflection of Electrocardiogram in Coronary Disease T M Durant Ann Arbor Mich—p 225
- Atypical Bundle Branch Block with Favorable Prognosis H T Von Deesten and M Dolgans Secaucus, N J—p 231
- Frequency and Significance of Right Bundle Branch Block R H Bayley Ann Arbor, Mich—p 236
- \*Persistent Functional Albuminuria Analysis of Fifty Eight Cases with Results of Thyroid and Calcium Medication N J Burden Philadelphia—p 242
- Relation of Negative Pressure in Epidural Space to Postpuncture Headache W M Sheppe Wheeling W Va—p 247
- Effect of Nonsedative Drugs and Other Measures in Migraine with Especial Reference to Ergotamine Tartrate S Brock Mary O Sullivan and D Young New York—p 253
- Nucleoprotein and Specific Toxin Derived from Streptococcus Scarlatinae Filtrate Their Skin Reactions Chemical and Immunizing Properties Maud L Menten C G King W W Briant Jr and Leola Graham Pittsburgh—p 260
- Incidence of Skin Diseases in Student Health Service R L Gilman Philadelphia—p 268
- Gonococemia with Recovery Report of Four Cases C K Friedberg New York—p 271

**Bile Pigment and Hemoglobin Regeneration**—Patek and Minot selected nine patients suffering from chronic hypochromic anemia in order to determine whether bile pigment could assist in hemoglobin production. Concentrated bile pigment alone caused not a reticulocyte response but an increase of hemoglobin about 7 per cent in ten days. This indicates that in certain anemic patients bile pigment can be absorbed from the gastrointestinal tract for building hemoglobin. After a reticulocyte response occurred to a suboptimal dose of iron bile pigment was fed directly with the same dose of iron and there followed a second reticulocyte response. The second response was sometimes of greater magnitude than the first. This indicates that bile pigment in some unknown manner can facilitate either iron absorption or utilization. One patient who could not obtain a normal hemoglobin level in fourteen months with large daily doses of iron, promptly increased her hemoglobin concentration when bile pigment was fed in addition to iron. In certain cases of hypochromic anemia there may be a deficiency of a useful material that is contained in bile pigment in addition to iron deficiency.

**Persistent Functional Albuminuria**—Burden found nothing in the medical histories or in the physical examinations of fifty-six otherwise healthy male students with persistent functional albuminuria to account for the urinary abnormality. The kidney function as determined by the phenolsulphonphthalein

and Mosenthal tests was normal. Cardiorenal disease in the parents of students with functional albuminuria was more than twice as frequent as in the parents showing no such abnormality. A tendency to low basal metabolism readings was found in 80.9 per cent, but in the ten cases tested with moderate doses of thyroid extract there was no improvement in the albuminuria. The blood serum calciums were normal in ten students with persistent functional albuminuria, although calcium medication had a favorable influence on the albuminuria in eleven of sixteen cases.

### Am J Roentgenol & Rad Therapy, Springfield, Ill

32 145 292 (Aug) 1934

- Interpretation of Ventriclegrams with Especial Reference to Tumors of Temporal Lobe A Torkildsen Oslo Norway and A H Pirie Montreal—p 145
- \*Form Size and Position of Maxillary Sinus at Various Ages Studied by Means of Roentgenograms of Skull H J Sedwick, Rochester N Y—p 154
- \*Chronic Intermittent Duodenal Stasis J Friedenwald and M Feldman Baltimore—p 161
- \*Cholangiography New Technic and Results J A Saralegui Buenos Aires Argentina—p 167
- Migratory Cecum J Buckstein, New York—p 171
- Analysis of One Thousand Consecutive Examinations of Stomach and Duodenum from Clinical Roentgenologic and Surgical Points of View Particular Reference to Incidence, Diagnosis and Treatment of Gastric and Duodenal Ulcer and Carcinoma of Stomach N M Percy and D S Beilin Chicago—p 179
- Pellegrini Stedens Disease Posttraumatic Calcification of Collateral Tibial Ligament of Knee M Ritvo and J Resnik Boston—p 189
- Supernumerary Rib Arising from Second Lumbar Vertebra B H Nichols and E L Shifflett Cleveland—p 196
- Is It Empyema or Collapsed Lung? E Korol Lincoln Neb—p 198
- Radiation Therapy of Cancer of Skin G W Grier Pittsburgh—p 206
- Carcinoma of Lip Results of Roentgen and Radium Treatment B P Widmann Philadelphia—p 211
- Roentgen Therapy in Dermatology J J Eller New York—p 218
- Training for Radium Therapy W H Cameron New York—p 222
- Studies on Effect of Continuous Exposure of Mice to Gamma Rays of Radium J Furth and D H Kabakjian New York—p 227
- Physical Aspects of Various Qualities of Radiation R S Landauer Highland Park Ill—p 235

### Maxillary Sinus Studied by Means of Roentgenograms

—Sedwick studied the shape, size, position, variation and measurements of the sinus in a representative group of roentgenograms of both sexes of various ages. He observed that the maxillary sinus varies greatly in shape, size and position, not only in different persons but in each side of the same person. The sinus reaches its maximal size during the third decade of life and does not increase thereafter. In the later decades there is a definite tendency toward the assumption of the triangular form. When the sinus is triangular, the position of its base varies. The relation between the floor of the sinus and that of the nasal cavity varies and is not a characteristic of sex. The sinus is in close proximity to the sides of the nasal cavity. The only difference between the sinuses in the white and the Indian skulls examined is that the vertical height is less in the Indians, a fact that might be correlated with the shorter nose and broader cheeks of the race. The average measurements for the sinus, based on 173 cases or 346 sinuses, are height 34 mm, width 25 mm, and anteroposterior length 39 mm. The average maximal and minimal measurements are height, maximal 46 mm, minimal 22 mm, width, maximal 35 mm, minimal 17 mm, anteroposterior length maximal 51 mm, minimal 29 mm. The average height for men is 35 mm and for women 34 mm. The average width for men is 25 mm and for women 24 mm. The average length for both men and women is 40 mm.

**Chronic Intermittent Duodenal Stasis**—Friedenwald and Feldman point out that in the intermittent type of duodenal stasis no pathologic changes are present, except those produced by superior mesenteric artery pressure associated with viscerospasm, adhesions and bands or spinal deformities, movable growths and masses involving the abdominal organs, or ptosis of the right kidney producing pressure on the duodenum. Intermittent duodenal stasis may likewise be brought about by lesions elsewhere in the digestive tract producing reflex disturbances of motility in the duodenum. This disturbance occurs most frequently in women during middle life. The symptoms are not always characteristic. They frequently manifest themselves in the form of bilious and migraine attacks, indigestion, headaches and chronic constipation. The patients are usually

of the enteroptotic type. The roentgenologic signs of duodenal stasis are well defined and characteristic and may be the only means of arriving at a positive diagnosis. Owing to the intermittent character of this condition, however, the stasis may be present at certain examinations and not at others, and repeated studies must therefore be undertaken. The definite proof of the presence of intermittent duodenal stasis is the demonstration of a definite prolongation of the emptying of the duodenum during or immediately following an attack. In the treatment a carefully regulated diet, maintaining the general nutrition, frequent postural change and abdominal supports are of benefit. The essential problem is directed to overcoming the traction on the duodenum and the effects of the associated visceroptosis. Surgical intervention should not be advised except as a last resort, and when indicated duodeno-jejunostomy or division of the constricting bands is the best procedure.

**Technic and Results of Cholangiography**—For the visualization of the sphincter of Oddi, the pancreatic duct and small intrahepatic ducts, Saralegui uses thorium dioxide sol. With the patient lying on his back the solution, heated to 37 or 38 C., is injected through the drainage tube and at the same time it is guided and observed through the fluoroscopic screen. It is necessary to inject enough opaque solution to be able to visualize all the intrahepatic ducts. Generally 20 or 30 cc. is sufficient, but more may be injected if necessary. The retention of the solution in the ducts does not produce any reaction, even in cases of total obstruction of the common duct. The results of five cases are reported.

### American Review of Tuberculosis, New York

30 123 238 (Aug.) 1934

Bronchial Stenosis in Pulmonary Tuberculosis. Some Notes on Tuberculous Stenosis of the Trachea and the Bronchioles. L. Eloesser. San Francisco—p. 123.

\*Artificial Pneumothorax in the Tuberculous Diabetic. J. I. Wiener and J. Kavee. New York—p. 181.

Surgery in Tuberculosis Sanatorium. L. Fisher and B. L. Brock. Waverly Hills, Ky.—p. 187.

Latent Pulmonary Tuberculous Infections in Chinese Adults of Professional Classes. G. A. M. Hall and C. P. Chang, Peiping, China—p. 193.

Acid Fast and Non Acid Fast Micro Organisms in Skin Nodules of Tuberculin Reacting Cattle. L. L. Daines and H. Austin, Salt Lake City—p. 209.

\*Quantitative Tests on Nine Hundred and Forty Four Tuberculous Adults with TPT (Seibert). M. R. Lichtenstein, Chicago—p. 214.

Healing of Tuberculous Cavities. Study of Cavities in a Middle Age Group. L. H. Fales and E. A. Beaudet. Livermore, Calif.—p. 225.

**Artificial Pneumothorax in Tuberculous Diabetic Patients**—Wiener and Kavee treated twenty-six cases of active pulmonary tuberculosis complicated by diabetes mellitus with artificial pneumothorax. The cases chosen for treatment had active pulmonary tuberculosis with tendencies to progression and, with a single exception, were febrile. The age incidence of their patients closely approximated that observed in diabetic patients in the general population. In nineteen the left and in ten the right lung was collapsed. This number includes one in whom a bilateral pneumothorax was induced. The lesions were in the main those which have been described as the diabetic type best elicited with the aid of roentgenography. In the twenty-six cases, marked immediate improvement was noted in nine, slight symptomatic improvement in five, and no improvement in twelve cases, in three of which a free pleural space could not be found. The nine patients who showed marked immediate improvement are still alive and in excellent condition. Of these, six had bilateral lesions. They have been well for periods varying from twenty months to nine years. Of the five patients in whom only slight symptomatic improvement was noted soon after the initial induction, four died within a period of from five to nineteen months and one cannot be traced since he left the hospital. Eleven of the twelve patients who showed no improvement died within one and twenty months after the induction. The other patient did not improve at first, but subsequently, after the appearance of a massive effusion collapsing the lung quite completely, the course became afebrile and the disease quiescent. Improvement was often dramatic, with cessation of hemorrhage, decline of fever, and diminution of cough and quantity of sputum. The usual complications that occur following collapse therapy were observed just as frequently as in the nondiabetic tuberculous patient.

**Quantitative Intracutaneous Tests in Tuberculosis**—Lichtenstein performed quantitative intracutaneous tests with tuberculin TPT (Seibert), the precipitated skin-reactive protein fraction from synthetic-medium tuberculin, on practically all the adults in the Chicago Municipal Tuberculosis Sanitarium within a period of a few weeks, with a view to determining the reliability of the product, the proportion of sensitive and nonsensitive patients and the relation of the level of skin sensitivity to various associated factors. Practically all the tuberculous patients reacted to TPT (Seibert) intracutaneously, with the exception of a few on the verge of death. 97.7 per cent reacted to the 1:1,000 dilution. Two thirds of those who did not react to this dilution were moribund. About one third (all of whom reacted to the 1:100 dilution) are still alive six months later. Quantitative studies indicate that skin sensitivity is progressively depressed with advancement of the lesion, with an increasing duration of the disease and with an increasing severity of the symptoms. Skin sensitivity is progressively increased with increasing degrees of lung compression. No evidence was found that allergy influences immunity. It seems rather that immunity indirectly influences allergy through the liberation of antigen.

### Archives of Dermatology and Syphilology, Chicago

30 177 336 (Aug.) 1934

\*Follicular Lesions in Vitamin A and C Deficiencies. M. Scheer and H. Keil. New York—p. 177.

Pigmented Mycotic Growth Beneath the Nail. W. J. Young. Louisville, Ky.—p. 186.

Value of Kline Precipitation Test for Detection of Syphilis in Applicants for Life Insurance. C. R. Rein and Marguerite Le Moine, New York—p. 190.

\*Rare Sweat Gland Tumor. Syringocystadenoma Nodularis. R. L. Sutton Jr., Kansas City, Mo.—p. 195.

Cutaneous Diphtheria in Congenital Syphilis. Report of Case. M. H. Cohen, York, Pa.—p. 207.

\*Neurocutaneous Syndrome. Congenital Ectodermoses. G. V. Kulchar. San Francisco and L. E. Anderson, Philadelphia—p. 211.

Pachyonychia Congenita. Jadasohn Variety of Ichthyosis (Pachyonychia Ichthyosiformis). Involving Chiefly the Nails. T. A. Diasio. New York—p. 218.

Dermatomyositis and Diffuse Scleroderma. Differential Diagnosis and Reports of Cases. W. G. Brock. Winnipeg, Manit.—p. 227.

American Leishmaniasis. Further Observations. H. Fox. New York—p. 241.

New Cleansing Cream. J. G. Downing. Boston—p. 243.

Early Nineteenth Century Dermatology and the Brothers Mahon. T. Rosenthal. New York—p. 245.

Polynuritis Following Neosphenamine Therapy. Report of Case with Associated Exfoliative Dermatitis. F. Kellogg and A. N. Epstein. San Francisco—p. 251.

Superficial Pustular Folliculitis of the New Born. S. Irgang and E. R. Alexander. New York—p. 257.

Recent Changes in Dermatologic Diagnosis. Resume of 1112 050 Published Cases. A. W. Solrweide. New York—p. 260.

**Follicular Lesions in Vitamin A and C Deficiencies**—Scheer and Keil report two cases of scurvy in adults, in which follicular lesions were present. In one instance the resemblance of the lesions to those described in vitamin A deficiency was striking, in the other the characteristic perifollicular papule of scurvy revealed such striking differences as to warrant separation from the lesion observed in vitamin A deficiency, in which the fundamental pathologic change seems to be in the epithelium, resulting in hyperkeratosis of the epidermis and of the hair follicles. The lesion is not accompanied by inflammatory changes in the cutis (except secondarily), and, most important, hemorrhage does not seem to occur. Ulceration appears to depend on the lowered resistance of the tissues in patients who are undernourished. On the other hand, the fundamental process in scurvy resides in the capillaries of the upper cutis in the region of the hair follicles. As a secondary result the hyperkeratosis is mainly limited to the hair follicles. Early in the process, hemorrhage of a minor degree occurs interstitially. This is, however, not always clinically discernible. In the authors' second case, the dull red color of the papule was explained by the congestion in the perifollicular capillaries and the moderate interstitial hemorrhage. When the hemorrhage becomes sufficiently intense the typical perifollicular petechia of scurvy results. This was artificially accomplished in the second case by means of the tourniquet test, in which the maximal capillary fragility was demonstrated to be almost entirely confined to the perifollicular vasculature. The early occurrence of a positive tourniquet test, which becomes negative when the disease is properly treated, illustrates the point that vascular damage is the fundamental pathologic process in scurvy.

**Rare Sweat Gland Tumor Syringocystadenoma Nodularis**—Sutton cites a case in which discrete nodules appeared unilaterally on the neck of a woman, aged 45. Histologic examination led to a diagnosis of a rare form of tumor of the sweat glands. The origin in the sweat glands was postulated on the observations that the tumor was of two-layered epithelial cylinder structure and that less highly evolved nodules of syringoma occur at the periphery of larger nodules. The basic architectonic scheme of the nodules in this case is the secretory tubule surrounded by neoplastic proliferation of sheath cells. It is conjectured that a sudoriparous neoplasm with the growth urge emphasized on the secretory cell layer produces the classic syringocystadenoma, while, if sheath cells are predominately active, firmer, larger nodular growths occur, as seen in this case and in that of Paul and Adamson. The case described is an instance of tumor of the sweat glands, microscopically cystic and alveolar in structure, and clinically nodular in appearance, it is properly named syringocystadenoma nodularis.

**Neurocutaneous Syndrome Congenital Ectodermoses**—Kulchar and Anderson present a case that does not conform to any of the three heretofore recognized types of the neurocutaneous syndrome. The widespread distribution of the congenital anomalies involving the face, extremities, spinal cord and probably the brain is the most unusual feature. The occurrence of the nevi on the extremities in association with changes in the central nervous system is infrequent in the heretofore reported cases of the neurocutaneous syndrome. Cobb reported a somewhat similar case in which the nevi were few and small, while the lesion of the spinal cord was localizable at the level of the same metamere. In their case the authors assume, in view of the wide distribution of the nevi and the signs indicating an extensive abiotrophy or a gliosis of the central nervous system, that the malforming factor must have become operative before the ectoblast had reached any considerable degree of differentiation. Skeletal anomalies such as the patient presented were reported by Goodhart as occurring in von Recklinghausen's neurofibromatosis. Brooks and Lehman cited scoliosis as being among the characteristic changes in the bone in von Recklinghausen's disease. Whether the scaphocephaly, dactylomegaly, syndactylism and scoliosis noted in the patient are analogous changes must remain conjecture, but it is possible that a malforming factor becoming operative early in the stage of embryogenesis might result in skeletal anomalies. The possibility that lowered mentality in the patient may be the result of Bourneville's tuberous sclerosis involving the cortex of the frontal lobe must await confirmation at necropsy. Under the classification of Yakovlev and Guthrie the neurocutaneous syndrome, or the "congenital ectodermoses" as they term them, may be divided into (1) von Recklinghausen's neurofibromatosis, (2) Bourneville's tuberous sclerosis and (3) the encephalotrigeminal vascular syndrome (angiomatosis of the brain associated with cutaneous nevi in the area of trigeminal distribution).

### Archives of Ophthalmology, Chicago

12 157 306 (Aug.) 1934

- Divergence Excess A. Bielschowsky, Breslau, Germany—p 157  
Swelling of Nerve Heads with Arachnoiditis and Unusual Changes in Visual Fields E. B. Spaeth, Philadelphia—p 167  
Ophthalmomyiasis Subretinalis M. C. Ennema, Amsterdam, the Netherlands—p 180  
Acquired Cysts of the Sclera M. N. Beigelman, Los Angeles—p 183  
Tumor of Orbit in a Case of Osteochondrofibrosarcomatosis I. Goldstein and D. Wexler, New York—p 201  
Visual Field Defects in Pregnancy C. E. Finlay, Havana, Cuba—p 207  
Some Principles of Plastic Surgery of Eyelid with Especial Reference to the Hungarian School D. Katz, Chicago—p 220  
Use of Fundus Colorimeter L. L. Mayer, Chicago—p 228

**Tumor of Orbit in Osteochondrofibrosarcomatosis**—Goldstein and Wexler report a case of sarcoma in an orbital bone in the presence of a similar growth in other parts of the body, which differs from the few reported instances of metastatic orbital sarcomas in that it is not possible to point with accuracy to the primary source of the new growth. Except for the invasion of adjacent muscle tissues by the tumor, the growth was confined to separate skeletal bones. Although the first symptoms pointed to a primary growth in the dorsal spine, the possibility of a more or less simultaneous involvement of the bones concerned, i. e., multiple sarcomatosis, could not be ruled out with certainty. Such a diagnosis was supported by the

embryonic character of the cellular and fibrous tissues in all the masses studied and by the presence of immature cartilage and bone. It appears that undifferentiated tissues in these various areas received suddenly a stimulus to grow and assumed the proportions of malignant tumors.

### Journal of Lab and Clinical Medicine, St. Louis

19 1151 1256 (Aug.) 1934

- Glutathione Content of Blood in Chronic Arthritis and Rheumatoid Conditions B. D. Senturia, St. Louis—p 1151  
Pneumococcus Chain Formation Its Relation to Virulence in Mice Occurrence and Distribution by Pneumococcus Types in Human Respiratory Infections, and Its Relation to Prognosis in Lobar Pneumonia J. G. M. Bullowa and Clare Wilcox, New York—p 1156  
Observations on Oxygen Therapy L. N. Katz, Chicago—p 1164  
Dietary Treatment of Undernutrition II Effect of Gain in Weight on Carbohydrate Tolerance M. S. Brown and Elaine P. Ralli, New York—p 1169  
Gaging Dose of Insulin B. Y. Glassberg, St. Louis—p 1173  
Sodium Taurocholate and Virulence of Human Tubercle Bacilli H. J. Corper, M. L. Cohn and V. J. Hoper, Denver—p 1179  
VII Autonomic Imbalance in Animals J. B. Wolfe, Philadelphia—p 1184  
Intravenous Lethal Doses of Amytal in Dog and Rabbit and Table of Animal Dosages Compiled from Literature H. G. O. Holck and M. A. Kanan, collaboration by H. Homma, Beirut, Lebanon, Syria—p 1191  
Velocity Factor in Blood Transfusion T. K. Rathmell and W. J. Crocker, Philadelphia—p 1206  
Value of Monkey for Study of Laxative Activity of Phenolphthalein Especially in Comparing Different Samples of Drug E. F. Williams Jr., E. W. Abramowitz and J. A. Killian, New York—p 1213  
Fungicidal Power of Phenol Derivatives I Effect of Introducing Alkyl Groups and Halogens G. J. Woodward, Milton, Ore., L. B. Kingery, Portland, Ore. and R. J. Williams—p 1216  
Observations on Technique of Friedman Test for Pregnancy A. M. Young, Cleveland—p 1224  
Improved Electrode for Measurement of Potentials on Human Body T. W. Forbes, New York—p 1234  
Simplified Psychodimeter R. H. Cheney, Brooklyn—p 1238  
Modification of Hill's Radiopaque Mass for Injection of Lumens E. J. Poth, San Francisco—p 1241

**Pneumococcus Chain Formation**—Bullowa and Wilcox describe the phenomenon of chain formation in pneumococci and its association with "rough" colonies and lowered virulence for mice. The occurrence of chainwise growth of pneumococci in severely ill patients suggests the possibility that the infection may be due to some other organism, either a streptococcus or a pneumococcus of another type. Chainwise appearance occurring in pneumococci recovered from the blood should not be a deterrent to the use of available specific serum, as the appearance of chain formation may be due to a partial protection in the blood. This protection may become exhausted. The cases for the most part appear to be less severe than pneumonias due to pneumococci that do not form chains.

**Dietary Treatment of Undernutrition**—The use of insulin to increase the weight of persons who are underweight seems to Brown and Ralli to be unnecessary, except for the occasional patient who lacks the appetite to eat a high calory diet. Aside from the inconvenience there is the possibility of hypoglycemia, hyperglycemia and glycosuria. The ability of a person to gain weight depends on his taking in more energy than he puts out. That this can be accomplished by means of a high calory diet the authors show by a group of six subjects and a group reported previously. The chief effect of insulin in undernutrition is its ability to stimulate the appetite. This makes it easier for the patient to eat a large amount of food. The gain in weight is due to the increased caloric intake. If the patient does not eat, insulin will not increase the weight. The authors had under treatment a patient 23 years of age to whom insulin was given three times daily before meals, 10 units before breakfast, 15 before lunch and 15 before supper. The patient had hypoglycemic reactions almost daily, but an increased appetite was not experienced. She refused to eat the entire diet and during a period of three weeks gained exactly 4 pounds (17 Kg). When one considers that an impaired tolerance for carbohydrate may follow the use of insulin in nondiabetic persons and since a satisfactory gain of weight will follow the ingestion of a high calory diet, it seems that the indiscriminate use of insulin in undernutrition is inadvisable.

**Modification of Radiopaque Mass for Injection of Lumens**—Poth believes that bismuth oxychloride makes a satisfactory substance for injection of lumens, not only because of the high atomic number of bismuth and its consequent opacity

to  $\gamma$ -radiation but also because of the physical properties of the compound. The bismuth oxychloride used is extremely finely ground and will assume definite physical properties when suspended and ground in acacia solutions. After such a suspension has been ground for some hours in a jar mill, the particles arrange themselves in chains less than half a micron thick and from 3 to 4 microns long. On standing for fifteen minutes the chains arrange themselves into spherical rosetts about 8 microns in diameter. No larger particles are formed regardless of the density of the suspension, except on long standing. The greatest density of any mass suggested by Hill contains 0.4 Gm of bismuth oxychloride per cubic centimeter and, as he states this is a paste. By the method of preparation that the author presents, the most satisfactory mass for arterial injection contains 0.5 Gm per cubic centimeter and has the consistency of a thin cream. Injection of this material at a pressure equal to the normal blood pressure of the animal usually gives satisfactory visualization of the arterial tree, extending out to minute arterioles without the fogging attendant on capillary shadows. In the preparation of the mass, the proportion of acacia to bismuth oxychloride taken is 1:2. The quantity of water varies with the density of suspension desired. The unmixed ingredients are placed in a glass fruit jar or ball mill crock one-third filled with ordinary glass marbles. This is placed on a ball mill, such as is commonly used by chemists for grinding materials extremely fine, and is allowed to grind for from two to three days. These suspensions are still unstable and will settle out appreciably after standing several days, and so it is advisable to regrind for an hour or two before making injections.

### Journal of Pediatrics, St. Louis

5 139 290 (Aug.) 1934

- \*Reduction of Premature Infant Mortality Through Estimation of Fetal Weight in Utero and Results of Analysis of Influence of Various Obstetric Factors on Viability of Nine Hundred and Fifty Eight Premature Infants. S. H. Clifford. Boston—p. 139.
- \*Occurrence of Streptococcus Hemolyticus in Throats of Children in Hospital Wards. I. B. Burgin and H. L. Higgins. Boston—p. 156.
- Gonad Stimulating Hormones from Pituitary and from Human Urine. P. E. Smith and E. T. Engle. New York—p. 163.
- Osteomyelitis Among Children. S. Amberg and R. K. Ghormley. Rochester, Minn.—p. 177.
- Standards of Physical Development for Reference in Clinical Appraisal. Suggestions for Their Presentation and Use. H. C. Stuart. Boston—p. 194.
- The Pediatrician and the Rural Child Health Program. J. H. M. Knox, Jr. Baltimore—p. 210.

**Reduction of Premature Infant Mortality**—Clifford suggests that the premature infant mortality may be reduced through knowledge as to the probable weight of the fetus in utero and as the result of an analysis of the influence of various obstetric factors on the viability of premature infants. From a study of 958 premature infants the author concludes that: 1 The viability of the fetus does not appear to be influenced directly by the complication of pregnancy present in the mother. However, it is affected indirectly by what that complication does to the placental circulation and by the method selected for the treatment of that complication. 2 The future of the premature infant is tremendously affected by the method chosen for its delivery, in general, delivery by the present technic of cesarean section or breech extraction is accompanied by a much higher infant mortality than is vertex delivery assisted by the application of low forceps. 3 The premature infant mortality is greatly increased by the maternal administration of morphine within four hours of delivery. The author feels that the practical application of these factors during the past year has contributed to the following results: 1 The general stillbirth rate was reduced from a ten-year level of 69 per thousand deliveries to 47 per thousand for 1933. 2 The incidence of premature infants alive at birth increased from an average of 27.6 for the preceding ten years to 34.7 per thousand deliveries for 1933. 3 The number of premature infants weighing from 4 to 5 pounds (1.8 to 2.3 Kg.) increased from an average of 52 per cent for the preceding ten years to 61 per cent for 1933. 4 The premature infant gross mortality dropped for the first time in five years from a level at 35 per cent to 29 per cent. The mortality rate for infants weighing from 3 to 4 pounds (1.4 to 1.8 Kg.) was reduced from 40 per cent for the preceding ten years to 24 per cent for 1933.

**Streptococcus Hemolyticus in Throats of Children in Hospital Wards**—Burgin and Higgins observed that there is considerable variation in the incidence of Streptococcus hemolyticus carriers in the ward of a hospital from week to week during the fall and winter season. There appears to be a monthly peak in the incidence of carriers. In these observations two peaks of greater magnitude than the others occurred in November and March. This may be an indication of an epidemic respiratory infection in the whole community at that time. Members of the nursing staff tend to become carriers at the "peak" periods. The incidence of carriers among 178 children was 43.8 per cent and was about as common in a room of noninfectious eye cases as in rooms with many operative mastoiditis cases. The carrier rate among patients with tonsils was higher than among those without tonsils. There is no characteristic appearance of the carrier's throat that makes diagnosis possible without culture.

### Journal of Thoracic Surgery, St. Louis

3 553 670 (Aug.) 1934

- Development of Lobectomy and Pneumectomy in Man. G. J. Heuer. New York—p. 560.
- \*Effect of Sudden Occlusion of Either Primary Branch of Pulmonary Artery on Cardiac Output and Pulmonary Expansion. R. L. Moore, G. H. Humphreys and H. W. Cochran. New York—p. 573.
- Surgical Treatment in Fourteen Cases of Mediastinal or Intrathoracic Perineural Fibrosarcoma. S. W. Harrington, Rochester, Minn.—p. 590.
- Pleural and Pulmonary Lesions Resulting from Intrapleural Injection into Rabbits of Mycobacterium Tuberculosis. W. S. Lemon and I. G. Montgomery. Rochester, Minn.—p. 612.
- \*Chemical Destruction of Periosteum in Treatment of Chronic Empyema. A. Jachur. Turin, Italy—p. 623.
- \*Treatment of Pulmonary Tuberculosis by Bronchial Occlusion. Experimental Study. W. E. Adams and A. J. Vorwald. Chicago—p. 633.

**Effect of Sudden Occlusion of Pulmonary Artery on Cardiac Output**—Moore and his co-workers observed that the total circulation can be shunted through either lung in anesthetized dogs without any significant change in cardiac output. The decrease in cardiac output that has been observed after complete occlusion of one primary bronchus is not due to resistance to the passage of blood through the atelectatic lung. The expansion of a lung is affected by its pulmonary circulation, decreasing when the pulmonary circulation is interrupted and increasing when the pulmonary circulation is increased.

**Chemical Destruction of Periosteum in Treatment of Chronic Empyema**—On the basis of his experiences in fifty cases of severe fistulous postpneumothoracic empyema, Jachur concludes that the Schede method is too complicated and severe so that it cannot be used for all patients. In the cases in which recovery is obtained, the result is secured only at the cost of numerous interventions with long residence in hospitals. The thoracic resection of Schede is really adapted for the treatment of empyemas occupying only a part of the hemithorax. The Estlander procedure, however, allows the operator to stay away from the infected pleura and is in itself a less severe operation and surgically more nearly correct because it involves only zones that are not infected. But the Estlander method, when used for tuberculous patients, does not always give the desired result. The use of Zenker's solution prevents the new formation of bone, being nonoffensive, it does not disturb the regular cicatrization of the operative wound, and it facilitates appreciably the radical therapy of chronic empyemas.

**Treatment of Pulmonary Tuberculosis by Bronchial Occlusion**—According to Adams and Vorwald, atelectasis of pulmonary tissue brought about by bronchial occlusion exerted a favorable influence on experimental pulmonary tuberculosis in dogs, whether induced by hematogenous or bronchogenic infection or by direct inoculation. Tubercles in the collapsed lobes were in general small and almost free from bacilli, whereas in inflated lobes in the same animals they tended to be large, often confluent, caseous, and rich in acid-fast bacilli. The favorable effect in the collapsed lobes increased with the duration of the collapse and in some cases amounted to a complete cure of the disease. This beneficial influence may be attributed to several factors: absolute rest, decrease in oxygen and increase in carbon dioxide. Tuberculous lesions were produced with routine regularity either by hematogenous or bronchial infection or by direct inoculation, and the influence of

collapse on these lesions could be extremely well evaluated. Little difficulty was encountered in producing complete stenosis of a bronchus not discharging pus. When a discharge was present, repeated applications of the cautery were necessary to effect complete occlusion. Bronchi closed in man as readily as in dogs. Little or no reaction attended the application of the cauterizing agent in human cases.

## Medical Annals of District of Columbia, Washington

3 211 232 (Aug.) 1934

- Neurosyphilis from the Standpoint of the Ophthalmologist G V Simpson Washington —p 211  
Neurosyphilis from the Standpoint of the Otologist V R Alfaro Washington —p 215  
Treatment of Neurosyphilis T C C Fong, Washington —p 217  
New Treatment for Prostatic Calculi. Report of Case in Young Man with Removal by Means of Resectoscope A Belt Washington —p 222

## Michigan State M. Society Journal, Grand Rapids

33 409 478 (Aug.) 1934

- Acute Perforated Peptic Ulcer. Summary of Two Hundred and Eleven Cases of Acute Perforated Gastric and Duodenal Ulcers H K Shavan Detroit —p 434  
Parotitis Nodosa. Case Reports I J Hauser Ann Arbor —p 440  
Conservative Treatment of Placenta Praevia W F Seeley Detroit —p 445  
Present Status of Endocrine Diagnosis R L Schaefer Detroit —p 449  
Nocturnal Enuresis A H Steele Northville —p 455  
Treatment of Primary Dysmenorrhea L E Bauer Detroit —p 459  
Autonomic Nervous System in Its Relation to the Ophthalmologist and the Otolaryngologist W E McGarvey Jackson —p 462  
Surgical Judgment C D Brooks Detroit —p 465  
Oblique Fracture Through Head of Femur with Posterior and Upward Dislocation of Shaft. Its Treatment by Closed Method. Case Report F MacKenzie Detroit —p 469

## Military Surgeon, Washington, D. C.

75 57 112 (Aug.) 1934

- Relation of Iodine to Effectiveness of Endocrine Extracts F E Chidester —p 57  
Treatment of Diabetes Mellitus J R Darnall —p 68  
Perforation of Intestines by Foreign Bodies B S McClintic —p 75  
Automatic Flushing Latrine R Berman —p 79

## New England Journal of Medicine, Boston

211 237 288 (Aug. 9) 1934

- Symptoms as Measurement of Tuberculous Activity H S Wagner Pocasset Mass —p 237  
Physical Signs as Measure of Activity in Pulmonary Tuberculosis F H Hunt Writapan Mass —p 239  
Ray in Measurement of Activity in Pulmonary Tuberculosis O S Pettingill Middleton, Mass —p 240  
Analysis of Quantitative Tuberculin Test as Index of Tuberculous Activity T L Badger and W K Myers Boston —p 241  
Leukocytic Picture as Aid in Measurement of Activity in Pulmonary Tuberculosis J Kaminsky Waltham Mass —p 245  
\*Monocyte-Lymphocyte Ratio as Measurement of Activity in Pulmonary Tuberculosis Gull Lindh Muller, with technical assistance of Doris L. Davidson, Rutland Mass —p 248  
Schilling Differential Count and Red Cell Sedimentation Rate as Measurement of Activity in Pulmonary Tuberculosis J W Cass Jr with technical assistance of Margaret Sutermeister, Boston —p 252  
Discussion and Summary of the Whole Problem with Especial Reference to the Study of the Leukocyte Count in Pulmonary Tuberculosis W H Ordway Mount McGregor N Y —p 260  
Phenobarbital Poisoning B P Haubrich Claremont N H —p 264  
Bone Tumors. Report of Two Cases of Benign Giant Cell Tumors H L Taylor Portsmouth N H —p 267  
Obstetrics in General Practice. Review of One Thousand Cases B F Macchia, Boston —p 273

**Monocyte-Lymphocyte Ratio as Measurement of Activity in Pulmonary Tuberculosis**—To determine whether the monocyte-lymphocyte ratio is of any practical aid in evaluating activity in pulmonary tuberculosis, Muller analyzed the blood counts of 800 consecutive admissions at the Rutland State Sanatorium. The counts were all made by one person on fixed coverslip smears, according to standard procedures. Among the 800 admissions there were 730 cases of pulmonary tuberculosis, thirteen cases of childhood type and, as a rule, inactive tuberculosis, seven cases of pleurisy with effusion and fifty nontuberculous cases. The monocyte-lymphocyte ratio of the 730 patients has been correlated with various factors: the stage of the disease, prognosis, temperature and pulse during the first week after admission and the results obtained during the time of observation. In the group classified as minimal tuberculosis

or stage I, the greatest number of cases showed a normal or nearly normal ratio, and no patient was classified as having minimal tuberculosis with a ratio of more than 0.9. The cases classified as stage II, or moderately advanced, show the same trend as those of stage I, while the proportion of far advanced cases, or stage III, gradually increased with the ratio to a total of 94 per cent when this ratio reached 1.25 or more. Comparing clinical judgment with the objective observation of the monocyte-lymphocyte ratio, there was a surprisingly close correlation between these factors. The number of patients given a favorable prognosis decreased as the ratio increased and vice versa. During the first week in the sanatorium 189 per cent of the patients had elevated temperature and 51.3 per cent increased pulse rate in the group with normal monocyte-lymphocyte ratio. The proportion of patients having an elevated temperature and pulse rate above normal increased progressively with the ratio but did not reach 100 per cent in any one group. In the group of 111 patients having a normal monocyte-lymphocyte ratio, 88.2 per cent improved. As the percentage of improving cases decreased, the monocyte-lymphocyte ratio increased. It also increased proportionally to the increasing number of unimproved or fatal cases. That some patients having tuberculosis will have a normal monocyte-lymphocyte ratio is illustrated. In the group of patients giving a monocyte-lymphocyte ratio of 1 or more sixteen improved. In the presence of a high ratio a favorable prognosis is not always justifiable, although, from the results obtained, a high ratio must be considered with grave concern. A high ratio may be accounted for by various factors, the nature of which must be carefully studied in order to avoid misleading interpretation. Into this category enters an acute onset with a cold, bronchopneumonia, pneumonia or pleurisy. Successful active therapy may also bring about a rapid change in the monocyte-lymphocyte ratio. However, 25 per cent of the patients with a ratio of more than 1 died within three months. All stages of activity were represented between the groups with normal and high ratios.

## Northwest Medicine, Seattle

33 263 300 (Aug.) 1934

- Functional Uterine Hemorrhage with Especial Reference to Hyperplasia Endometrii and Relation to Menstruation. Consideration of Its Etiology. Treatment K H Martzloff Portland Ore —p 263  
\*Pruritus Vulvae, Chronic Vulvitis and Leukoplakic Vulvitis (Kraurosis Vulvae). Treatment by Alcohol Injection W M Wilson Portland Ore —p 268  
Value of Sympathectomy in Treatment of Hirschsprung's Disease. Cord Bladder and Dysmenorrhea A W Adson Rochester Minn —p 276  
Relationship Between Trauma and Disease. Compensation Problem R C Schaeffer Tacoma, Wash —p 278  
Responsibility of State and Local Government in Matters of Health P W Covington Salt Lake City —p 282  
New Anal Retractor G R Marshall Seattle —p 284  
Unreliability of Single Vaccination of Dogs Against Rabies K Winslow, Seattle —p 284  
Melanoma (Melanotic Sarcoma). New and Original Treatment W C Spedel Seattle —p 285

**Treatment of Pruritus Vulvae by Alcohol Injection**—Wilson applied the alcohol injection method of Stone for the treatment of pruritus and in five cases of pruritus vulvae, four cases of pruritus vulvae with chronic vulvitis, one case of pruritus vulvae with chronic hypertrophic ulcerative vulvitis, and five cases of pruritus vulvae with leukoplakic vulvitis. The vulva is as carefully prepared as it would be for surgery. The patient is then anesthetized, general anesthesia or intradermal infiltration (procaine 2 per cent) being used. The alcohol is injected with a 2 cc hypodermic syringe calibrated in minims. The needle is inserted perpendicular to and through the skin so that the alcohol will be deposited just beneath the dermis. Only 3 or 4 minims (0.2 or 0.26 cc) of 95 per cent alcohol is injected at a single insertion of the needle. The number of injections for any one structure or area depends on the extent of the itching, the age of the patient and the condition of the peripheral circulation as well as the estimated efficiency of the circulation of the part to be injected. When the skin is in fair condition and the circulation seems unimpaired, one may inject as much as 4 minims of alcohol into every square centimeter of the itching areas. When the skin is much thickened or excoriated or the circulation is impaired, the injections must be made at wider intervals and only 2 or



administration on two occasions. The drug had no effect whatever on hookworms and tapeworms. *Oxyuris* is easily expelled by such purgative drugs as mild mercurous chloride and salts, but the number expelled when these were combined with *Vernonia anthelmintica* was considerably larger.

### Journal of State Medicine, London

42 435 496 (Aug.) 1934

- Veterinary Medicine and Agriculture from a Farmer's Standpoint Q. E. Gurney—p. 435  
Bacterial Carriers G. P. C. Claridge—p. 438  
Serologic Observations from Cases of Cancer Under Treatment E. C. Lowe—p. 444  
Organization of Treatment of Motor Accidents Maud Frances Lorrester Brown—p. 462  
Hygiene of Refuse Disposal by Controlled Tipping H. L. Oldershaw—p. 480  
Welfare and Safety of Laundry and Other Hospital Workers C. O. Stallybrass—p. 491

### Lancet, London

2 233 290 (Aug. 4) 1934

- Some Observations on Industrial Dermatitis Sibyl G. Horner—p. 233  
Clandular Fever and Infectious Mononucleosis H. L. Tidy—p. 236  
\*Basophil Adenoma of Pituitary Gland: Two Cases Dorothy S. Russell, H. Evans and A. C. Crooke—p. 240  
Some Points in the Treatment of Rheumatic Diseases C. W. Buckley—p. 246  
Bacillary Dysentery of the Newcastle Type II Whitehead note on bacteriology by W. M. Scott—p. 248  
\*Treatment of Bronchial Asthma by Dorsal Perisymphathetic Injection of Absolute Alcohol G. L. L. Levin—p. 249  
Secondary Carcinoma of the Myocardium E. M. Ward—p. 250  
Antihemolysin Titers in Chronic Rheumatic and Allied Diseases G. J. Griffiths—p. 251  
Explosive Eructation T. East—p. 252

**Basophil Adenoma of Pituitary Gland**—Russell and her associates describe two fatal cases in which a basophil adenoma of the pituitary gland was suspected at necropsy because of the physical appearance of the subjects and the presence of a conspicuous degree of cardiovascular hypertrophy. In the first case the possibility of a pituitary tumor had been considered at an early stage of the illness on account of the severe headache, obesity and impotence but was abandoned when the roentgen examination was negative. After that the case was regarded as one of essential hypertension. Finally, the observation of albuminuric retinitis suggested the presence of a malignant hypertension (*nephritis repens*), and this suspicion was later justified by the manner of death. Several of the principal clinical features of Cushing's syndrome could be identified: the obesity of peculiar distribution associated with abdominal striae, hypertension, plethora, skin hemorrhages and impaired sexual function. The obesity was, however, transitory. The skin hemorrhages were terminal and were doubtless due to the nephritis. Certain changes claimed as part of the syndrome were lacking—osteoporosis and skeletal deformities, glycosuria and hypertrichosis. In the second case repeated albuminuria of pregnancy was associated with raised blood pressure without nitrogen retention. Cardiovascular hypertrophy, obesity and a moderate degree of hypertrichosis were the only physical features suggesting pituitary adenoma. The obesity had been present for at least nineteen years. This and the general distribution of adipose tissue over the trunk and limbs are deviations from Cushing's syndrome in which the fat is acquired rapidly at a shorter period before death and spares the limbs. Abdominal striae were present but may have been due to the previous pregnancies. There was no amenorrhea. The patient did not complain of aches and pains. They believe that these two cases, considered in conjunction with those reported elsewhere, suggest that the correlation between basophil adenoma, obesity and persistent high blood pressure is close. They show that the correlation, if it exists, is between basophil adenoma and high blood pressure as such, and not between basophil adenoma and chronic Bright's disease.

**Treatment of Asthma by Dorsal Perisymphathetic Injection of Alcohol**—Levin injected absolute alcohol into the bronchial sympathetic nerves in the treatment of sixteen patients suffering from bronchial asthma, the majority of whom were thought to be so-called incurables. In ten cases there was complete relief after four to eight injections, in one case there was sufficient improvement after two injections

for the patient to discontinue treatment, in three cases there was considerable improvement after two or three injections and in two cases the improvement was only slight. For the injection the patient is seated leaning forward, the hands resting on the knees, the spine is arched backward and the tips of the shoulders are drawn in so as to allow the maximal retraction of the scapulas. A point is selected 4 cm. away from the spine, preferably in the third, fourth, fifth or sixth intercostal spaces. A few drops of procaine hydrochloride is injected intradermally so as to raise a wheal, the needle carrying the absolute alcohol is introduced perpendicularly just above the space to be injected down to the inferior margin of the rib, as soon as the rib is felt the needle is directed slightly downward and 45 degrees forward and inward to the depth of about 2 cm. away from the lower margin of the rib. The point of the needle is now between the external and internal intercostal muscles. The needle is pushed slightly farther inward toward the spine and about 2.5 cc. of absolute alcohol is slowly injected, the position of the needle being altered slightly for each spurt. Usually a sharp pain is felt in two or three interspaces immediately below the site of injection. Two or three intercostal nerves can be dealt with at the same sitting. The only possible complication is injury to the pleura. The entry of the needle into the pleural cavity can be observed by the thick velvety feel of the pleura and by a hissing noise due to the entry of air, therefore it is preferable to introduce the needle alone without the syringe. In doubtful cases the needle should be connected with a manometer, and the presence or absence of respiratory excursions of mercury will show whether the needle is or is not in the pleural cavity.

### Medical Journal of Australia, Sydney

2 105 138 (July 28) 1934

- Treatment of Emergencies in Cardiac Disease M. C. Lidwell—p. 108  
Cause of Death: Abstract of Five Hundred Consecutive Necropsies J. V. Dubig—p. 112

### Nourrisson, Paris

22 209 272 (July) 1934

- Conception of Lymphatism A. B. Marfan—p. 209  
\*Emesis of Early Infancy: Disappearance in Certain Positions L. Ribadeau-Dumas and Mlle. Barnaud—p. 226  
Physiopathology of Denutrition of Nursing L. Garot—p. 239

**Emesis of Early Infancy**—Ribadeau-Dumas and Barnaud report four cases of vomiting in infants, which disappeared when the infants were placed in certain positions. In the first case, serious vomiting and emaciation continued until the child was placed prone on the abdomen until the end of digestion. Vomiting reappeared when the infant was placed on the back again. The second case was complicated by a concurrent infection. The authors believe that the vomiting in the first two cases was due to compression of the third portion of the duodenum by the superior mesenteric artery. In the third case it appeared to be due to pressure on the stomach from a syphilitic hypertrophy of the liver and spleen. After mercury rubs the infant was able to eat in any position. In the final case lying on the left side caused a cessation of vomiting, and the authors believe that the cause of vomiting was poor gastric peristalsis.

### Presse Médicale, Paris

42 1065 1088 (July 4) 1934

- \*Treatment of Erythremia (Vaquez's Disease) with Phenylhydrazine H. Vaquez and M. Mouquin—p. 1065  
\*Treatment of Tuberculous Hemoptysis by Subcutaneous Injections of Oxygen A. Courcoux—p. 1068  
Diagnosis of Hyperthyroidism by Electrical Test P. Samton and Lamy—p. 1069

**Treatment of Erythremia**—Vaquez and Mouquin discuss the treatment of erythremia with phenylhydrazine. The principal objection to the use of phenylhydrazine, that of its toxic effects, they believe exaggerated and largely due to overdosage. The effects on the kidney, spleen and liver are almost always transitory. This was true at least in their own cases. Venous thrombosis is not rare in the course of erythremia and cannot be definitely assigned to the treatment. They have never observed it, but the two fatal cases analyzed by Giffin and Conner showed faulty technique. Treatment with phenylhydrazine

should have the double object of bringing the erythrocytes to a normal number and then maintaining them there. The dose required for these two purposes naturally differs. They introduce treatment by giving phenylhydrazine hydrochloride in a dose of from 0.05 to 0.1 Gm, depending on the weight of the patient and the degree of polycythemia. On the fourth day the blood is examined and if there is no change the dose is increased by 0.05 Gm for another period of four days, when the procedure is repeated. It is wise, even with apparent therapeutic failure, to suspend medication after the patient has taken a total of 3 Gm. When the count has reached the desired level, they give from 0.1 to 0.2 Gm per week on one, two or three consecutive days. When the proper dose has been determined for the individual, it is kept at this level since there is no habit formation. In occasional cases apparently permanent cures result. They cite one such in which the erythrocytes remained normal without phenylhydrazine for eighteen months.

**Treatment of Tuberculous Hemoptysis**—Courcoux followed up the observations of Ravina, Benzaquen and Bibas on the effect of subcutaneous injection of oxygen on stopping pulmonary hemorrhage. He systematically injected oxygen subcutaneously in thirty-four cases of hemoptysis. The technic was simple and consisted in the rather rapid subcutaneous injection (usually in the thorax) of a considerable quantity of oxygen. The volume injected varied between 300 and 600 cc, but better results were obtained with the larger quantities as a rule. Repeated injections were without bad effects. In twenty-five cases the arrest of hemoptysis was immediate and definite. In six cases several repeated injections on consecutive days were necessary to obtain a good result. In seven cases the hemoptysis continued apparently unaffected. No other therapeutic procedures were used. The author does not speculate on the mechanism involved.

### Riforma Medica, Naples

50 1073 1108 (July 14) 1934

- Aneurysm of Pulmonary Artery. Case U. Borghetti—p. 1075  
\*Behavior of Cholesterolemia in Surgical Diseases of Infancy. V. Bernabeo—p. 1080

#### Cholesterolemia in Surgical Diseases of Infancy

Bernabeo determined the amount of cholesterol in the blood of infants before and after surgical intervention. He found that the cholesterolemia showed a marked increase two hours after ether anesthesia and operation in children having surgical lesions. This increase lasted twenty-four hours and then gave way to an appreciable decrease. By the fifth day the cholesterol had diminished to its rate before operation. Children subjected to longer and more traumatizing operations showed a lower rate of cholesterolemia five days after operation than before. In septic surgical lesions no rise in cholesterolemia was observed before operation except in cases of long duration, such as osteomyelitis and tuberculous lymphoma of the neck. In septic surgical lesions twenty-four hours after operation there was a slight hypercholesterolemia, which rose steadily for five days. This was partly attributable to the fall of the fever of the patients. After ten days the rate returned to normal. Children having surgical lesions but not evincing need of surgical intervention showed a higher rate of cholesterolemia than previous groups. The cholesterolemia decreased by the fifth day only to rise after the tenth and then to return to normal by the twentieth day. On the basis of these investigations the author concludes that all surgical lesions of infancy (traumatic, infective and suppurative) show a hypercholesterolemia whether they are operated on or treated by other than surgical intervention.

50 1109 1148 (July 21) 1934

- Physiopathologic Clinical Classification of Dyspnea. G. Lami—p. 1111  
\*Rapid Cantani Test in Syphilis. A. Versari—p. 1116  
Variations in Reticulocytes in Cancerous Patients After Roentgen Treatment. R. Lombardi—p. 1122  
Pneumothoracotomy in Treatment of Exudative Pleurisy. G. La Torre—p. 1126

**Rapid Cantani Test in Syphilis**—Versari states that three reagents are necessary for making the Cantani test. Reagent A consists of 56 Gm of powdered ox heart 300 cc of 95 per cent ethyl alcohol, 150 cc of 99.2 per cent ethyl alcohol and 25 Gm of cholesterol, reagent B consists of 20 Gm of egg lecithin 370 cc of 95 per cent ethyl alcohol and 375 cc

of pure phenol, reagent C consists of 225 cc of 95 per cent ethyl alcohol, 25 cc of pure phenol and 0.1 cc of a 5 per cent solution of petrolatum in benzine. One part of reagent A, one part of reagent B and 0.5 part of reagent C are placed in a tube with two parts of a 3 per cent solution of sodium chloride. The suspension obtained is turbid and tends to accumulate on the surface. It is shaken for seven minutes before using. In the meantime, eight times the original amount of sodium chloride solution is put in another tube and after seven minutes the contents of the second tube are poured into the first tube and thoroughly mixed. Twenty-five hundredths cubic centimeters of the mixture is poured into the tubes (generally five) containing the serum to be examined, the tubes are shaken at the rate of from 150 to 200 times per minute for four minutes, then left at rest for two minutes, and 2 cc of an 0.85 per cent solution of sodium chloride is added to each tube. Results are read immediately and again after from fifteen to twenty minutes. Negative serums show opalescence without flocculation, positive serums, clear flocculation, strongly positive serums, heavy flocculation with clarification of the liquid. The author found that in secondary syphilis with external manifestations the reaction is always positive compared with the Wassermann and Müller reactions. The Cantani test shows less positivity than the other reactions in cases of primary syphilis, of tertiary syphilis with latent or obscure manifestations, treated or not treated, and of nervous and congenital syphilis. In patients free from syphilis but presenting various acute or chronic diseases the Cantani reaction was always negative, whereas the Wassermann reaction gave 0.7 per cent nonspecific positive results and Müller's reaction 2.83 per cent. The Cantani reaction like the other tests always showed negative results in healthy persons. The author observed that the reaction had an index of specific sensitivity amounting to 52.38 per cent, while the Wassermann had 75.49 per cent and the Müller 80.02 per cent.

### Archivos de Neurobiologia, Madrid

13 563 1221 (July Dec.) 1934

- Neuronism or Reticularism. S. Ramon y Cajal—p. 579  
Introduction to Psychopathology of Mystic Experiences. J. Govines—p. 647  
Two Neurosurgical Cases. R. Bueno—p. 701  
Death and Sexuality. J. G. Riera—p. 723  
Serologic Reactions of Syphilis and Infantile Abnormality. C. Juvinos—p. 749  
\*New Albuminoid Reaction of Superposition in Cerebrospinal Fluid. M. Gorriz and P. Martinez—p. 761

**Albuminoid Reaction of Superposition in Cerebrospinal Fluid**—Gorriz and Martinez present the following technic. Two cubic centimeters of the reagent, consisting of 8 Gm of corrosive mercuric chloride, 1 Gm of sodium chloride, 2 Gm of trichloroacetic acid 20 cc of a 40 per cent solution of formaldehyde, 10 cc of petroleum ether and 170 cc of water is placed in hemolysis tubes of 100 by 10 mm. The corrosive mercuric chloride must be dissolved by heat, after which the sodium chloride is added. The remaining products are added in the order indicated, and the liquids when the mixture is already cold. Afterward it is filtered. The reagent keeps for months without protection from light. If after some time a slight precipitate is formed at the bottom, the solution is filtered again without losing any of its coagulating power. Two cubic centimeters of the reagent is carefully deposited in the bottom of the hemolysis tube and, on top of it, the cerebrospinal fluid so as not to produce a mixture of the two fluids. If there is a large amount of cerebrospinal fluid, 1 cc may be used, and if less, 0.5 cc is sufficient. In a few minutes a white ring of precipitated albumin forms at the zone of contact, increasing in size and showing its maximum in fifteen minutes. The use of the water bath shortens the time of the reaction. After about thirty minutes, or sooner if the fluid is normal and the reaction negative, the precipitation of the albumin coagulated in the ring begins in the form of fine granulations, which slowly fall to the bottom. The highly positive reactions were characterized by a flocculent veil, which took form after fifteen minutes and dropped to the bottom of the tube in about ninety minutes. When a large amount of albumin is present, the veil grows into a heavy mass which is immediately precipitated to the bottom. The reaction is sensitive and simple. All fluids from normal subjects showed a negative reaction. In pathologic cases involy

ing neurologic or psychic processes the test always evinced the greatest sensitivity to the slightest alterations in the amount of albumin or globulin. The reactions were generally positive in cases of schizophrasia, epilepsy and alcoholism.

### Klinische Wochenschrift, Berlin

- To What Extent Is Occurrence of Histamine in Organism Established? H Burchard —p 1073  
 \*Pregnancy Reaction According to Kapeller Adler —p 1076  
 \*Influence of Administration of Copper on Experimental Hyperthyroidism in Human Subjects H E Meyer —p 1079  
 \*Liver Therapy in Granulocytopenia B von Bonsdorff —p 1079  
 Synergistic Behavior of Vitamins B and D and Their Combined Influence on Blood Chemistry H J Jusatz and F Wenzel —p 1082  
 Attempts to Improve Therapeutic Action of Antitoxic Serums Scholz and H Schmidt —p 1084  
 Nature and Technic of Cystodiaphanoscopy E Klasten —p 1086  
 Chemistry of Muscles and Insulin S Grzyski —p 1089

**Pregnancy Reaction According to Kapeller-Adler** — Ohligmacher studied the pregnancy reaction that was first described by Kapeller-Adler (abstract in THE JOURNAL, April 14, p 1265). He found that the color shades indicating a reaction are not distinct and that they fade into one another so that in some cases differentiation of a positive and negative test is impossible. His studies were made on 237 specimens of urine. Of the 145 specimens from nonpregnant persons, 128 gave negative reactions, 10 gave positive ones and 7 gave doubtful ones. Among 76 pregnant women the reaction was positive in 44, doubtful in 2 and negative in 30. During the puerperium, 13 women gave negative and 3 positive reactions. Since the incorrect results were especially frequent during the early stages of pregnancy (11 negative and 13 positive), the author concludes that the reaction is of no value for the diagnosis of pregnancy. He admits that the reaction may be reliable for the detection of histidine in the urine, but histidine elimination is not a constant symptom of the beginning stages of pregnancy.

**Influence of Copper on Experimental Hyperthyroidism** — Meyer points out that Hesse was able to counteract thyroxine poisoning in dogs by means of the administration of copper. In mice, copper effected only a partial protection against thyroxine poisoning and in rabbits this detoxicating action of copper failed completely. These results, differing in the various species of animals, induced Meyer to investigate what effect the administration of copper has on thyroxine poisoning in human subjects. In four tests on himself, in the course of which copper and thyroxine were administered simultaneously, the behavior of the basal metabolism, of the pulse frequency, of the weight and of the serum lipase was watched. It was found that the oral administration of copper does not counteract the characteristic action of orally or intravenously administered thyroxine. The serum lipase of a human subject shows a considerable reduction following administration of thyroxine and this reduction is noticeable also in case of the simultaneous administration of copper.

**Liver Therapy in Granulocytopenia** — Von Bonsdorff describes two cases of granulocytopenia (agranulocytosis), in which the parenteral (intramuscular) administration of liver extract proved helpful. Both cases were so severe that their spontaneous cure must be considered highly improbable. In discussing the action mechanism of this treatment the author points out that, if liver treatment is employed in pernicious anemia the leukopenia characteristic for this disease is also favorably influenced, a process which indicates that the liver extract influences the leukopoietic apparatus. Moreover, the regeneration of the erythrocytes is often impaired in agranulocytopenia. The author points out that the literature reports nothing about the behavior of the reticulocytes in granulocytopenia. He assumes that a disturbance in the regeneration of the erythrocytes could be demonstrated much more frequently by him, the increase in the leukocyte values concurred with the reticulocytosis, a factor indicating a relation between leukopoiesis and erythropoiesis. Since observations on the two reported cases indicate that parenteral liver therapy is helpful in granulocytopenia the author advises the trial of this treatment on a larger material.

### Medizinische Klinik, Berlin

- 30 985 1016 (July 27) 1934 Partial Index  
 \*Causes of Heredity and Surgery A Ritter —p 985  
 \*Nancy E W Winter —p 990  
 \*Differential Diagnosis of Mammary Glands During and Outside of Pregnancy Medvei and P Wermer —p 992  
 Roentgen Therapy of Basophile Adenoma of Hypophysis C V During Childhood K. Hundemer —p 994  
 \*Does Gargling Accomplish Its Purpose? T von Liebermann —p 994

**Causes of Mammary Secretion** — Winter's investigations are concerned with the mammary secretion in general and not only with the lactation setting in after delivery. He calls attention to the mammary secretion occasionally setting in during amenorrhea or during phantom pregnancy. Observations in cases of phantom pregnancy indicate the importance of nervous factors. In summarizing his discussion the author states that a modification of the mammary function can be accomplished by the various hormones as well as by nervous factors, and in view of the close relation between vitamins and hormones, he assumes that vitamins likewise may play a part. In the establishment of the mammary secretion proper, however, the products of the anterior lobe of the hypophysis seem to be of primary importance. The hormone of the anterior hypophysis the sympathetic nervous system and the ovarian hormone form an inseparable unit. The author aimed to show that the changes taking place in mammary secretion are not produced by a single hormone but that a number of factors are necessary to produce them. He emphasizes that animal experiments and clinical observations must go hand in hand if a clear insight is to be gained into these processes.

**Diagnosis of Basophile Adenoma of Hypophysis** — Medvei and Wermer after commenting favorably on Cushing's paper on hypophyseal basophilism, describe briefly the most characteristic symptoms: obesity, skeletal changes, red striae particularly on the obese portions of the body, redness of the face, hypertrichosis that is noticeable particularly in the female patients, and dryness of the skin. Clinical examination often reveals high arterial pressure and diabetes mellitus. The function of the gonads is nearly always impaired in women there exist oligomenorrhea and amenorrhea, and in men the potency is impaired. The authors show that many of the symptoms observed in hypophyseal basophilism occur also in patients with tumor of the suprarenal cortex and in certain ovarian tumors that lead to changes in the sexual characteristics (granulosa cell tumors and arrhenoblastomas). The differentiation of these conditions may therefore present difficulties. In the differentiation between hypophyseal basophilism and tumors of the suprarenal cortex, changes in the external female genitalia may be helpful, for in case of tumor of the suprarenal cortex the genitalia often show a decided tendency to virilization, some times to the extent of a pseudohermaphroditism, while in hypophyseal basophilism there are no such changes in the external genitalia. The red striae and the skeletal changes, particularly osteoporosis, which are characteristic for hypophyseal basophilism, have been observed also in case of tumor of the suprarenal cortex, in which they seem to be the exception rather than the rule. In the aforementioned ovarian tumors obesity and diabetes mellitus are extremely rare, while hypertrichosis is much more pronounced than is the case in hypophyseal basophilism. The virilization reaches a high degree in these ovarian tumors and as a rule these gonadal tumors are palpable.

**Does Gargling Accomplish Its Purpose?** — Von Liebermann says that some investigators charge that gargles are superfluous because the fluid does not reach the posterior wall of the pharynx but only up to the line formed by the posterior rim of the soft palate. The author points out that his studies on gargling do not entirely agree with the criticism of gargling voiced by Zimanyi and others. Zimanyi's experiments have value in that they call attention to the inadequacy of superficial gargling and the desirability of gargling in such a manner that the fluid is almost swallowed and is prevented from entering the stomach only by the outstreaming air. Children should be treated with gargles only in exceptional cases. Gargles are also effective in loosening the mucus and thus facilitate its expectoration.

**Munchener medizinische Wochenschrift, Munich**  
81 1119 1156 (July 27) 1934 Partial Index

**CURRENT MEDICAL LITERATURE**

1031

- Roentgen Therapy of Skin Diseases F Bering —p 1119  
Prevention of Eclampsia H Siedentopf —p 1122  
Leukemoid Crisis Like Form of Remission of Pernicious Anemia  
Treated with Liver J T Brugsch and H Naegelsbach —p 1125  
Spontaneous Hypoglycemia K Wotzka —p 1127

**Prevention of Eclampsia**—Siedentopf emphasizes the significance of antepartum care in the prevention of eclampsia. He shows that regular examinations during pregnancy, particularly the control of the blood pressure and the watching for cerebral symptoms, make possible the early discovery of the women endangered by eclampsia. Conservative treatment as carried out by him consists in rest in bed, limitation of the fluid intake and a salt-free diet. In severe cases the patient receives only fruit for several days or the woman undergoes treatment by means of hunger or thirst. To facilitate the elimination of edema, magnesium sulphate is prescribed occasionally. If active treatment is resorted to, delivery is induced or accelerated. The author found that conservative treatment was effective in only slightly more than half of the cases in which it was employed. In the other cases, active treatment had to be resorted to on account of a threatening exacerbation of the symptoms. It was observed also that the conservative treatment influenced the various symptoms differently. The influence on the edemas was unusually favorable, for they nearly always disappeared rapidly. The renal symptoms reacted less promptly and the influence on the blood pressure was still more unreliable. The author rejects as unjustified the assertion that in active therapy the infant mortality is higher, for his own observations disclosed that the infant mortality was higher only when other complications existed, such as a narrow pelvis, heart disease and premature detachment of the placenta. He concludes that if in women with preeclampsia a trial with conservative measures proves unsuccessful active treatment should be instituted.

**Leukemoid Form of Remission of Pernicious Anemia**—Brugsch and Naegelsbach report the clinical history of a woman, aged 67, in whom a leukemoid blood crisis developed in the course of a pernicious anemia that had been subjected to liver therapy. A severe erythroblastic crisis and leukocytosis developed. The myelogenous leukocytes, up to the promyelocytes, showed toxic granulation and other pathologic changes. Myeloblasts likewise were observed. This appearance of pathologic leukocytes together with the increase in reticulocytes, with the normoblastic crisis and with the further increase in the enlarged erythrocytes in the peripheral blood, is interpreted as a sort of cleansing of the bone marrow with maturation and elimination of diseased blood elements, and consequently a process of restoration. In this process of restoration, the bone marrow and the reticulo-endothelial system proved quantitatively inadequate for the maturation, denudation and destruction of the diseased cells, and for this reason some of them were eliminated in the immature state. The authors call attention to the fact that these manifestations are of short duration and have a favorable prognosis for if liver therapy is continued they soon terminate with the appearance of normally granulated leukocytes and of erythrocytes of normal size.

**Wiener klinische Wochenschrift, Vienna**  
47 929 960 (July 27) 1934 Partial Index

- Anachoretic Manifestations in Inflammatory Processes A Ascoli —p 929  
Recent Results in Research on Sex Hormones A Butenandt —p 934  
Clinical and Experimental Experiences with Short Wave Therapy of Brain L Horn O Kauders and P Jiebesny —p 936  
Experiences with Lowenstein's Method for Culture of Tubercle Bacilli H H Kalbfleisch and Elisabeth Kalbfleisch —p 939  
Experiences with Injection Treatment of Hemorrhoids H Henninger —p 941  
Injury of Urinary Apparatus in Surgical Interventions on Colon and Rectum A Lerch —p 943  
Coincidence of Peptic Ulcer and Skin Diseases Also a Contribution to the Pathogenesis of Ulcer G Bergman —p 945  
Necessity of Prophylaxis of Rickets During First Year of Life W Leisgang —p 948

**Short Wave Therapy of Brain**—Horn and his associates relate observations on ten schizophrenic patients who were subjected to short wave therapy of the brain studies on the

brains of rabbits that were subjected to treatment with short waves, and the results of histologic examinations of the brains of two patients with dementia paralytica, who had died eight and ten months after short wave therapy had been applied to their brains. The authors observed deep changes in the brain and its meninges. They admit that the clinical results of short wave therapy are still unsatisfactory in patients with schizophrenia as well as in those with dementia paralytica, but they do not deny that another dosage, perhaps irradiations at greater intervals, may eventually produce more favorable results. They emphasize that the rules laid down by Liebesny for short wave therapy must be given attention. Liebesny maintains that, in order to obtain a uniform depth action the condenser plates should be from 6 to 10 cm away from the head and not 1 or 2 cm, as was the case in most of the experiments. This rule must be followed to influence the deeper portions of the brain. Moreover, an increase in the temperature of the brain should be avoided. This may be possible by reducing the dosage.

**Injection Treatment of Hemorrhoids**—Two or three days before the injection treatment, Henninger gives a laxative, and on the evening and morning preceding the injection an enema and sitz bath are given. After careful cleansing with corrosive mercuric chloride, a 20 per cent solution of cocaine is applied as a surface anesthetic and left for from ten to fifteen minutes. Then, following renewed cleansing with corrosive mercuric chloride, the suction bell is applied to the hemorrhoids and injection is begun on the innermost row of hemorrhoids and then proceeds to the more outward ones. Up to eight nodules can be obliterated in one session. For injection into the subcutaneous nodules, into nodules that have undergone a change of some kind and into ordinary prolapses of the mucous membrane, the author recommends a dextrose-glycerin solution, for injection into nodules that are covered with mucous membrane, he recommends the same solution or the solution with an addition of 4 per cent quinine lactate. The prescription for the dextrose-glycerin solution reads: Dextrose 20 parts, bidistilled glycerin (plus 10 per cent distilled water) sufficient to make 100. The one with the quinine addition reads the same except that quinine lactate 4 parts is added. It is best to use a 5 cc syringe and inject the nodules are replaced with the aid of gauze to which petrolatum has been applied. Then the patient rests for fifteen minutes, is given 15 drops of tincture of opium and is told to take from 10 to 15 drops of tincture of opium three times daily on the following day or two, to avoid defecation. To prevent prolapse of the injected nodules, the patient on the day of the treatment should avoid sitting. On the day following the injection is generally painless. During the first week defecation should be followed by a sitz bath and the application of a petrolatum preparation. It is necessary to reexamine the patient on the fourth or sixth day to avoid postinfectious necrosis. If all precautions are taken, the incidence of this complication which is practically less than 1 per cent, can be reduced to less than 1 per cent. The permanent results of this treatment are favorable. The author discusses the indications for the injection treatment. If prolapse of the mucous membrane is caused by prolapsed hemorrhoids, injection counteracts it, but in case of a large prolapse, injection is usually ineffective. Injection is contraindicated in case of acute inflammation of a nodule and also in prolonged incarceration, but, if incarceration can be counteracted before the skin or mucous membrane has undergone severe changes, injection can be done after a day or two. The injection is most effective in case of bleeding nodules and also in chronically inflamed nodules.

**Peptic Ulcer and Skin Diseases**—Bergman says that gastric ulcer is not a local disorder but the manifestation of a systemic disease. Studies in 100 cases convinced him that itching skin diseases are a frequent occurrence in patients with ulcers of the stomach or the intestine. The predisposition to catarrhs, which characterizes the mucous membranes of patients with vasoneurosis and thus also of the ulcer patients involves likewise the skin of these patients. In calling attention to a certain parallelism between changes on the external and internal (gastro-intestinal tract) body surfaces the author

suggests the possibility of a similarity between ulcer gastritis and certain skin diseases. He shows that, if the gastritis of ulcer is considered an "entodermatosis," several obscure factors in the pathogenesis of ulcer become clearer.

### Zentralblatt für Gynäkologie, Leipzig

58 1745 1808 (July 28) 1934

- Permanent Results of Sturmdorf's Method for Plastic Repair of Uterine Cervix L. Waldeyer —p 1746  
Slide Rule for Calculation of Date of Delivery A. Gengenbach —p 1753  
\*Ammonia in Eclampsia J. B. Llusia —p 1754  
Rheumatic Neuritic Neuralgic Sympathetic Syndrome M. Rodecurel —p 1771  
New Methods of Trichomonis Therapy A. Hochloff —p 1775  
Experiences with Belladonna Suppositories in Obstetrics O. Weinstock —p 1776

**Ammonia in Eclampsia**—Llusia states that pregnancy is characterized by a slight hyperammonemia, which is more pronounced in preeclampsia and still more in eclampsia and is greatest during the convulsions. The uremia is reduced to the same extent as the ammonia is increased, so that the quotient ammonia-urea is greater. After delivery the ammonia content decreases and the urea content increases to normal values. In cases of puerperal eclampsia, however, these values do not change until after the attacks of convulsions cease. The cause of the hyperammonemia is the functional inadequacy of the liver, but there is evidently no renal retention of ammonia. Pregnancy is characterized by a slight hyperacidity, which increases during preeclampsia and eclampsia. The mother substance of ammonia is decreased during preeclampsia and eclampsia, so that the potential ammonia values are smaller and nearly all the ammonia exists in the actual state. A considerable portion of ammonia enters the fetal circulation and is changed by the fetus into urea. The placenta does not take part in the ammonia regulation of the fetal circulation, and in the ammonia formation it seems likewise of no significance. In view of the degree of concentration of the ammonia in the blood as well as in the cerebrospinal fluid which exists during the eclamptic convulsions, it may be assumed that the toxic action of the ammonia is responsible for the convulsions. The other symptoms of eclampsia, however, seem to have no connection with the quantities of ammonia.

### Finska Lakaresällskapets Handlingar, Helsingfors

76 587 684 (July) 1934

- \*Lymphogranulomatosis Clinical Observations E. Adlercreutz —p 587

**Lymphogranulomatosis**—Adlercreutz reports thirty cases (seventeen in men and thirteen in women) of histologically examined lymphogranulomatosis treated from 1915 to 1933. Tuberculosis was present in five cases. In twenty cases the onset of the disorder was indicated by swelling of the lymph nodes, in seven the swelling seems to have appeared in a later stage, and in three the lymphoma was not observed by the patient before admission. Pruritus occurred in nine cases and pigmentation of the skin in six. Two cases presented marked symptoms from the spinal cord. There were abdominal pain and diarrhea in eleven, enlarged abdominal lymph nodes in six, splenomegaly in nineteen and hepatomegaly in seventeen. Before the beginning of treatment on admission, the red blood picture was normal in six cases, there was slight anemia in nineteen and grave hypochromic anemia in five. The sedimentation reaction, done in nineteen cases, showed increased values, often marked. Leukocytosis, usually moderate, was found in nineteen cases, neutrophilia in twenty, eosinophilia in only one and monocytosis in two. Lymphopenia appeared in twenty-four cases. The lymphogranulomatosis cases are classified on the basis of temperature into cases showing slow relatively 'benign' progression and cases showing rapid more malignant development. Thirteen of these cases, mostly in older persons, presented an afebrile or subfebrile course, and seventeen, mainly in younger persons, greatly increased temperature, usually of Pel-Ebstein type. The 'cardinal symptoms' of the disease being more often represented in the second group. The total duration of the disorder in eighteen cases showed a maximum of eight years in one instance, only four patients lived more than three years. Complications were frequent. Certain diagnosis can be made only on histologic examination of excised material. Roentgen treatment was given in all but

one case. The anemia was seldom affected by the therapy, the total number of leukocytes was reduced after each series of irradiations, but only slight changes resulted in the relative frequency of the different white blood elements.

### Hospitalstidende, Copenhagen

77 821 832 (July 10) 1934

- \*II Experimental Investigations on Effect of Corpus Luteum Extract on Mammary of Infantile Guinea Pigs E. Dahl Iversen —p 821

**Effect of Corpus Luteum Extract on Mammary of Infantile Guinea-Pigs**—Dahl-Iversen found that, in infantile uncastrated female guinea-pigs, corpus luteum extract produces a physiologic growth of the mammary glands, which is however, slight in comparison to that caused by estrogenic substance under similar conditions. The secretion noted in the glandular tubes after the administration of corpus luteum extract, as after the administration of estrogenic substance, is thought possibly to depend on an admixture of estrogenic substance in the corpus luteum extract.

### Norsk Magasin for Lægevidenskapen, Oslo

95 905 1000 (Aug.) 1934

- \*Acute Polyarthrits K. Motzfeldt —p 905  
Excessive Emphysema with Fatal Spontaneous Pneumothorax J. D. Arntzen —p 919  
Auricular Fibrillation After Exposure to Electric Current J. D. Arntzen —p 922  
Cleidocranial Dysostosis O. K. Evensen —p 926  
Spontaneous Rupture of Aorta O. K. Evensen —p 934  
\*The Heart in Diabetes A. Klingenberg —p 940  
Experiences with Cultivation of Tubercle Bacilli on Hohn's Substrate P. M. Holst —p 958  
Traumatic Lesion of the Brain G. H. Monrad Krohn —p 961  
Results of Treatment of Fractures of Lower Extremities in Inherited Hospital L. E. Volodarsky —p 967  
Histologic Observations in Tubal Pregnancy A. Kristoff —p 971  
\*Second Attack of Poliomyelitis After Twenty Four Years M. Tesdal —p 978

**Acute Polyarthrits**—Motzfeldt found that, of 10,000 patients treated in the medical division of Aker Hospital from 1924 to 1933, 615 had rheumatic diseases, 140 of these, or 14 per cent of the entire number, suffered from rheumatic fever. There was a history of previous rheumatic fever in forty-eight cases, or 34 per cent. Complicating recent endocarditis was found in twenty-two, or 157 per cent. Pericarditis occurred only four times and was responsible for the only fatal case. The author states that in sixty-two cases there was a direct, undoubted connection between tonsillitis and the rheumatic fever. In ten the disorder followed a catarrhal infection without tonsillitis, and in about half of the cases the rheumatic fever was primary. Six patients had previously been tonsillectomized. Control of all cases by the sedimentation reaction was introduced in 1926. In 80 per cent of the ninety-three patients treated since then the sedimentation reaction was more than 50, frequently a sedimentation reaction of more than 100 was seen in patients with normal rectal temperature. With normal sedimentation values rheumatic fever may with certainty be excluded. Since 1926 the hospital stay has been lengthened to an average of nine weeks instead of six, as formerly. Rest in bed until all signs of activity have disappeared is regarded as the most important part of the treatment. In most cases salicylate is given the daily dose as a rule not exceeding 5 Gm. No specific action is ascribed to salicylates.

**The Heart in Diabetes**—Electrographic studies in fifty-five diabetic cases treated during the last two years showed normal electrograms in only twelve. During treatment of the diabetes, fourteen readings became normal and six approached the normal. Of ten patients admitted in diabetic coma, only one had a normal electrocardiogram. Klingenberg concludes that in diabetes with pathologic metabolism definite signs of myocardiopathy are often seen and the best therapy of the diabetic heart is treatment of the diabetes.

**Second Attack of Poliomyelitis After Twenty-Four Years**—Tesdal says that the first attack at the age of 14 resulted in paralysis of the lower extremities, the second, at 40, was followed by paralysis of the arms. The diagnosis was each time supported by the typical course and the results of examination of the spinal fluid and was verified by a neurologist. Twelve certain cases of second poliomyelitis infection have been reported in the literature.

